

# *Indian Food Anthropology* *And* *The Eat Right Movement*

Volume - II

Edited by  
***Vanisha Nambiar***



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**Indian Food Anthropology**  
**And**  
**The Eat Right Movement**

**Volume II**



# **Indian Food Anthropology**

## **And**

### **The Eat Right Movement**

**Volume II**

**Edited by**

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# **Indian Food Anthropology And The Eat Right Movement**

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# **Dedicated to the people of India**

**- Vanisha Nambiar**

*Cover page paintings by Roshni Vakilna, Megha Naik, and Dr. Rujuta Giri*

## PREFACE

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The second volume of the book titled “Indian Food Anthropology and the Eat Right Movement” contains 25 chapters of regional foods and is in tandem with the current National movement of “Be Vocal for Local” and covers Indian food habits and highlights the best practices from North India, North East India and East and Southeast India.

Both Volume 1 and 2 together will be the first ever document on Indian Food Anthropology with cross cultural regional dietary patterns and aims to orient the readers about the regional food choices (‘EMIC’ views) and attempts to corroborate with the scientific “ETIC views” which are the pillars for healthy diets and EAT RIGHT MOVEMENT.

These Edited volumes are a result of contribution from over 60 academicians, nutritionists, dieticians, sociologists, botanists, anthropologists and historians across India.

The book will be very useful for the Indian as well as International students, academicians, practicing dieticians, nutritionists, public health specialists, anthropologists, medical doctors, health care workers, community development professionals, programmers and international agencies.

It should be of interest to politicians, policy makers, bureaucrats, economists and agriculture scientists and can be a reference material for travel and tourism industry.

This book is a culmination of work following a National Webinar on “Indian Food Anthropology-A Cross Cultural Empowerment Symposium for Health Practitioners” and the first Volume of the book covers the Western, South Western, South India and Central Indian food habits and local foods and cuisines which can be promoted in the Eat Right Movement.

This is my fifth book in the series of Public Health Nutrition (previous books titles are “Textbook on Food Contamination and Safety” (2004); “Food, Nutrition and Health” (*Ahaar, Pooshan Ane Swastya, in Gujarati*) (2006); “Inter-Sectoral Approaches to Improve the Mid-Day Meal Program of India” (2013); “Mid-day meal programme: present, past, future” (2014).

Happy reading and feedback awaited!

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February 2021



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Food is one of the most important basic needs of human life. As the human civilization progressed, various ways and means were invented for arranging the food for consumption. But food has never been governed solely by nutrition. Food is also shared and an expression of altruism among people. All major festivals and celebrations around the world are food centred. As everyone must eat, what we eat becomes a powerful symbol of who we are.

Historians look at food as one of the most important elements of cultures, reflecting the social and economic structures of society. Prehistorians tried to explore this dimension by linking food with evolutionary perspectives and issues of migration/diffusion etc. Anthropology and history offer us the opportunity to explore food historically and culturally.

Indian cuisine is probably the oldest, dates back over 5000 years. Each region has its own traditions, religions and culture that influence its food. The diverse climate in the region, ranging from deep tropical to alpine, has also helped considerably broaden the set of ingredients readily available. Later, invasions from Central Asia, Arabia and Persia and others had a deep and fundamental effect on Indian cooking.

Islamic rule introduced rich gravies, pilafs/biryani and non-vegetarian fare such as kebabs, resulting in Mughlai cuisine, as well as such fruits as apricots, melons, peaches, and plums. The Portuguese and British introduced foods such as squash as well as cooking techniques like baking.

The common thread throughout the centuries remains the distinct mixing of spices that invariably give Indian cuisine its flavour and aroma. The many similarities between the culinary regions of India are highlighted with an exquisite use of spices and flavourings.

But recent observations show a drastic change in the eating habits of the Indians due to the transition in their lifestyles. In the last few decades, both developed and

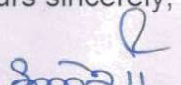
developing countries have been experiencing many changes in their ways of living which has led to an increased demand for convenience and processed foods. Food like pizza, burger, potato fries have gained popularity in India but has resulted in a host of non-communicable diseases as well. This increase in demand of processed foods has made people forget to enjoy fresh, local, seasonal foods.

Over the past 4 years, a peoples' movement for safer and healthier food and sustainable diets is shaping up in India. This movement, the Eat right movement has the vision to transform the country's food environment through a systems approach. Mass mobilization to nudge citizens to eat right and social and behavioural change by adopting Triple-E strategy (Engage, Excite and Enable) for consumer empowerment has been adopted. People are encouraged to shift largely to local, regional, seasonal, plant-based, whole-foods. Traditional Indian food, infused by the ancient Indian wisdom of Ayurveda is being popularised.

The nutritional importance of traditional foods needs to be recognized and popularized. Traditional food products are socially, culturally, and economically important. Traditional foods play an important role in ensuring food security and hold a tremendous potential in combating malnutrition to a significant extent.

The book beautifully captures Indian Food Anthropology and the Eat Right Movement with chapters written from experts in the area of food and nutrition. This would help in achieving the vision of creating awareness about our rich traditional foods and its importance.

Yours sincerely,

  
(Inoshi Sharma)

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Director



## Prologue

It gives me great pleasure to introduce this book on Food anthropology and Eat right movement, which is very timely in the present context where the country is in epidemiological transition with some reduction in indicators of undernutrition with concurrent significant increase of overweight-obesity and their consequences due to altered dietary and activity patterns. Anthropological study of food not only deals with historical, ethnic and cultural perspectives but also with social as well as cross cultural aspects as to how migration and settlements have brought changes in agricultural, food and dietary practices. This book also gives a historical background on evolution of traditional diets and their importance with regards to culture and ethnicity. In addition, this is an excellent compilation of various regional diets, recipes, summary of best practices across India along with their nutritional significance by leading experts in the field of nutrition and dietetics. Since India is a country with diverse cultural and dietary practices this book makes readers aware of several traditional dietary practices which are unknown to majority and are also of much use in planning a diversified diets which are both nutritious and also acceptable to all.

It is the need of the hour that we document the diverse dietary practices that are prevalent in India and at the same time attempt to bring them into practice for the health and wellbeing of the population. Majority of present day health problems or disease pattern can be attributed to faulty or ill balanced diets consisting of convenient foods. The different food grains, fruits and vegetables which are locally available in different seasons are good for health when consumed fresh, and also their accessibility and availability will not be a major concern.

I appreciate the efforts taken by the expert group to bring out this book to promote and popularise the traditional age old Indian culinary and dietary practices which would help in achieving optimal health for all. Coming from the prestigious MS University, Baroda, I wish that this book encourages students in the field of nutrition science to take up research and demonstrate traditional food role in nutrition security and health in India.

I wish Dr. Vanisha Nambiar and her partners in this endeavour a great success with this book and also look forward to similar efforts in future which would be useful to all stakeholders like researchers, academicians, dieticians as well as common people.

(Hemalatha, R)



*This book is inspired by my mother, my all-time supporter, a living legend, and a true practitioner of healthy Indian Foods and the Eat Right Movement*

## ACKNOWLEDGMENTS

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*“At times, our own light goes out and is rekindled by a spark from another person. Each of us has cause to think with deep gratitude of those who have lighted the flame within us.”*

*– Albert Schweitzer*

I would like to use this opportunity to acknowledge and extend my heartfelt gratitude to all those who have made the completion of both these edited volumes possible and rendered their wholesome support either directly or indirectly.

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Words fail to acknowledge the constant support, inspiration, and belief from my mother that I can achieve the completion of this magnanimous task which was initiated during the pandemic lockdown of COVID-19. Above all, I am thankful to my family and children, and the almighty for giving me strength and showing me light during this journey.

Vanisha Nambiar  
February 2021, Vadodara, India

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Foreword by Director NIN

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# THE RECOMMENDED DIETARY ALLOWANCES FOR INDIANS AND THE EAT RIGHT MOVEMENT- POSSIBLE SOLUTIONS

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Today's globalized diets are rich in trans fat and sugar and lack in vegetables, fruits, whole grains, legumes, nuts, and good quality fats. This paradigm shift in the nutritional status of the population is because of several issues such as lack of awareness, food availability, food accessibility, food affordability, poor utilization, and poor stability. Eating the right amount and quality of food is associated with many factors, and multispectral, multilevel action plans at primary, secondary, and tertiary levels are needed to achieve substantial global shifts in dietary patterns. Thus, we need to focus now on from just planning and recommending healthy diets to transform and strengthening the entire food system.

It is well known that the practice of healthy diets begins early in life. The fetal origins of health and disease (FOHAD) studies have indicated that undernutrition in utero may set the pace for diet-related chronic diseases later in life. Maternal suboptimal nutrition during pregnancy results in intrauterine growth restriction (IUGR) and result in newborns with low birth weight. Intrauterine growth restriction is also associated with increased perinatal morbidity and mortality, and the new-borns with a low birth weight have increased risk for development of adult metabolic syndrome resulting in increased health costs and also increased disability-adjusted life years (DALYs). Maternal nutrition, which starts from adolescence, preconception, and pregnancy, has a pivotal role in the regulation of placental-fetal development and thereby affects the lifelong health of the women and productivity of the child. An adequate and sustainable maternal nutrient supply has a critical role in fetal growth and development. Simple measures such as early initiation of breastfeeding within 1 hour of birth, exclusive breastfeeding for 6 months, and timely and appropriate, adequate quality and quantity of complementary feeding promotes healthy growth and improves cognitive development (Nambiar and Khanna, 2017, 2018).

Therefore, nutrition programming is important from the early years. The recent guideline provided by the National Institute of Nutrition, India, has highlighted that the diet for a population should be

planned based on the estimated average requirement (EAR), and not the Recommended Dietary Allowances (RDA) of the nutrients (NIN, 2020). The new requirement includes the EAR, RDA, and Tolerable Upper Limit (TUL). These guidelines are for an individual and aim to minimize the risk of inadequate intake of the nutrient. However, a large section of the Indian community does not understand the calculations of RDA, nor do they understand the nutrients. What they understand is food!

The value chain in the Indian food system is gigantic and diverse and needs an in-depth understanding of food anthropology. The foremost reasons are its geography, history, cultivation culture, and traditions. India is a land of different religions and ethos and the land of varied physiographic regions which include the snow-clad Himalayan Mountains, the Peninsular plateau, the entwining Western and Eastern Ghats, the fertile river beds and the Indo-Gangetic Plains, the Coastal Plains which cover three fourth of the country, the massive Thar Desert, and the large and small Islands such as the Andaman and Nicobar, the Lakshadweep islands.

India is a varied nation with many dissimilar cultures and each region's gastronomy is a result of many reasons including its political and geographical history. Thus understanding these resilient food systems (EMIC views) of the communities which have thrived in this land, is very important before giving any advice (ETIC views) to them. Understanding the population in terms of their ethnography will enable both the health as well as policy planners and executioners to understand the etiology of any disease and the solutions in terms of diet plans or regional social security nets made by the Government of India will be more sustainable.

The concept of a Food System requires understanding the origins of the food and the entire value chain before it reaches the mouth of the individual. It also involves understanding the general characteristics regarding usage, ingredient combinations, and food preparation including food cultivation, food production, cooking process, and food consumption.

Indian food systems are not static and are transitioning quickly. The ongoing pandemic has revealed the power of immunity and homemade safe and nutritious local food for survival. Thus, understanding the environment, improving food access, and respecting the traditional local healthy food choices is important and supporting mechanisms need to be provided for the same.

We need to understand the food before we talk about nutrition and recommended allowances of nutrients; food production process, its storage, preservation, or transport including its carbon footprints. We need to dwell upon the ancient eating habits and cultural preferences and retain the best practices before we can impose the consumption of food provided by the social security nets of the Government.

Confused between their culture, traditions, and local foods and the food delivered by the Government Programs and policies under the numerous social security nets including the media campaigns of processed and ready to eat packaged foods, a common Indian suffers heavily in maintaining its food and nutrition security which is reflected by his/her nutritional status and this is echoed in the recent data released by the NFHS-5 (2019-20).

This book on Indian Food Anthropology and the Eat Right Movement is based on the principle that food, anthropology (culture), agriculture, and health are all interconnected. For Indians, food is a mark

of their culture and should not be lost simply by following Western diets. Indian diets have been resilient, have fed and raised many warriors and healthy communities over decades, and need to be decoded and showcased to the world. It is imperative to learn and promote the Indian food anthropology of food which understands and connects to the local people of India in terms of their ethnographic and historical perspective and then advice about their contemporary social issues in food production and consumption systems. An in-depth study of the analysis of food of each community of India along with exhaustive scrutiny of social, ecological, and biological aspects, and identifying and empowering the communities by what is best within them is necessary to make India healthy.

A systems-based approach is needed to address the problem of food insecurity in India and a sustainable food system can be created only by understanding the economic, social, and environmental bases of each region of India which is vastly different from each other. The Food Safety and Standards Authority of India (FSSAI), has initiated the Eat Right India movement which is based on three key themes, *'if it's not safe, it's not food'* (safe food), *'food should not only serve the palate but is also meant for body and mind'* (healthy diets), and *food has to be good both for people and the planet'* (sustainable diets) (FSSAI, 2020). It focuses on a robust food regulatory system including self-compliance of food businesses and capacity building of the small and big business operators. It talks about changing food environments and preventive healthcare and aims to provide safe, healthy, nutritious, and sustainable diets to all.

However, for a mass mobilization of the Eat Right movement, understanding and respecting local foods and cuisines is important. Only when we comprehend the diverse diets of North and South India, we recognize the health options of the Western and East and North-Eastern India, only when we promote the apprehend the robust food systems of the tribal and lesser-known regional diets of India, mass mobilization can materialize.

We have seen disparities in this country despite so much progress in the gross domestic product (GDP).

- Why is it that with brains of over 130 million population, we have so much inequality?
- Why should Indians be deficient in proteins and why is there spatial and socio-economic inequality, food deprivation, and social exclusions, especially in areas of low purchasing power?
- Why is it that we still have constrained access to health care or food in this country even after 74 years of Independence?
- India has had numerous developmental programs and policies for improving the health and nutritional status of its most vulnerable population, so why is there stagnation?

We now need to:-

- Empower the communities to value their local foods and preserve their culture and traditions which have several indigenous foods that are energy-rich (carbohydrates and fats), including whole grain cereals, local millets, vegetable oils, ghee, nuts and oilseeds, and sugars; body-building foods (proteins) such as local beans and pulses, local nuts and oilseeds, milk and milk products, meat,

fish, poultry and even insects (entomophagy) and the protective foods (vitamins and minerals) such as the local native, green leafy vegetables, other vegetables, fruits, eggs, milk and milk products and flesh foods.

- We need to learn and adapt their food habits which have been a pillar of their strength and survival.
- Each state of India has several regional tribes and communities in India with unique foods and traditions and may provide food sovereignty and food and nutrition security benefits.
- Thus, it is high time that food anthropology, culture, food security, agriculture, nutrition, and health are not dealt with in isolation.

The following chapters of North India, North East India, East, and southeast India document the ethnography in terms of food habits and culture and may provide many solutions for Indians towards meeting their recommended daily allowances.

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# DIVERSITY OF FOOD CULTURE IN JAMMU AND KASHMIR AND ITS IMPACT ON NUTRITION AND HEALTH OF PEOPLE

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## ABSTRACT

The unique food culture of the newly formed Union Territory of India, Jammu & Kashmir is described in this chapter. Jammu food is influenced by Hinduism and is vegetarian and consists of several types of dals as a protein source. Kashmir food is mainly non-vegetarian food and influenced by several traders and invaders from Islam dominated regions who were meat-eaters. However, there are very healthy foods and items from the food culture of Kashmir and Jammu which can be carried forward for promotion in the Eat Right Movement of India.

Keywords: Food culture, Jammu, Kashmir

## INTRODUCTION

The newly formed Union Territory of India, Jammu & Kashmir situated in the Northern part of India, has a unique and distinct cultural ethos and is enriched with the boundless beauty of snow-clad mountains, lakes, forests, rivers, and springs. The local language in Jammu is *Dogri* and while *Kashmiri* is spoken in Kashmir.

## ETHNOGRAPHY OF KASHMIR

Kashmir is the northernmost geographical region of the Indian subcontinent located in the Foothills of the Himalayas is one of the most beautiful places in the world. Kashmir derived its name from Kashyapa *Rishi* and the Meru *parvat*, the sacred mountain of Kashyapa *Rishi*, and is blessed by rivers, valleys, lakes, graceful trees, flowers, and snow-capped mountains. Kashmiri *Pandits* are decedents of Kashyapa *Rishi*, others belonging to Islam came later. Kashmir came in the range of the Himalayas which was known for *Rishi*'s to do their *Tapasya*, also known as "*Rishi Vaar*" i.e. place of rishis (Sivaswamy Gangadhar, Former Editor and publisher Literacy Mission periodical (1982-1992). Kashmir is heavily influenced by Islam after the Muslim influx in the valley.



The current culture of Kashmir is a diverse blend and highly influenced by Mughals, Persian as well as Central Asian cultures, Hinduism, and Buddhism. At present, the majority of the people in Kashmir are Kashmiri Muslims, followed by a few Sikhs and a meager number of Pand its. The majority of the Kashmiri Pand left the valley during the mass exodus in 1990. The language spoken in Kashmir are *Kashmiri* and *Urdu*.

### **AGRICULTURAL CROPS and LOCAL GROWN FOODS OF KASHMIR**

Rice is the major crop of Kashmir followed by maize, barley, and wheat. Rice is the staple food in Kashmir and varieties of rice such as *Kamad* and *Mushk Budji* are traditionally served during weddings and special occasions. Red Rice variety 'zag' is used for the preparations of snacks like 'vazul bate' for pregnant ladies owing to their high nutritive value. The colour of the outer layer (pericarp) can range from black/purple to red and brownish to white.

Oilseeds such as rapeseed, mustard, linseed, sesame, cottonseed are cultivated in Kashmir in Srinagar and Anantnag areas. Legumes such as kidney beans, black beans, rajma (Kashmiri, Chitra), Kashmiri moong (green gram) are common in the Kashmir valley. Spring and summer vegetables are beans, chilies, collard greens, coriander, cucumber, garlic, lettuce, radish (small red and white varieties), spring onion, cabbage, cauliflower, bottle gourd, pumpkin, carrots, beetroots, tomatoes, *kadam* (Knol- Khol), Kashmiri spinach (Kashmir palak), *Sag* (Kale), *vastaque* (red colour sag) and the pinkish-purple coloured brinjal. The locals also dry these vegetables and store them for the winter season. Lotus Stem (*Nand ru*) is a favorite item of Kashmiris.

Local fruits of Kashmir include apples, pears, peaches, cherries, plums, apricots, almonds, and walnut. Varieties of **Apples of Kashmir** include Golden Delicious, Red Gold, Granny Smith, Red Fuji, and Crab Apple.

**Kashmiri Red-Chillies** which are smaller, rounder, and less pungent but give a vibrant red colour, aromatic fragrance are an integral part of Kashmiri cuisine.

**Saffron** is another cash crop and cultivated in Pampore region of Pulwama district in Kashmir. District Pulwama is commonly known as the "Saffron bowl of Kashmir" followed by Budgam, Srinagar, and Kistwar districts. Saffron is thus part of the cultural heritage of the Region, associated with the famous Kashmiri Cuisine, medicinal values, and the rich heritage of Kashmir.

### **FISH and MUTTON**

Kashmir is surrounded by lakes and rivers and home to many types of fish. Trout fish is the most popular which have varieties such as the rainbow trout and German trout fishes. Fish is included very often in the day to day meals of the Kashmiris and consumed as fresh, dry, or smoked fish.

Kashmir Valley holds the distinction in consuming Mutton. Kashmiris are voracious meat-eaters as compared to the other Indian States. More than 80% of the populations here are non-vegetarians.

### **FOOD CULTURE OF KASHMIRIS**

Kashmiri Cuisine is mainly composed of non-vegetarian food but several vegetarian dishes are also

included. Kashmiri food is loaded with spices such as cardamom, fennel, ginger, garlic, cinnamon, cloves which contribute to the authentic taste of Kashmiri delicacies.

Rice is the staple food of Kashmiris since ancient times. Kashmiri consume meat voraciously despite being Brahmins, most of the Hindus are meat-eaters.

## WAZWAN

*Wazwan* is a multicourse Kashmiri meal that includes 36 dishes of mutton or beef, chicken, fruits, and vegetables and is a formal meal prepared and served on special occasions such as Kashmiri Weddings and other important ceremonial occasions. The origin of the Kashmiri ethnic cuisine-*Wazwan*-dates back to the 14<sup>th</sup> century when Mongol ruler Timur invaded India in 1348, who brought skilled persons of various professions including cooks from Samarkand to Kashmir. These skilled cooks called *Wazas* in the local language, cooked meat into various dishes and classified them according to shape and gravies used for their preparation.

The basic prerequisite of a *Wazwan* is that freshly slaughtered meat which is then sorted out for different types of Dishes by the *Vasta Waza* (head chef) with the assistance of junior chefs or *wazas* or chefs. The ribcage part of the meat is used to make *tabak maaz*, whereas boneless meat is ground and is used for making *kabab*, *rista* and *gostaba*.

The seven important meat-based dishes of *Wazwan* are *kabab*, *tabak maaz*, *aab gosh*, *rogan josh*, *yakni*, *rista* and *gostaba*. *Wazwan* dishes are traditionally prepared in copper utensils over simmering fires of wood, obtained from old fruit trees, and also served in large copper plates (*tremies*) with rice. Traditionally, four persons take food in each *tremie*, where dishes are served in a particular sequence.

Fried chicken, *kabab*, and *tabak maz* are garnished on the rice contained in a *tremie* before the meal is presented. The rest of the preparations are served in a sequence and the *goshtaba* is served at the end. Spices such as *shonth* (dried ginger), *dalchini* (cinnamon), *elaichi* (cardamom), *laung* (cloves), *badyan* (fennel) ,, etc. are used in the *Wazwan* to impart a special taste and aroma.

The important and essential *Wazwan* dishes include ***Kabab*** which is made up of fleshy meat that is minced on stone with 'tukni' - a wooden hammer. Eggs are added along with spices blends for binding purposes. This minced meat is wrapped around an iron rod of 20 to 20 cm in length for cooking by charbroiling in a *tandoor*. This is one of the favorite delicacies of Kashmiris, they serve this with tea also for guests. ***Tabak Maaz*** is made from the rich protein of sheep meat with spices (cardamom, fennel, dried ginger) and desi ghee. The meat pieces are cooked first with spices (bones are removed), shallow fried in desi ghee under low flame for a long period to give products a soft but crispy texture. ***Aab Gosh*** dish is made from the vertebral column of lamb/mutton which is cooked in milk with spices and condiments (ginger, garlic paste, aniseed powder, green cardamom, and onions). This is a mild dish with tender and juicy meat cooked in milk without any hot spices.

***Rogan Josh*** is a red-hot lamb or mutton meat product cooked in *rogan* (oil or fat) at high heat (*josh*). Use of Kashmiri red chillies makes it slightly hot and the red colour of the dish is attributed to the dried cockscomb flowers (*mawual or velvet flowers*). ***Rista*** is made with pounded meatballs shaped manually from the meat emulsion and cooked in a gravy. It is made by the continuous pounding of meat

along with mutton fat, salt, and spices using indigenous equipment. The gravy for *rista* is made from water, red chilli extract, hydrogenated vegetable oil, and ground specie- mixture and condiments. *Yakni* is also a meat dish where meat pieces (5-6cm) are cooked in boiling water for about 20 minutes and then separated from the broth. *Yakni* is prepared by homogenizing curd at high heat with continuous stirring until boiling. Salt, spices condiments, ghee mixed with the curd and boiled till a desired consistency of *yakni* was obtained. The cooked meat pieces are added to the *yakni* and boiled further to get a good consistency, sprinkled with mint powder, and served hot.

*Goshtalais* is made from meat emulsion with added fat, salt, cumin, and cardamom seeds cooked in curd. It is prepared from pounded meat emulsion and made into meatballs cooked in the gravy made from curd water, spices, and condiments. In the series of different dishes is served in *Wazwan*, *goshtaba* is the last one to be served.

### OTHER DELICACIES OF KASHMIRI CUISINE

*Dum Aaloo* is a popular vegetarian potato dish cooked with yogurt, dry ginger powder, fennel, and other hot spices to give it a unique flavor and aroma. *Ruwangan Chhaman* is made from cheese squares cooked in tomato gravy. *Haakh* is the kale or Kashmiri sag, knol-khol (*kadam*), cooked light in less oil and spices and add fiber and good minerals and vitamins to the cuisine. *Gand Aanchaar* is made from chopped onions mixed with chilies, salt, yogurt, and spices. The *Mooli-Akhrot Chutney* is a radish and walnut chutney. *Modur Pulav* is a dessert made with special rice, sugar, dry fruits, and saffron. *Phirni* is a milk pudding thickened with semolina or ground rice, flavored with cardamom and optionally saffron, set in separate bowls with a lot of nuts and silver leaf.

*Kashmiri Pulao*, *Kashmiri gravy*, and preparations of mutton, chicken is quite famous across the country. More than 30 preparations of mutton are eaten in the Kashmir valley and that makes it the most common ingredient here.

### TRADITIONAL KASHMIRI BEVERAGES

*Kashmiri Kahwa* is an exotic mix of Kashmiri green tea leaves in a very small quantity simmered in water with spices like cardamom, cinnamon, and saffron to get that beautiful golden colour, garnished with chopped almonds. In harsh cold winter, or after a heavy meal, this *Kahwa* smoothens the nerves and the digestive system. *Sheer Chai* or *Noon Chai* is a pink colored tea made with milk, water, special Kashmiri tea leaves (*noon chai* leaves), a pinch of baking soda, salt, and dry fruits like almonds and pistachios and cooked in a special kettle known as the *samovar*. *Butter Chai* known as *gur gur cha* in the Ladakhi language has its origin in Tibet is traditionally made from tea leaves, Yak leaves, yak butter, salt.

### BREAD AND KASHMIRI BAKERY

*Freshly baked bread* from '*Kand ur*'- the traditional baker and a hot cup of *Noon Chai* (salted pink tea) is an integral part of the daily Kashmiri morning routine. Long before dawn, hundreds of baker families (*kand urs*) in the Valley, fire up wood *tandoors* and start making bread to reach the breakfast table of all Kashmiri homes. Local tandoor is found in every locality of Kashmir. Besides breakfast,

local bread is also a popular item in the evening tea, guests and served with many non-vegetarian dry preparations along with *Noon Chai*.

*Tsot* or *Girda*, *Lavasa*, *Tsochwor*, *Kulaha*, *Bakerkhaani*, *Tilvor*, *Katlam*, *Sheermal* are some of the famous varieties that are used often. All these are made with maida, a lot of poppy seeds, white *thil* and *khus-khus* are added to the top of the bread. *Sheermal* is a sweet bread, delicacy in Kashmir, flavored with saffron, this flatbread will melt in the mouth and its taste is amazing. In Kashmir, special bread is made for every season, and it is an integral part of the social customs and festivals.

### DAILY MENU IN A KASHMIRI HOUSEHOLD

A daily menu followed by the majority of the affluent Kashmiri homes as shown below:

Breakfast Honey.	Lavasa or Girda (Kashmir Roti) with Butter, Jam or Boiled Egg or Omelet and sheer chai
Midmorning	Khawa & Bakery biscuits.
Lunch	Rice, Mutton Curry, Hak Sag – Curd
Tea Time	Sheer Chai, Televor or Sheer-mal (Kashmiri Roti)
Dinner	Rice, Tomato Chaman (Tomato Paneer) or Dal, Wangan (Brinjal) fry

This is a typical menu followed in a Kashmir household. They also include local river fish in their diet frequently. They cook meat with vegetables, fish with radish, lotus stem and *brinjal*, *palak* from Dal Lake, and *Haqq Sag* also their favorite item in the meal.

All the vegetables used are fried before they add the spices and masalas. Meat, chicken, fish everything is fried before they make a dish out of it. Masalas, spices, and Kashmiri Red Chilies are also used in excess.

### ETHNOGRAPHY OF JAMMU

Jammu, named after its founder, Raja Jambulochan (9<sup>th</sup> century) lies on the banks of the river Tawi, surrounded by the Himalayas, the Shivalik hills, and is the winter capital. The majority of the people in Jammu are Hindus followed by Sikhs, Muslims, and Christians.

The food habits of the people differ from region to region with the Hindu Dogra's of Jammu being predominantly vegetarians who consume long grain basmati rice, wheat, and kidney beans (*rajma*) are staples.

The famous *dogra* dishes are *Sund*, *Patisa*, *Rajmash* with *Rice*, and *Kaladi Cheese*. *Dogri* food specialties include *Ambal*, *Kultien-di- Dal*, *Ma-da-Madra*, *Dal Patt*, *auria* and *Khatta meat*. *Guchi Pulao* is one of the delicacies served in marriage ceremonies of high-income groups, as it is very costly. *Kasrot* is a special vegetable grown in the hills of Patnitop and is available in the market during summer. The cuisine of Dogra's in Jammu is a perfect embodiment of *satvik* and *rajasic* qualities and uses vegetables such as cauliflower, turnips, peas, and potatoes.

Use of spices is after roasting following which they are finely ground and added to foods for aroma and taste. Popular delicacies include milk and milk products such as *kaladi* which is a locally processed cheese, fat stuffed unleavened wheat bread taken with mashed potatoes, grated radish or cauliflower, eaten liberally spread with pure clarified butter called ghee or with homemade fresh butter and large bowls of fresh yogurt.

Pickles typical of Jammu are made of *kasrod*, *gurgle*, *mango with saunf*, *jimikand (Yam) tyao*, and potatoes; consumed by the local people.

## LOCAL FOODS OF JAMMU

**Ambal** is a traditional dish made with pumpkin cooked in tamarind sauce with other spices such as fenugreek, asafoetida, which is served in small gatherings and lunch after religious *pooja* ceremonies. This dish is rich in beta carotene, an antioxidant, a good source of fiber, and recommended for obese, diabetics and heart patients. It is recommended for a healthy complexion and hair.

**Sarson-ka-sag:** *Sarson-ka-Sag* is taken with *maki-ki-roti* especially in winter mustard greens or *sarson ka sag* is incredibly healthy, packed with huge amounts of minerals, vitamins, (especially calcium and potassium), and fiber. Locals claim that mustard greens trigger detoxifying actions that help in maintaining bone health, encourages colon health, aids digestion, cardio health, avoid cancer, and prevent long-term illness and diseases. Mustard greens are rich in Vitamin K and omega-3 fatty acids which are anti-inflammatory agents.

**Auriya:** *Auriya* is made with fermented curd by adding mustard powder, turmeric powder, and raw mustard oil. Kept for some time for fermentation, cooked, boiled pieces of potatoes are added to it along with salt. This is taken as a side dish with *Poories*, *Baturas*, or *Rice*. This is very good for digestion.

**Kasrod:** This is a wild vegetable grown in *Patnitop*, *Khud*, *Batodh*, *Rajouri*, *Poonch*, and hilly areas of Jammu. This delicacy is prepared as a dry vegetable or pickle taken along with the main course of the menu, it is rich in calcium and iron and good for anemia patients.

**Anardana-ki-chatney:** This dip or chutney is regularly used for many local snacks such as *aloo-ki-tikki*, *pakodas*, or stuffed bitter gourd (*barva karela*). *Anardana* has got good antacid actions, useful in case of digestive disorders with inflammation and it is a good source of vitamin-C and K.

**Katta Meat:** This is a delicacy of non-vegetarian especially popular among the *Rajputs* of Jammu. It is a mutton preparation, prepared in *Anardhana* extract. It is sour and served in marriage and other ceremonial lunch and dinner of the *Rajput* community of Jammu.

**Sabja Meat:** It is a mutton preparation cooked in thick spinach puree, served in feasts of weddings; very rich in Iron, Calcium, and Protein.

**Gucci pulav:** *Gucci* Mushrooms or *Morels* are one of the most expensive foods on earth and *gucci pulav* is the royal food of Jammu and is prepared during special occasions like weddings. *Gucci* is rich in vitamins and locals believe that they reduce the risk of cancer are high in minerals and low in fat, good for the heart, and have antioxidant properties as well. These *Gucci* mushrooms are naturally grown in the hilly area of *Ramban*, *Badarwa*, and mountains of *Kashmir*.

**Kidney beans (rajma):** *Rajma* (red bean) is a pulse rich in cholesterol-lowering fiber with a low glycemic index and a good source of plant protein, thiamine, iron, copper, magnesium, folate, dietary fiber, and manganese. *Rajma Chawl* served with chutney of *anardana* is the famous dish of Peera, a town in the Raman district of Jammu. *Rajma* of Bhandarwah of Jammu province are said to be amongst the popular. These are smaller in size and have a slightly sweetish taste. *Rajma* is usually served with plain cooked Basmati rice with pure ghee.

**Maa-chhole-ki-dal:** Another plant protein-rich recipe, this a favorite dish of Jammuities which is loaded with vitamins, minerals, and fiber.

**Kulthein-da-dal (horse gram):** *Kulth* is another plant protein dish of Jammu which is consumed in winter months and may be mixed with *rajma* and traditionally recommended in people with kidney stones, urinary diseases, throat infection, common cold, fever, constipation, piles, ,, etc. Locals promote the fiber of *kulth* for regulating cholesterol and also claim that the phenol content of *kulth* attacks fatty tissues in the body and thus helps in the management of obesity.

There is a tradition of preparing different *dals* on different days by *Dogra* People. It is included in the daily lunch menu, which is the source of protein among vegetarians. It is a custom of Jammu on certain days on which a particular *dal* is prepared. These are as follows:

- **Monday- Mix Daal.** *Dogras* believe in kick-starting the week with a healthy start. Mix *dals* are known to be a fuller source of proteins.
- **Tuesday- Masur Dal** (Red Gram Dal). Cooked for lunch in the majority of the *Dogra* homes on Tuesday.
- **Wednesday – Moong Dal** (Green Gram Dal). Prepared on Wednesdays with spices, made as *Kichadi*, full of fiber and protein.
- **Thursday – Chana-ki-Dal with Ambal.** This is one of the favourite dishes of *Dogras* and also served with *rajma* and *metta path* (sweetened Rice) during her community lunch of wedding ceremony “*Sannt*”.
- **Friday – Rongi.** *Rongi* or *Lobia* known to be a fairer sibling of *rajma* are equally loved by Jammuities when cooked with *bhuna masala* or *dhuni*. Though known to cause acidity, a piece or two of hing and *laung* (asafoetida and cloves) would serve the purpose.
- **Saturday- Black Chana.** *Kale Chane*, also known as chickpeas or whole Bengal Gram is a healthy legume and a staple Saturday lunch meal with Rice in all the traditional *Dogra* Household.
- **Sunday – Rajma.** The end of the week has to be relaxed and enjoyed with a lunch menu of *Rajma*, Rice with hot ghee taken with pickles and salads and chutneys.

## SWEETS OF DOGRA COMMUNITY

**Patisa:** This is the famous sweet dish of Jammu made with gram and *maida* flour. *Kud-ka-Patisa* is loved by the *Dogras*.

**Pugga:** Pugga is a sweet made with sesame seeds, *khoya*, and sugar wherein coarsely powdered sesame seeds, sugar/jaggery, and green cardamom are added to *khoya* and rolled into *ladoos*. This is taken in winter, specially made for Pugga-ki-Fast in Dogra family. This fast is kept by mothers for the welfare and long life of their sons. Nutritionally it is rich in protein, iron, calcium, phosphorus, and magnesium.

**Ghevoor:** *Ghevoor* holds a special place in Dogra community as it is made as a gesture to welcome the bride or bridegroom to the family. It is simple but very tasty, made with maida batter, sugar or salt can be added. This is taken with fresh Curd.

**Sund panjeeri:** This sweet dish is made with dry fruits, dry coconut, sugar, and ghee. Dry fruits include almonds, cashew nuts, raisins, dry dates, watermelon seeds, garden melon seeds, bottle gourd seeds, pumpkin seeds, cucumber seeds, pista nuts, and dry coconut grated. These dry fruits are fried in ghee and mixed with powdered sugar, dry ginger powder, and crisply fried *gund* (gum) powder. It is commonly used to rejuvenate the body and consumed in winter to boost immunity and maintain warmth. Traditionally Dogras give this *panjeeri* to women after delivery to help regain their strength, stimulates breast milk to flow, keeps the mother's body warm, and for bone strength.

**Mitti path (sweet rice):** This is served along with *Rajma*, *Chaval*, *Ambal*, *Chana-ki-Dal* in small ceremonial lunches after Pooja in Dogra homes. *Meeta Chaval* is prepared with long Basmati Rice of Jammu with Jaggery and a lot of dry fruits and ghee. The yellow colour is obtained by adding saffron.

**Kameera:** *Kameera* is another preparation made with fermented wheat flour, served in feasts especially in the Udhampur district of Jammu province.

### SPECIAL FOODS OF JAMMU DURING FESTIVALS

During *Navratri* fasting, non-veg food is prohibited in all households of Hindus. Even the use of Onions, Garlic, and Haldi is prohibited. Fruits, dairy products are allowed during Navratras. Special millets, Signda flour is used for making Chillas and other preparations. Dahi wali Aloo (Potatoes in Curd) is taken during the fast.

On *Makar Sankranti*, kichadi is prepared with whole black grams Dal and offered to God and Brahmins thereafter taken by the family members, eating together.

On auspicious occasions, *Babroos* and *Rotts* were prepared and offered to the Gods on various occasions like *Basha dua* or *Dhrubri* Pooja. This fast kept by mothers for the health and long life of their children. Thus, the food is associated with each festival and ceremonial importance among the Jammu people.

### SAMPLE MENU FOLLOWED IN DOGRA HOMES ON MONDAY IN JAMMU

Early Morning	-	Tea - 1 Cup (Lipton Tea/Salt Tea).
Breakfast	-	Aloo-ki-Paratas, Curd, Pickles.
Lunch	-	Rice, Mixed Dal, Anardana stuffed Karela, Salad, Pickles.
Evening Tea	-	Tea, Samosa/Pakoda/Aloo Tikki.

Dinner - Chapatias, Palak Paneer, Any seasonal vegetable, Salad.

Based on the food habits, a normal diet plan is made for Jammu Hospital Dietary Department.

### **NORMAL DIET (ND) FOR IPD PATIENT IN JAMMU HOSPITAL**

7 a.m.	Early Morning	-	Tea/Milk – 1 Cup.
9 a.m.	Breakfast	-	Chapatias 2 to 3, Dry Cauliflower (Seasonal vegetables) Curd.
11 a.m.	Seasonal Fruit	-	1 Banana/Apple/Orange.
1.30 - 2 p.m.	Lunch	-	Rice Chapatias Mixed Dal. Bottle gourd <i>subji</i> .
5 p.m.	Tea/Milk	-	Toasted Bread & Butter.
8 p.m.	Dinner	-	Chapatias, (Rice – Optional) Nutri/Dal/Paneer Curry, Carrot, Radish <i>subji</i> .

Mustard oil, Pure Ghee, Dalda, and Refined oil is used in many households. Parathas made with Dalda ghee was favorite among the people of the region. But now the use of Dalda has been replaced with Refined Oil. In the traditional diet menu, a lot of oil is used for frying the vegetables and also for garnishing the Dals. They include a lot of masalas also in their food. Consumption of pickles also adds a lot of oil and salt to the food intake.

Therefore, considering these facts, the Diet plan need to be modified to make a healthy diet for the Hospital patients. The use of oil, masalas, salt, sugar, and the method of preparation should be modified to meet the recommended requirements of the patients. Frying of vegetables and all other items have to be avoided, only garnishing and tempering to be done.

### **JAMMU and KASHMIRI CUISINE, HEALTH and NUTRITION**

Even though Kashmir has good crops of rice and other cereals, Kashmir has to import rice from other States. During the harsh winter vegetables, meat, chicken is also obtained from outside Kashmir. There are government agencies also to do the needful food supplies, which ensures that almost every household is entitled and has access to a food ration at a constant price.

A *Wazwan* (Kashmiri cuisine) spread can lead to consumption of over 10,000 calories within an hour and is also known as a calorie bomb. This can cause extra metabolic stress to the people and high occurrence of metabolic syndrome, insulin resistance, truncal obesity, diabetes, and thus eaten with caution. A *Wazwan* plate is shared by 4 persons and each one consumes approximately 10,000 Kcal, 397 gm carbohydrates, 288 g proteins, and 780 g fats; which is sufficient for one week for a sedentary person.

Ahmed et al (2012) have also cautioned that Kashmiri cuisine is fat and calorie-dense and should be restricted for patients suffering from obesity, diabetes, chronic liver diseases, and kidney disease because of its high calorie and protein content.

Consumption of fried snacks like *samosa*, *pakodas*, *tikkies*, *chana-batturas*, ,, etc. from the vendor is in excess and frequent in Jammu which leads to increased intake of saturated fat, transfat which cause



hypertension, heart disease, obesity, and other non-communicable diseases. All the ceremonial occasion is celebrated and served with sweets in Jammu, which can lead to calorie imbalances.

Sheer Chai or Salted Tea was taken in an excess amount not good for health, due to the prolonged boiling and addition of Salt and soda (Sodium bicarbonate) which may lead to hypertension. Spices, especially red chilies are used in excess amount in Kashmiri cuisine and even in day to day meals also leads to many gastric problems.

Most of the food items are fried before making the finished products. Hence the intake of fat and oil, ghee is much more than the RDA. In addition to this, Kashmiri food preparation also requires animal fat.

Excess meat consumption along with animal fat is harmful and unhealthy dietary practices in Kashmir. Smoked food like fish and kababs are a delicacy of Kashmiris and are harmful due to the possible presence of carcinogens.

Numerous studies have shown the co-relation of smoked food and sundried vegetables with stomach and gastric cancer in Kashmir. High exposure to meat carcinogens heterocyclic amines (HCAs), may increase the risk of human cancer. The heterocyclic aromatic amines (HAAs), are a class of chemical that forms in cooked red meat. The polycyclic aromatic hydrocarbons (PAHs), also are linked to cancer and are formed when fat and juices from meat grilled directly over a heated surface or open fire drip onto the surface or fire, causing flames and smoke. These PAHs then adhere to the surface of the meat. Both HAAs and PAHs are metabolized by enzymes in the body and their byproducts can cause DNA damage that may contribute to the development of cancer. Thus meat has to be eaten in moderation and try not to overcook or char meat.

## CONCLUSIONS

The culture, traditions, customs and food habits, and Dietary intake of the major parts of the region of Jammu & Kashmir are wide, varied, and diversified. The major staple diet of Jammu is Rajma & Basmati Rice whereas in Kashmir the staple diet is Kashmiri Rice with meat. Wheat is taken in the form of homemade chapattis in Jammu whereas in Kashmir Bakery Rotis made with Maida is consumed. Different varieties of Dal is consumed in Jammu; the major protein comes from Pulses and legumes. In the Kashmiri diet, the protein source is non-vegetarian food.

Geographical analysis, nutrition, and related diseases show surplus consumption of calories, carbohydrates, saturated fat are more in Kashmiri food. There is an urgent need to cut down the portion of the food items on the plate, especially in the Kashmiri Wazwan being served frequently. According to the eminent Gastroenterologist of the valley, Prof. Khroo's suggestion; there is a need to set the standard, that the chef and the host are asked to serve not more than 3000 Kcal per plate and that also the latest amount of animal fat.

It would also be rice if vegetables are included more and for back to the well-established habit of *hak batta* (fresh green-leafy vegetables and Kashmiri Rice) rather than *Churby-Maz* (Mutton rich in fat). Cut down the intake, portion size of rice, and avoid frying all the food items before making it as curry; can make the Kashmiri diet a healthy diet. It is also recommended to lead an active life by dedicated exercises and yoga which are good for hearts and to bring a healthy society at large.

However, many fruits and fresh greens (*haqq*) and hot healthy beverages (*Kahwa*) of the valley need to be promoted. The Dishes which are good nutritional and healthy and ideally recommended and promoted in both the regions of Jammu & Kashmir for the EAT RIGHT MOVEMENT are shown in this table:

**Table 1: Healthy recipes for promotion**

Name of the Food Item	Region	Reason/Recommendation
<i>Rajma with Basmati Rice</i>	Jammu	Staple Diet, a good source of protein, energy, fiber, and micronutrients. The starch content is a slow-releasing carb, takes a long time for digestion, causes lower and more gradual release in blood sugar, making this beneficial for Type-2 Diabetes, good for weight Management.
<i>Pahadi Kulthi (local Horse Gram)</i>	Jammu	Great source of plant-based protein, rich in Iron and Fiber and low in calories, best for weight loss. It is a negative calorie food – People of Jammu take this in winter and believe it is good for Kidney and Urinary stones.
<i>Anardhana Chutney</i>	Jammu	Good for Digestion, rich in Iron, Vitamin C, and Fiber, good Antacid, and useful for digestive disorders.
<i>Kasrot</i>	Jammu (Hilly Areas)	Naturally grown on hilly areas of Jammu. It is a good source of Iron, Calcium, and Fiber. Used as a dry <i>subji</i> and pickles.
<i>Auria</i>	Jammu	It is fermented curd with ground mustards and Turmeric and Mustard oil; good for digestion and a good source of calcium.
<i>Sund</i>	Jammu	Full of energy, highly nutritious, good for post-partum healing and lactation food – in small quantities, provide nourishment and energy to new Moms. It induces heat in the body and aids in aches and pains that are caused in winters.
<i>Kashmiri Rice with Haq Sag</i>	Kashmir	A staple nutritious diet is rich in Fiber, Iron, Calcium, and energy.

<i>Nadru Yakni</i>	Kashmir	Good source of Calcium, Fiber, good for healthy digestion and prevents constipation.
<i>Muj Gaad</i> ( <i>Kashmiri-Fish with Radish</i> )	Kashmir	Staple delicacy, good protein, Calcium, and healthy fat.
<i>Mutton with vegetables for daily meals</i>	Kashmir	Reduce the quantity of Mutton intake, add fiber and good vitamins.
<i>Mutton Yakni</i>	Kashmir	Simple preparation, easy for digestion, good for patients.
<i>Aabgosh</i>	Kashmir	Lean Mutton pieces prepared in Milk, no frying, fewer spices, no chillies, so good patient's diet.
<i>Kashmiri Pulao</i>	Kashmir	Very pleasing and colorful and delicious to all, can be relished with Raita.

Based on the food culture and food habits of the region, locally grown seasonal goods, vegetables, fruits should be used in the daily diet. It is important to avoid packed and preserved food as far as possible. Control the portion sizes, reduce sugar and salt and fat intake; engage in physical activities, keep the mind engaged in positive thinking are the logo for good health. A healthy diet helps to protect against malnutrition in all its forms, as well as non-communicable diseases (NCDs) including diabetes, heart disease, stroke, and cancer. An unhealthy diet and lack of physical activities are leading to a global risk of health. Eat right, adequate portion sizes, add variety, natural rainbow vegetables, fruits, good fats, less salt and sugar healthy methods of food preparation, good hygiene, increase physical activities and exercise; stay fit; are the road map to a Healthy Nation.

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# ANTHROPOLOGY OF FOOD AND DIETARY CULTURE OF HARYANA AND ITS NUTRITION IMPLICATIONS

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## ABSTRACT

Haryana, considered as “House of the Gods” because Hari means god (Vishnu) and Ayana means home, immediately evokes the image of a land that miraculously combines antiquity and abundance, and is considered the cradle of Indian culture and civilization. Haryana is a major contributor to food grains in the central basin. More than 60 percent of Basmati Rice exports come from the state. Haryana is famous for her high-yielding Murrah buffalo. Other types of native Haryana cattle include Haryanvi, Mewat, Sahiwal, and Nili-Ravi. The total annual milk production for the year 2018-19 has reached 107.26 lakh tonnes in the State and per capita per day availability of milk has also increased to 1,085 grams, which is the second-highest in the country and a target of 117.13 lakh tonnes has been kept for the year 2019-20. Haryanvi’s cuisine is like the people of Haryana - simple, practical, and related to the land.

## INTRODUCTION

Haryana, located in the northern part of the country and emerged as the seventeenth independent state in the federal galaxy of the Republic of India on November 1, 1966, from the former state of East Punjab. The city of Chandigarh became a Union Territory, which served as the capital of Punjab and Haryana.

Haryana has carved out a place of its own over the past decades, be it in agriculture or industry, canal irrigation, or rural electricity. The state is highly represented in sports, politics, business, film, and national services like the police and military and young people have done quite well in public administration. The growth rate of Haryana’s Gross State Domestic Product (GSDP) (at current prices)

has increased from 9.2% in 2014-15 to 12.8% in 2016-17. As the largest recipient of per capita investment since 2000 in India, Haryana has a per capita income of 264,206, the fifth-highest in the states and territories of India, more than double the national average for 2018-19 (State Budget Analysis, Haryana, 2019-20). As reported in the Global Data Lab Report (2018), the city of Haryana, Gurugram, ranks number 1 in India in the growth rate of existing IT and technology infrastructure, and number 2 in a startup, innovation, and livability ecosystem. Haryana is the 7th highest among the states of India with a Human Development Index of 0.704.

According to the Census of India (2011), out of a complete population of 25,350,000 of Haryana, Hindus (87.46%) constitute the bulk of the state's population, with Muslims (7.03%) (mainly *Meos*) and Sikhs, (4, 91%) the largest minority. Muslims are found mainly in Mewat region. Haryana has the second-largest Sikh population in India after Punjab, with the majority living in the districts bordering Punjab, such as Sirsa, Jind, Fatehabad, Kaithal, Kurukshetra, Ambala, and Panchkula.

As per the Report of Haryana Backward Classes Commission (2012), Haryana has the concept of 36 Jâtis or community. Castes such as Jat, Rajput, Gujjar, Saini, Punjabis, Baniyas, Brahmin, Pasi, Ahir, Ror, Mev, Vishnoi, and Harijan are some of these 36 famous Jâtis. The official language of Haryana is Hindi. Several regional languages " " PV br dialects are spoken in the state, often incorporated into Hindi. The most dominant of them is Haryanvi (also known as Bangru), whose territory covers central and eastern Haryana. Hindustani is spoken in the northeast, Bagri in the west, and Ahirwati, Mewat, and Braj Bhasha in the south (Tribune India, Feb.9, 2019). Haryana's contribution to the mainstream Indian economy, history, and culture has been remarkable.

## **GEOGRAPHY OF HARYANA**

Haryana ranks 22nd in terms of area, with less than 1.4% (44,212 km<sup>2</sup> or 17,070 square miles) of India's land area. It has 6 administrative divisions, 22 sub-districts, 72 subsections, 93 original incomes, 50 sub-districts, 140 community development blocks, 154 cities and towns, 6,848 villages, and 6,222 panchayat villages (Net State Domestic Product, Govt. of India, 2020). Chandigarh is the state capital, Faridabad in the National Capital Region is the most populous city in the state, and Gurugram is the main financial center for NCR, with the top Fortune 500 companies located within it. Haryana is the seventeenth most populous country in the country and the population of Haryana is 25,353,081. The population density is 573.4 people / km<sup>2</sup>. Haryana has an oblique sex ratio of 879, literacy rate of urban males 84.1 and rural 80.9 percent, urban females 65.9 and rural 64.6 percent (Census of India, 2011).

Among the oldest and largest ancient civilizations in the world, the site of the Indus Valley Civilization at Rakhigarhi village in Hisar district and Bhirana in Fatehabad district is 9,000 years old. Haryana has a very rich history and heritage, many historical monuments, vast flora and fauna, large human resources and well-developed tourism, economy, national highways, and state highways. It borders Himachal Pradesh within the northeast, by the Yamuna River along its eastern border with Uttar Pradesh, through Rajasthan within the west and south, and therefore the Ghaggar River flows along the northern border with Punjab (TOI, 2015).

As Haryana surrounds the state capital Delhi on three sides (North, West, and South), most of

Haryana is included in the National Capital Area, which is economically important for planning and development purposes.

## **WEATHER**

Haryana is very hot in summer around 45 ° C (113 ° F) and cool in winter. The warmest months are May and June and the coldest December and January. The climate is arid to semi-arid with an average rainfall of 354.5 mm. About 29% of the rain is received from July to September, and the rest of the rain is received during the period from December to February.

## **AGRICULTURAL PRACTICES and FOOD PRODUCTION**

There are two agro-climatic zones in the state. The northwestern part is suitable for medium rice, wheat, vegetables, and fruits, and the southwestern part is suitable for high-quality agricultural products, tropical fruits, exotic vegetables, and medicinal and herbal plants. Livestock has been considered an integral component of diverse agriculture.

Haryana is traditionally a Zamindars (owner-tenant) agrarian society. The Green Revolution in Haryana of the 1960s combined with the completion of the Bhakra Dam in 1963 and the West Yamuna Command Network canal system in the 1970s resulted in a significant increase in the production of grains.

Grain production was 181.44 tons in the year 2018-19 with wheat and rice crops as the major crops. The production of vegetable oil and sugar cane in 2018-19 was 12.77 and 85.05 tons, respectively. Haryana is a major contributor to food grains in the central basin. More than 60 percent of Basmati Rice exports come from the state (Animal Husbandry Statistics, No.1 May 2020).

Almost all kinds of fruits, vegetables, herbs, mushrooms, and flowers are grown in the state. About 85 percent of the total area of horticultural crops is planted with vegetables, followed by fruits and spices (Economic Survey of Haryana, 2020).

## **LIVESTOCK**

Haryana is famous for her high-yielding Murrah buffalo. Other types of native Haryana cattle include Haryanvi, Mewat, Sahiwal, and Nili-Ravi. The total annual milk production for the year 2018-19 has reached 107.26 lakh tonnes in the State and per capita per day availability of milk has also increased to 1,085 grams, which is the second-highest in the country and a target of 117.13 lakh tonnes has been kept for the year 2019-20. (Economic Survey of Haryana, 2020).

The annual per capita availability of eggs increased from 14 in the year 1981-82 to 170 in 2015-16 as reported in Animal Husbandry Statistics, Haryana State, 2017. To support its agricultural economy, both the central government (Central Buffalo Research Institute, Central Sheep Breeding Farm, Central Fisheries Institute, National Dairy Research Institute, Regional Center for Biotechnology, Indian Wheat and Barley Research Institute, and National Office of Animal Genetic Resources) and the State government (CCS HAU, LUVAS, Government Livestock, Regional Food Stations and Institute of Testing and Training of Agricultural Machinery of the Northern Territory) have opened several institutions for research and education.

## TRADITIONS and FESTIVALS OF HARYANA

The rich Haryanvi culture is characterized by bright exhibitions and swinging rice fields; Haryana is one of the richest states in India and one of the most economically developed regions in South Asia. Known as the “Home of the Gods”, it is home to cultural heritage, festivals, folklore, and beautiful landscapes.

The Haryana’s dialect, commonly known as Haryanvi, Bangaru, or Jatu; is known to be a little tough but full of earthy humor. The majority of the people of Haryana have almost equal social status. The age factor is a very defining feature in Haryana as all old, may be rich or poor are treated with great reverence and respect. As such, it has a very socialist character. In some areas, a person’s economic situation is also determined by the number of animals kept by him. Those who live here tend to defend their racial purity by not allowing marriage in the same gotra. The remarriage of widows is also unpopular, making it a huge obligation to society.

For all of Haryana’s vivid and undemanding habits, there are many practices here that need to be changed as soon as possible. The most important of these is the refusal to educate girls, the practice of female infanticide, and the practice of *purda*.

Along with its stunning architecture and numerous tourist attractions, Haryana has earned a great reputation for its lively exhibitions and fairs (*melas*) across the state. The **International Surajkund Mela** is held annually on the outskirts of Faridabad, a paradise for lovers of crafts and weaving and Haryanvi cuisine. Decorated with multi-gastronomic food courts and several adventures and fun outings, the *mela* is frequented by thousands of people from nearby places. The **Mango Mela** is held in June and July at ‘Taman Yadavindra’ in Pinjore, and a treat for mango lovers as it fulfills people’s desire for different varieties of mango and also offers a platform to support farmers to sell their mangoes and teach them about the latest technologies to increase their production.

Other *melas* include the **Baisakhi Mela** organized by Haryana Tourism from April 13th to 14th at Pinjore Gardens every year, this exhibition celebrates the Baisakhi festival. A large number of visitors gather for the celebration with enthusiasm and joy. The **Pinjore Heritage Festival** is celebrated every year in December to celebrate the rich culture of Haryana. Poets, singers, and dancers exhibit their art forms here. This is an extraordinary annual event that focuses on the history and heritage of the old town of Pinjore and its magnificent gardens. Other festivals of Haryana are Teej, Guga Navmi, International Gita Jayanti Mahotsav, Kaartic Cultural Festival, and a unique celebration known as Sohna Car Rally.

The most famous festival of all time is *Teej*, celebrated on the third day of the month ‘*Shrawana*’. The festival is celebrated with great pomp and enthusiasm across the state. Swings are installed in the garden and the girls apply henna on their hands. Girls and women dress in colorful and vibrant clothes and dance and sing all night. The famous food delicacies and sweets as rice- milk pudding (*kheer*), *ghevar*, and *phirni* are savored.

## FOOD CULTURE OF HARYANA

“The cuisine of a land is its landscape inside a casserole” – Josep Pla



Haryana has become one of the most economically developed regions in India with its agricultural development. The state has a mix of urban and rural residents and offers a rich cultural and gastronomic heritage. ***Haryanvi's cuisine is like the people of Haryana - simple, practical, and related to the land.***

Chaudhary Hukam Singh, a Historian in one of his ethnographic reports (not available in print form) has provided graphic details about the culture of a food captured in a folk song of the peasant community.

It contains details of Haryana month and season wise traditional enjoyable menu.

*“ Chait Piyari Kanak, Kakkari, Kohla, Kaddu,  
Baisakh Piyara Messa, Thanda, Baingan Bharta,  
Jeth Piyari Thanda aee, Rabri, Sattu, Pyaaz, Nindra  
Saadh Pyaara Neebu, Namak, Aam Tapka,  
Saaman Piyari Swalhi, Parai, Gulgalati, Purai, Kheer  
Bhadwa Pyaara Daliya, Shakkar, Cholae, Bhindi, Tindai, Ghata,  
Asoj Piyari Gheeya, Tori,  
Katak Pyara Seet, Dahi, Mattha,  
Mangsar Piyarri Kachri, Dakal, Gaajar, Bajra, Bathu, Gudari,  
Poh Piyara Gand a, Gur, Aalu, Tilkuti aur Tiaotha,  
Mah Piyari Goji Kichri,  
Phagan Piyara Mazak, Malish, Thatha,  
Teej Teohaar Piyari Halwa, Chillai Kheer  
Mah Piyarai Ghee, Doodh, Dupalka, Mahal Pura, Prantha,  
Biyah Piyarai, Ladu, Jalebi, Satpakawani  
Ghee Bura, Mialai na, Janet Kar Le Tthatha.”* (Haryana: Heritage & Cuisine)

The author has depicted that during each season food products, cooking methods, and preparation change depending upon the availability, harvesting, suitability, taste, and festive mood. The table below makes it evident that during summer (March to May), local people eat readily available vegetables, cereals, and cool buttermilk, etc. Similarly, during the rainy season (June-September) fried sweets are savored, whereas in autumn, (October- November) the changing season, easily digestible, soft food preparations are preferred. During winter (December to February), butter, jaggery, sesame seeds, pearl millets, and nuts are eaten.

**Table 1: Meaning of Haryanvi Terms Used in Above Folk Song**

<b>Month/ Occasion</b>	<b>English Calendar</b>	<b>Local Term Used for Regional Delicacies with Meaning</b>
<i>Chait</i>	March-April	<i>Piyari Kanak, Kakkari, Kohla, Kaddu</i>  <i>Piyari Kanak (Enjoy Wheat) as this is harvesting time, Kakkari ( A type of cucumber), Kohla (Melon or buffalo), Kaddu ( Pumpkin)</i>
<i>Baisakh</i>	April – May	<i>Piyara Messa, Thand a, Baingan Bharta,</i>  <i>Enjoy Messa (a combination of two cereals), (Thand a), mild hot season, Baingan Bharta( Mashed Brinjal Preparation)</i>
<i>Jeth</i>	May – June	<i>Piyari Thand aee, Rabri, Sattu, Pyaaz, Nindra</i>  <i>Enjoy Piyari Thand aee ( Chilled Milk Preparation), Sattu Mixture of roasted wheat flour, barley flour, and gram flour mixed in water with local brown sugar (Shakkar) as a cooling drink preparation in sweltering heat), Pyaaz( Onion), considered beneficial to reduce the impact of heat and insomnia, Nindra (Sleep), an afternoon nap in summer.</i>
<i>Saadh</i>	June – July	<i>Pyara Neebu, Namak, Aam Tapka</i>  <i>Pyara Neebu (Enjoyable Lemon), Namak (Salt), Considered good because the body loses water and electrolytes in perspiration at this time, Aam Tapka (Tree Ripened Mangoes that fall on the ground)</i>
<i>Saaman</i>	July – August	<i>Piyari Swalhi, Parai, Gulgalati, Purai, Kheer</i> <i>Piyari Swalhi (Enjoyable fried sweet as mathri), Parai (fried salted wheat bread ), Gulgalati (fried sweet wheat preparations ), Purai (deep-fried sweet soft wheat bread ), Kheer (rice &amp; milk sweet pudding)</i> <i>Sweets and fried foods are savored in rainy season.</i>
<i>Bhadwa</i>	August – September	<i>Pyara Daliya, Shakkar, Cholae, Bhindi, Tindai, Ghata,</i> <i>Adorable, Lovely, Pyara Daliya( Enjoyable wheat porridge), Shakkar( Powdered Jaggery), Cholae (Amaranthus), Bhindi( Okra) , Tindai (Indian squash) , Ghata (Dark Clouds)</i>

<i>Asoj</i>	<i>September – October</i>	<i>Piyari Gheeya, Tori, Piyari (Enjoyable), Gheeya (Round Gourd), Tori ( Ridge Gourd)</i> <i>Season is changing, therefore easily digestible vegetables are recommended.</i>
<i>Katak</i>	<i>October – November</i>	<i>Pyara Seet, Dahi, Mattha, Pyara (Enjoyable), Seet (The sour white liquid left out after churning the milk and extracting fats as Butter Milk), Dahi (Curd), Mattha (Diluted Butter Milk)</i>
<i>Mangsar</i>	<i>November – December</i>	<i>Piyarri Kachri, Dakal, Gaajar, Bajra, Bathu, Gudari Piyari (Enjoy Seasonal Vegetables), Kachri ( small green water melon shaped vegetable), Dakal (Stems of Mustard), Gaajar (Carrots), Bajra ( Pearl millet), Bathu (Indigenous leafy vegetable similar to amaranthus), Gudari (Jaggery)</i>
<i>Poh</i>	<i>December – January</i>	<i>Piyara Gand a, Gur, Aalu, Tilkuti aur Tiaotha, Piyara (Enjoyable), Gand a (Sugar cane), Gur (Jaggery), Aalu (Potato), , Tilkuti ( Crushed sesame seeds), aur (and ) Tiaotha (Peanut &amp; Jaggery preparation)</i>
<i>Mah</i>	<i>January -February</i>	<i>Piayri Goji Kichri</i>

There is a saying “**Desaan main des Haryana, jit doodh dahi ka khaana**”, which means “Best among all the countries in the world is Haryana, where the staple food is milk and yogurt”. Haryana, with 660 grams of availability of milk per capita per day, ranks at number two in the country compared to the national average of 232 grams.

In Haryana, the focus is on healthy, fresh food and many dairy products. Food always develops from a specific cultural context, the simpler the culture or civilization, the less complex the food and its basic meaning. The simplicity of cooking in Haryana and the basic agricultural culture have been preserved.

People of Haryana eat different types of rotis made from whole grains, corn, and bajra rotis. Previously, rotis were made from wheat, gram, and barley flour, which is a truly nutritious and healthy combination. *Gochini* atta is made from wheat flour and gram flour. However, along with the increase in the price of gram and barley, people prefer to use wheat flour, which is relatively cheaper, which is detrimental in terms of both taste and nutrition. Rural and urban people love Finger millet gruel (*bajra khichari* with a lot of ghee or home-made butter) in winters. *Goji Khichari* is a specialty of Haryana that is eaten with a mixture of milk freshly milked directly in buttermilk.

Haryana is famous for its cattle and is home to the famous buffalo *murrah* and the Haryana cattle. Thus many dairy products are used in every kitchen. People make butter and ghee at home and use them in abundance in their daily diet. Fresh homemade butter is called *nooni* or *tindi ghee* and is churned daily in most homes. *Chaach* is the favorite and coolest drink in the summer. *Lassi* made from yogurt is

another popular drink, almost a delicacy in its own right. Haryanvi's love for lassi can be measured by the fact that *thand ai*, a sweet milk-based drink in Haryana, is called *kachi lassi*.

People in Haryana commonly eat vegetarian foods with plenty of milk and milk products, ghee and butter. They are also fond of sweets, sugar in different forms as *gur* (jaggery), *shakkar* (brown raw sugar powder), *Boora khaand* (unrefined white sugar powder).

Rural people do not choose to overeat in restaurants, especially in small villages, since homemade food is valued, using ingredients grown mainly on their land. A study by Malik et al (2017) depicts that people in Haryana don't prefer eating spicy. They are not very outgoing and do not prefer eating out frequently. Almost 75 percent of study subjects preferred eating at home. People don't believe in overeating and 87 percent of respondents were taking only two meals in a day. Traditional cooking equipment like *Chullah* is used in rural homes whereas gas stoves are common in urban homes.

#### **ONE TIME MEAL IN MOST HOMES CONSIST OF:**

- Rotis
- Home-made chutney (mint/green chilli/*kachri*/fresh green gram leaves or a combination of two or three of these),
- Butter,
- *Chaach* (fresh home churned buttermilk)/milk,
- *Boora khaand* /*shakkar* and ghee (powdered sugar/brown sugar and clarified butter)
- Nowadays pulses and seasonal vegetables are also eaten. But fresh fruits and meat consumption is low.

#### **COOKING METHODS**

Families use traditional cooking utensils and a wood fire *chullahs* (Mud Cooking Stove) in rural areas, but a very small proportion has switched to new technology. In urban areas a combination of modern and electric utensils and mainly gas stoves are common. The older generations of Haryana had very healthy eating habits that were affected by the influence of fast food and junk food.

#### **POPULAR DISHES and FOODS OF HARYANA**

Here are some very popular foods that Haryanvis love to savour in their diet -

- *Hara Dhania Cholia*- Vegetable
- *Ghee bhura aur pani hath ki roti*- Ghee, powdered sugar, and chappati
- *Bajra Aloo Roti*- Potato stuffed Pearl-millet roti
- *Bajra Goji Khichadi*- Pearl-millet, *channe ki dal*, rice eaten with special fresh unboiled milk added directly milking buffalo in butter milk
- *Hara Channa choliya bathu saag*- Sautéed Green leafy vegetables

- *Hare channe ki kutti* - Chutney
- *Kachri ki lassi*- Buttermilk flavored with dried indigenous vegetable *Kachri* powder
- *Bajre ka churma*- dry sweet powder roasted with ghee and added nuts
- *Kassar*- Sweet made out of roasted wheat/ pearl millet flour, jaggery and water topped with ghee.
- *Laddoos* (Sweet Balls made either with sugar or jaggery) – Atta (Wheat Flour)/ *Murmure* (Puffed rice)/ *Cholai* (Amaranthus)/ *Boondi*( Bengal gram Powder fried pearl-like balls)/ *Methi* ( Fenugreek seed powder)/ *Gaund (Gum)*/ *Til* (Sesame) laddoos
- *Halwa*- Atta (Wheat Flour)/Semolina/*Besan*( Bengal gram flour)/ Combination of Flours/ Bajra (Pearl Millet Flour)/*Moong Dal*( Green Gram)/ *Gaund(Gum)*/ Carrot
- *Kheer* (Pudding)- Rice/Carrot/ Boora(Castor Sugar)/ Kheer made with brown raw sugar/*Sago/Samak* /Hand made vermicelli Kheer
- *Burfi- Khoya/ Besan/ Carrot/ Gum/ Peanut/ Gole* (Coconut)/ Moong Dal/ Nuts and dried fruits *burfi*
- *Churma*- Dry sweet coarse powder enriched with nuts and dried fruits, compulsorily fed to lactating mothers but others also savour it. *Churma* can be made with- Bajre ki roti/ Wheat roti/ Parantha/ Poori/Jaggery/Wheat flour, semolina,, etc.

**Table 2 : Common Dishes/ Foods of Haryana**

Food name in Haryana	Ingredients	Remarks
<i>Bajra Roti</i>	Pearl Millet	Healthy nutritious millet, mainly eaten in winters with a notion that it provides a lot of energy. The nutritional quality can be improved by adding under-exploited greens as carrot/raddish/beet root/ cauliflower
<i>Laapsi</i>	Sweet made of wheat flour, water, jaggery, ghee.	If laapsi and kheer are eaten together then ghee is not added and it improves nutrition.
<i>Raabdi</i>	Gruel made of pearl millet, bengal gram dal, rice	The dish is also made into a drink-lassi by adding buttermilk in some parts of Haryana.
<i>Bajre ka churma</i>	Pearl Millet flour, brown sugar, ghee, optional: gums, nuts, dried fruits	Usually eaten by pregnant and lactating women.
<i>Raabri Kassar</i>	Gruel made of pearl millet, bengal gram dal, rice	A special dish named after its origin, a village Kassar in Jhajjar district.

		The nutritional quality can be improved by the addition of nuts and dried fruits.
<i>Kachri ki Chutney-</i>	Accompaniment made by crushing local vegetable Kachri, salt, green chillies, and sometimes tomatoes. Eaten as accompaniment or vegetable with breakfast/lunch/dinner	Refreshing <i>chutney</i> rich in Vitamins and minerals.
<i>Goji Khichari</i>	Pearl millet, Rice, Bengal Gram pulse are cooked and served hot as the main meal dish.	The specialty of this dish is it is served with Buttermilk and fresh milk milked directly in buttermilk. Nutrition can be enhanced by the addition of vegetables while cooking.
<i>Gochini atta roti</i>	Wheat and gram flour rotis	Nourishing rotis served mainly in breakfast and lunch.
<i>Gulgule</i>	Wheat flour, jaggery batter is deep-fried as small balls in Desi ghee	It is a sweet snack, usually prepared on Ahoi- Ashtami and eaten till Diwali. Also prepared in Rainy season and offered as Prashad Naag-Panchami. This dish can be enriched by addition of sesame seeds.
<i>Khurme</i>	Refined flour dough is shaped in small cubes, deep fried, added in thick sugar syrup that crystalizes as powder, and coated the cubes	Usually prepared and distributed in marriages
<i>Meethi Suwahli</i>	Refined flour dough is prepared with little carom seeds by adding shortening and jaggery. The dough is rolled in small chapatis and deep-fried.	Prepared and eaten in festivities These can be nutritionally enriched by the addition of sesame or other edible seeds/ nuts.
<i>Ghevar</i>	Refined flour, sugar, desi ghee are combined and a very special sweet Ghevar is prepared by deep-frying	The sweet is common in the rainy season and a must in Teej celebration in August.

## FOOD, NUTRITION, and HEALTH

It has been observed that the expenditure on food in both rural and urban areas has declined over time but is still very high particularly among poor households. A higher share of food expenditure in the total household expenditure is indicative of the stress that households experience to acquire food, hence this is a relative measure of food insecurity. In rural Haryana, an expenditure of 1133 on food and 1043 on other non-food items and Urban 1495 in types of food and 2323 on other types of non-food have been reported.

It has been observed that cereal energy and protein intake has declined in rural and urban Haryana, largely due to increased consumption of other food items such as milk and dairy products, oils and fats, and relatively unhealthy foods like fast foods, processed foods, and sugary drinks.

The recent trend in 2019 indicates energy consumption in Haryana as 2,349 kcal against the recommendation of 2711 kcal in 2020 established by ICMR. (Food and Nutrition Security Analysis, India, 2019). Despite the declining trends of protein intake, both in rural and urban areas, per capita consumption was higher than the daily minimum consumption requirement as per the RDA level and consumption of fat has shown an increasing trend since 1983 (by 34.8% in rural and 29.3% in urban Haryana). Haryana showed 62.7 grams fat intake in rural and 63.8 g per capita per day in urban areas.

Prevalence of anemia, folate/ zinc/ copper/ magnesium/ iodine deficiency in pregnant women, adolescent girls, and children are rampant possibly due to the poor dietary intake of food and low frequency of consumption of food groups rich in micronutrients.

It is important to note here that both in rural and urban areas, the share 'miscellaneous' category, which constitutes relatively unhealthy foods such as fast food, processed food, beverages, etc., has increased significantly. Moreover, the share of miscellaneous food in the energy and protein sources of people is very high in urban populations as compared to rural Haryana. This has implications on the emerging problem of obesity, as evident from National Family Health Survey (NFHS 4) 2015-16 data. The nutritional intake from the Public Distribution System (PDS) has provided a significant safety cover to the people across the states in India by filling the nutritional gaps to attain the RDA levels of energy and protein.

The government of Haryana has given high priority to nutrition and is implementing several programs to address various aspects of nutrition. The Ministry is implementing the **POSHAN Abhiyaan**, Pradhan Mantri Matru Vandana Yojana, Anganwadi Services, and Scheme for Adolescent Girls under the Umbrella of Integrated Child Development Service Scheme as direct targeted interventions to address the problem of malnutrition among children and women.

The steps taken under the **National Health Mission (NHM)**, a flagship program of the Ministry of Health and Family Welfare, to address malnutrition inter alia, include the promotion of appropriate Infant and Young Child Feeding (IYCF) practices, Anaemia Mukt Bharat, Iron, and Folic Acid (IFA) supplementation, de-worming, promotion of iodized salt, Vitamin-A supplementation, Mission Indradhanush to ensure high coverage of vaccination in children, conducting intensified diarrhea control fortnights to control childhood diarrhea, management of sick severely malnourished children at Nutrition

Rehabilitation Centers, monthly Village Health and Nutrition Days, Home Based Newborn Care (HBNC) and Home-Based Young Child care (HBYC) programs and Rashtriya Bal Swasthya Karyakram.

Operation of Targeted **Public Distribution System (PDS)** with special emphasis on Below Poverty Line (BPL), including Antodaya Anna Yojana (AAY) families is another important activity of Food, Civil Supplies & Consumer Affairs Department of Haryana. In the State there are 2,50,702 AAY, 8,66,580 BPL and 15,79,782 OPH families. With the implementation of the National Food Security Act. (NFSA) 2013 in the state as much as 50.05 lakh M.T. of wheat at a subsidized rate of ₹ 2 per kg has already been distributed among the beneficiaries from April 2019 to December 2019. Under AAY beneficiaries will continue to get 35 kg. of food grains per month at highly subsidized rates of ₹ 2 per kg. and each member of Priority Household will get 5 kg of wheat at the same rate. Due to the discontinuation of the Dal Roti Scheme, the State Government has replaced Dal with the 1 liter Mustard Oil to all the BPL families @ ₹ 20 per liter from January 2018, which was increased from 1 liter to 2 liter per family from June 2018. From January 2018 the BPL families are also being issued 1 kg sugar per ration card. At the present total number of BPL families is about 8 lakh in the State (Economic Survey of Haryana, 2020). These schemes help combat malnutrition.

Under the **mid-day meal scheme**, free food grains (Wheat/Rice) is provided by the Govt. of India through Food Corporation of India @ 100 grams for primary children and 150 grams for upper primary children, per child per school per day. Freshly cooked food of these cereals is provided to children.

**Table 3: Mid-Day-Meal Menu in Haryana**

Wheat Based	Rice Based	Bajra based/other
Missi roti with seasonal vegetables	Poshtik Khichdi	Bajra Gulgule
Halwa with black channa	Rajmah and rice	Bajre ki Poori
Roti with daal/Ghiya/kaddu/Mix vegetable	Karhi Pakoramix with seasonal vegetables and rice	Bajre ki khichdi
Meetha Daliya	Sweet Rice	Bajra Biscuit
Wheat soya Poori and white Channa aloo	Vegetable pulao/kala channa Pulao	Peanut chikki
Paushtik Daliya	Coconut Rice Pulao	
Chana Urad/Sabut Moong/Moong Dal + Roti		
Meetha Pooda		

Source: Elementary Education Department, Haryana



School heads have been asked to distribute the 20 recipes to the children having minimum 450 calories and 12 grams of proteins for the primary stage and 700 calories and 20 gms proteins for the upper primary stage are provided on all school days. Flavored milk is provided to the students of classes 1 to 8 at least 3 days a week along with Mid-day-meal. Haryana State Co-operative Supply and Marketing Federation (HAFED) is supplying fortified atta in six districts i.e. Ambala, Kaithal, Karnal, Kurukshetra, Panchkula, and Sonapat, and fortified Oil in all districts under Mid-day-meal w.e.f. 1.7.2019.

To address issues of malnutrition including Vitamin B 12 deficiency, the suffering of people from folate, RBC folate, distribution of fortified atta was started in Naraingarh and Barara blocks of Ambala district from March 2018 on a pilot project basis. The scheme was extended in the whole of Ambala and Karnal districts from February 2019. From October 2019, three more districts namely Hisar, Yamuna Nagar, and Rohtak have been included.

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# EVOLUTION OF AGRICULTURE AND DIETARY CULTURE AND THE BEST PRACTICES OF PUNJAB CUISINES

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## ABSTRACT

Punjab is a land overflowing with milk and honey. Located in the North West of India, Punjab means 'land of five rivers'. The fertile soil and the geographical location enables Punjab to contribute to nearly two-thirds of the total food grain production of India; earning it the moniker of 'The breadbasket of India'. Its huge agricultural success is due to the 'Green Revolution'. Wheat and rice are the two major crops, but it is also a significant contributor to the production of other grains, legumes, vegetables, fruits, and dairy. It is primarily the state dominated by the Sikhs the traditions are also influenced by the people of varied races and ethnicities like the Aryans, Persians, Afghans, and many others who have settled here over the centuries. Punjabis are known for being warm-hearted, fun-loving nature and enthusiastically adopted this multi-cultural influence into their food habits, cuisine, and methods of cooking. Traditional Punjabi dishes like *butter chicken*, *tand oori chicken*, *makki ki roti* and *sarson ka saag* are famous across the globe. Punjabi cooking uses lots of dairy products, ghee, and oils. *Paranthas* or rotis form the staple diet combined with vegetables and curd. Punjabi cuisine is also famous for its variety of sweets. The summer cuisine differs from winter cuisine; the latter consists of warming foods keeping in mind the cold temperatures. The traditional Punjabi meal is nutritionally balanced and is based on the wisdom of the ancients, who sought to combine foods based on the science of the 6 tastes. This chapter discusses in detail the evolution of agriculture and the unique dietary culture of Punjab.

## INTRODUCTION

Most Punjabi people live in villages. As per the latest census, the rural population is 1.73 crore. This India is a land that constitutes a unique blend of ancient customs and traditions with a hint of modernism

to produce a unique culture. The typical traditions, culture, and highly individualistic cuisine give each state a distinctiveness that is difficult to grasp. It is this diversity that brings to light the richness of India's heritage.

An Indian state that ranks almost at the pinnacle of culture, cuisine, and traditions of its people, is 'Punjab.' The name Punjab is a mix of two Persian words, 'Punj' which means 'five' and 'Aab' which means 'water' [1]. The region was christened as 'Punjab' because five rivers originally ran through it.

The state lies in the North-Western province of India and spans over 50,362 sq. Km, which is approximately 1.7% of the total land area of India. At the North of Punjab, stand the majestic Himalayas, while the Hindu Kush range of mountains borders the Western parts of the state. It is bound by the deserts of Sindh and Rajasthan on the Southern side, while the Jamuna river runs through the North [2,3].

Punjab, itself, is located on a plain and is famous for the fertile soils and its subsequently rich produce [2,3]. Owing to this gift of nature, the mainstay of Punjab's economy has always been 'Agriculture.' The evidence of this has been found in the excavated remains of granaries from the ancient Indus Valley and Harrapan Civilizations [4,5]. Based on India's census conducted in 2011, the population of Punjab is approximately 2,77,43,338. This accounts for approximately 2.5% of the total population of India, and yet Punjab is one of the most prosperous states in the country. Its per capita income is approximately double that of the national average [6]!

Punjab experiences 3 distinct seasons due to its geography and sub-tropical latitude- viz., summer, followed by monsoons, and then winter [6,7]. The state experiences extreme temperatures – hot summers and cold, almost freezing winters. The best description of the climate would be tropical, hot, semi-arid, monsoon type; having distinctively cold winters and hot summers [7]. Many festivities are celebrated during the cold winters like Diwali, Dussehra, Lohri, and Hola Mohalla [6].

The course of human history in a region or country is largely influenced and shaped by the physical features of the land and its geography, and Punjab is no different. A close study of its location, climate, and features of the soil can reveal the influence these factors have on the history of this land. All of this has played an important role in the formation of its unique culture, traditions, and cuisines and ultimately has molded the lives of the indigenous people of Punjab through the centuries [8].

## **THE CULTURE and TRADITIONS OF PUNJAB**

The geographical location of Punjab is such that people of many races and ethnicities have settled here through the ages. Punjab is a land coveted by many conquerors and invaders and has invited settlers from all parts of the globe. Each of these societies has left its imprint on the indigenous people of Punjab by adding a bit of their popular tradition to the existing Punjabi traditions. It is interesting to note that the Afghans, Greeks, Persians, Huns, and Turks are considered to be a fragment of the Punjabi lineage. All of them have left behind a distinctive mark on the currently existing culture, tradition, art, and cuisine of Punjab [1].

Punjab boasts of a rich cultural heritage. Its unique and diverse nature is evident in the form of the

unique philosophical doctrines, poetry style, spirituality, traditional beliefs, religious and non-religious customs, music, cuisine, military fighting skills, value systems, and history.

The Punjabi people are well-known globally for their strong will, bravery, determination, love for food, music, and culture. It is this mix of ancient and modern civilization that gives Punjabi culture its uniqueness [4].

A very strong value system is ingrained in the people of Punjab and is inculcated right from birth. One of their distinctive values is that they consider a guest to be a representative of the Almighty. The literal translation of the term 'Atithi Devo Bhava' is 'Your guest is equivalent to God'. This value system is prevalent among the people. Anyone visiting a Punjabi household even today is witness to their legendary hospitality and warm-heartedness. The langar kitchens or community kitchens are set up at all gurudwaras (Sikh temples) is a notable example of the value system, cuisine, and culture of the Punjabi people [4].

The Punjabis are physically robust people[9], who have occupations that are mainly featured in the moderate activity levels owing to agriculture being their primary occupation. It is this difference in physical features and lifestyle that impacts the daily nutritional requirement of the indigenous population.

### **PUNJAB: AN AGRARIAN STATE**

Punjab contributes to nearly two-thirds of the total production of food grains and is therefore known as the '**breadbasket of India**' [6].

The 'Green revolution' changed the agricultural traditions in Punjab and has made the state an agricultural success. The implementation of pesticides and adaptation of crop rotation has revolutionized the farming traditions and has enabled farmers to yield good output. But the disadvantage of the Green Revolution is the subsequent reduction in production and the inevitable rise in the cost of traditional crops. It has been observed that the yield of legumes has reduced as major agricultural land is being used to grow staples like rice and wheat. With the green revolution also began the era of mechanization, and agriculture turned from an occupation involving hard manual labour to easier lifestyles.

The two major crops cultivated by the farmers of Punjab are rice and wheat; rice is grown in the Kharif season and wheat in the Rabi season [5]. Archeologists have discovered that wheat was grown in Punjab since time immemorial and this evidence can be dated back to approximately 6000 BC [3]. Basmati rice is another grain that is indigenous to Punjab. It has been the pride of the region for many centuries. Punjabi farmers have been practicing multi-cropping due to which the state has now become a significant contributor to other crops too. Grains like jowar, bajra, and barley and other crops like potatoes and sugarcane are widely cultivated [5].

Animal husbandry goes hand in hand with agriculture. Dairy farming is abundant in Punjab. The state contributes to one-third of India's milk production [2]. The state is known for its quality milk and milk products like ghee, butter, curd, and paneer [5]. Punjab contributes to one-third of India's milk production [2]. Yogurt or curd, locally known as 'dahi' is a chief fermented food product, widely produced and consumed in Punjab. It is known to be a good source of calcium and probiotics, especially useful

during the scorching summer months. The climatic conditions of the state government the agricultural produce and thus influence various aspects of the economy, including clothing, food habits, and culture [7].

### **THE MULTI-CULTURAL INFLUENCE ON THE CUISINE OF PUNJAB**

Punjabi food has become known throughout the world as the ‘Indian food’ as it includes the best dishes brought by the invaders and travelers, who have influenced Punjab over the centuries [3].

Punjab was strategically located on the legendary Silk Route and attracted large convoys of merchants who passed by this land on their way to trade their merchandise. This increased the demand for goods. The inhabitants of undivided Punjab, including Lahore, Amritsar, Karnal, and Ludhiana, stepped up into fulfilling these demands by evolving into large hubs for textile production [3].

On the other hand, Punjab attracted many invaders due to its irresistible combination of 3 most important features viz., a thriving economy, strategic geographical location, and fertile land .

The long list of invaders of Punjab included the Aryans, Mahmud of Ghazni, Timur from Central Asia, Mughals and the British, and many others. Each invasion left a lasting impression on the traditional cuisine of the indigenous Punjabi population and has played an important role in making it as it is today – a perfect *mélange* of Indo-Mughal-Persian-Afghani flavors [10].

The first wave of Aryans who arrived in Punjab between 3000BC to 2000 BC brought with them cattle and since then milk and milk products have had a place of pride in the cuisine of Punjab. The consumption of ghee and milk in Punjab is much higher than the national average and can well be the reason for the height and robust structure of the Punjabi population as compared to the rest of India. [3,9,11].

The tandoor made its way to Punjab from the Middle East, thousands of years ago. Even the word ‘tandoor’ is derived from the Babylonian word ‘tinuru’, which means fire’ [3].

The merchants from Persia brought with them the scrumptious samosa. The people of Punjab localized it by substituting the traditional meat filling of the Irani samosa with the widely available local potato-based filling. The Afghani food culture introduced into the Punjabi cuisine the subtle flavors of tandoori fish and meats and slow-cooked mutton *burra*, which use minimal spices and a roasting style of cooking[10].

The British custom of drinking tea was promoted among urban Punjabis [3], who localized it with the use of indigenous spices. The addition of ginger, cardamom (*elaichi*), and cloves gave tea its new famous moniker ‘*masala chai*’ which acts as a heartwarming drink, especially during the cold winter months. The British also contributed towards the making of the famous Punjabi *aloo tikki*, which was originally the localized version of the ‘cutlet’ which is an integral part of the English cuisine.

**Table 1: Food grown in Punjab**

Crops	Wheat, Basmati rice, maize, sugarcane
Legumes	Kidney beans, chickpea, etc
Vegetables (green)	Mustard greens, spinach, methi
Vegetables (other)	Brinjal, bitter gourd, squashes, chilies, potatoes and tomatoes
Aromatics	Onion, garlic, ginger, spices like cardamom (elaichi) and cloves, turmeric (haldi) and fennel

**Table 2 is a summary of contribution of various influencers to the Punjabi cuisine**

**Table 2: Influencers of Punjabi Cuisine**

Influencers	Food items	Localised version
Aryans (3000BC to 2000 BC)	Cattle (Milk)	Milk products like ghee, paneer, butter, yogurt, chaach (Buttermilk), lassi
Babylonians	Tinuru (to bake bread)	Tandoor (to cook tandoori rotis, naan, tand oori chicken)
Merchants from Persia	Samosa (with meat filling)	Samosa (with potato filling)
Afghani Cuisine	Slow-cooked meats with minimal spices, roasting style of cooking	Roasted meats, fish, slow-cooked mutton <i>burra</i>
Portuguese	Corn	<i>Makka</i> and its products
British	Tea	Masala chai with spices
British	Cutlet	<i>Aloo tikki</i>

The Punjabi cuisine today is now a heady mix of flavors that is steeped in the noble history of a grand state and its welcoming people.

## TRADITIONAL FOOD OF PUNJAB

The traditional meals of Punjab are highly influenced by the extreme climatic conditions of the region. Punjabi style cooking involves simplistic styles and incorporates bountiful seasonal foods to produce meals that are wholesome and nutritious. Just like other traditional Indian foods, Punjabi cooking involves grinding spices at home using a traditional mortar and pestle, which helps retain the fresh flavors and aromas of the spices.

Punjabi cuisine contains large amounts of milk and milk products, used in various forms at every meal. Desi ghee, butter or sunflower, or mustard oil are used to prepare most dishes. Food is traditionally cooked and served in brass or copper utensils as they are believed to be beneficial for health [9]. Punjabi cuisine boasts of a great variety of popular vegetarian and non-vegetarian dishes like the iconic and globally represented 'Butter chicken and naan' [10].

Punjabi comfort food is considered to be rotis, paranthas, rice, dal, and sabzi [10].

**Rotis:** Rotis are made from wheat, chickpea flour, or bajra; all of which are locally produced [3]. Rotis and *paranthas* are the staple food for the Punjabis. *Paranthas* became a part of the main-stream cuisine in North India because workers and farmers travelled long distances and could not come home during lunchtime. These farmers were given a packed lunch in the form of boiled vegetables stuffed in rotis with ghee, which helped them feel satiated till they reached home for dinner. The ingredients used in *Paranthas* (whole wheat flour, boiled / sautéed vegetables, and ghee) make them nutritionally sound.

**Rice:** Rice, although widely grown, is only eaten rarely [3]. But, dishes like *rajmah chaawal*, *kadhi chawaal*, and *bhurhani biryani* are traditional delicacies that are enjoyed globally.

**Lentils:** Pulses and legumes are also widely grown and consumed. *Mah ki daal*, *rajmah* and *chole*, and traditional bread-like *missi roti* are commonly eaten [3]. Snacks made from legumes include *pakor*s, which are famous traditional Punjabi dishes made using a chickpea flour coating over vegetables like onions and potatoes. Sweets like *besan ladoos/burfi* are also made with chickpea flour and generous amounts of ghee are eaten. These are eaten with gusto for every occasion.

It is a known fact that rising income increases protein consumption, both in urban and rural sectors and the protein consumption of Punjab proves this fact. The Leveraging Agriculture for Nutrition in South Asia (LANSA) committee compared the consumption of pulses between 2004-05 and 2011-12 and found that Punjab was one of the highest consumers of pulses and pulses products [11].

**Vegetables:** Potato, tomato, cauliflower, ladyfinger, cabbage, brinjal, different squashes, gourds, beans are widely grown. Leafy vegetables like mustard greens, spinach, and methi are grown and are a part of many traditional Punjabi dishes like *sarson ka saag*, *palak paneer*, etc.

**Fruits** like *kinnow* (mandarin), ber, guava, mango, litchi, jamun, lime, lemons, pomegranates, melons, etc., are also widely cultivated [12]

**Ghee and Oil:** Ghee and or white butter is a staple to all Punjabi meals, irrespective of the season or time of day, or year. The Punjabi people believe that pure ghee has medicinal properties [3] and can be used to prevent or treat illness. Ghee has a good shelf life and does not spoil at room temperature



even in the scorching summer months. Sunflower mustard oils are the 2 major types of oils used to cook. The high polyunsaturated fatty acid content (PUFA) in sunflower oil helps reduce the risk of heart disease. Mustard oil is known to have a very good monounsaturated fatty acid (MUFA) to PUFA ratio, while ghee is a rich source of saturated fats. The combined use of ghee, mustard and sunflower oil is ideal to maintain heart health.

**Milk & Milk Products:** Punjab is one of the highest consumers of milk and milk products as compared to the rest of India[11]. Yogurt or *dahi* is a staple of the cuisine of Punjab. A fermented food, the curd is eaten during the hot summers. It acts as a coolant for the digestive system and improves the quality of gut bacteria. Vegetables are added to *dahi* to make nutritious raitas which are eaten as accompaniments to the traditional varieties of *rotis*, *paranthas* and other traditional bread. Punjabi cuisine is also famous for its use of paneer or cottage cheese. It is used in many dishes, often combined with vegetables like peas, spinach, etc.

Some famous dishes including paneer are palak paneer (a combination of spinach and paneer), shahi paneer, karahi paneer (a combination of a variety of vegetables, paneer and cream in a rich gravy) and mutter paneer (a combination of peas and paneer) are famous all over the globe.

**Poultry and meat:** Poultry, lamb and goat meat are the preferred meat sources. Different types of meat preparations include biryani (slow-cooked basmati rice and meat), kebabs (made with minced meat, fish, or prawns), Butter Chicken (diced chicken in spiced tomato and cream sauce), RahraGosht (a combination of lamb mince and pieces), Haleem (a combination of wheat, barley, meats, lentils and spices, slow-cooked), etc..[13].

Freshwater fish is an intrinsic part of Punjabi cuisine. forms an important part of the diet. Amritsarimacchi, fish tikka and fried fish are popular fish dishes[13].

**Spices:** Punjabi cuisine uses a lot of whole spices like green cardamom, pepper, cumin or jeera, cloves, coriander, cinnamon, bay leaves, fenugreek, ajwain, fennel, etc. Amchoor (dry mango) powder and *anardana* are often used in preparing accompaniments like pickles and chutneys [13].

**Snacks:** Pakoras (made with *paneer*, *gobhi*, *palak*, *aloo*, *onion*, *harimirch*), *alootikki*, *samosas*, *paneer tikka*, *chicken tikka*, *palakchaat* (a recent innovation) are famous snacks [13].

Makka roasted over a coal fire (corn on cob) and channa (roasted) are popular, yet healthy snacks. *Chikki* or *gachak* or *reori*, which combine sesame (til) seeds with jaggery, are widely eaten especially in winter. They are nutrient-dense, mineral-rich snacks that are easily made and enjoyed by people of all ages. Another famous wintersweet snack is *Bhugga*. It is made by combining sesame seeds, khoya and dried fruits.

**Desserts:** As with the rest of India, traditional sweets form an important part of all Punjabi festivities. The spring festival of Basant calls for traditional sweets like *Gajrela* and *Pathurey*. Kashmiri tea or popular soft drinks are simply unavoidable on these occasions[14].

Punjabis are known for their sweet tooth and have incorporated a huge array of sweets made from milk, khoya, sugar and ghee as the main ingredients to their cuisine. Among others, *rabdi*, *kulfi*, *kheer*, *gajarkahalwa*, *gulabjamun*, *Jalebi*, etc. are the most famous [3].

Atte ka Halwa or wheat flour *sheera*, commonly known as *Kadha Prasad* is a popular dessert. It is made using a combination of wheat flour, jaggery and ghee, and is often served as *prasad* in Gurudwaras [13].

**Beverages:** Punjab boasts of a diverse range of beverages. It is traditional for buttermilk (*Chaach*) or *lassi* to be served at almost every meal [13].

Other famous beverages include *Shikanjvi*, *jal-jeera*, *kachhilassi*, *kanji* and *nimbu pani* which act as coolants and are highly indulged in during the summer months.






**Table 3: Popular Punjabi Dishes**




Type of dish	Dishes
Vegetarian	<i>Dal makhani, Dal fry, kadhi, amritsari kulcha, amritsari daal ladoo, papad, wadiya, makkai roti, sarson ka saag, chhole, rajmah, aloowadiyan</i>
Non –vegetarian	<i>Butter chicken, amritsari fish, tandoori chicken, chicken curry, chicken tikka, keema naan</i>
Beverages	<i>Malailassi, chaach, shikanji, jal-jeera, gajjar kanji, kacchi lassi</i>
Desserts	<i>Phirni, gurkahalwa, kheer, pinni, besanladoo, jalebi, gulanjamun, khajoor, kulfi, katlama n halwa</i>




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Table 4: Samples of Traditional Punjabi Foods

Name of the recipe	RECIPE	Goodness
<b>BEVERAGES</b>		
KacchiLassi 	Nonfermented, made by diluting milk with water - salt or sugar are added as per choice.	A very low-calorie refreshing drink that also offers some calcium besides being a good hydrant. Poor man's substitute to milk – commonly consumed in large volumes especially by the farmers.
Chaach / Buttermilk 	Fermented milk is churned till butter separates. The slurry that remains after the butter is removed is diluted and consumed chilled as a refreshing drink.	A low-calorie probiotic drink, aids in digestion and is a source of protein and calcium. An accompaniment to most meals irrespective of weather conditions.
Meethilassi 	Thick curd, sugar, and ice are blended to form a thick frothy drink without any added water.	A good gluten-free source of instant energy along with protein, calcium and phosphorus.
Barley sattu drink 	Roasted barley grains are powdered and sieved. 2 tbsp of this powder is added to a glass of chilled water and enjoyed as a super cooler.	A low-calorie gluten-containing drink with the goodness of soluble fiber.
Channasattu drink 	Roasted Bengal grams are finely powdered and sieved. This powder and some salt are added to cold water to make a delicious n healthy <i>sattu</i> drink.	A low calorie, gluten-free drink with decent amounts of protein.

<p>Gajjar&amp;Chukand erki kanji</p> 	<p>Sliced carrots, beetroot, salt and 2-3 tsp of powdered mustard seeds are mixed in a liter of water and the glass jar is left in the sun to ferment. It is ready to drink after about three days. Best enjoyed chilled along with the pickled vegetables.</p>	<p>A low calorie fermented, refreshing drink which aids in digestion and is also a good source of vitamin A and phytochemicals.</p>
<p>Bhallonki kanji</p>	<p>Small deep fried moong dal pakories/ fritters, salt, and powdered mustard seeds are mixed in a jar of water and left in the sun to ferment. After about three days, it is ready to serve chilled.</p>	<p>A refreshing fermented drink with some protein and fat makes for a good satiating drink.</p>
<p>Goondkatira milk</p> 	<p>A tsp of tragacanth gum is soaked in water for 4-5 hours till it swells up. This gel is then added to sweetened milk and served chilled.</p>	<p>A source of soluble fiber along with the goodness of milk, this drink is commonly consumed in summers to beat the heat.</p>
<p>Baelsharbat</p> 	<p>Pulp from a ripe Bael fruit is scooped and mixed with water and enjoyed chilled.</p>	<p>A natural source of potassium, soluble fiber, vitamin C and folate, this drink besides being refreshing helps in alleviating symptoms of irritable bowel syndrome.</p>

<p>Thand ai</p> 	<p>A powdered mix of different seeds &amp; nuts (musk melon, watermelon, poppy, almonds) along with some sugar and black pepper powder is added to milk and served cold.</p>	<p>Depending on the types of seeds and dry fruits used to make this drink, it makes up for a healthy drink which is a good source of protein and essential fatty acids.</p>
<p>Ret walichalli (corn cob cooked in hot sand )</p>  <p>SWEET AND TANGY BHUTTA दिल्ली वाला खट्टा मीठा भुंदा</p>	<p>Fresh ripe corn cobs along with peels are kept to cook under hot moist sand overnight. Once the pearls of corn are soft, salt and lemon juice are applied and the cobs are best enjoyed hot.</p>	<p>Naturally gluten-free and low in calories. Since the cob cooks in the natural moisture of its own (peels are not removed), retains flavour and all nutrients- the natural sweetness allows for its consumption without added butter or salt – keeps low on calories and is good for satiety.</p>
<p>DahiBhalla</p> 	<p>Soaked and ground moong/urad dal is shaped as balls or vada and then deep-fried. These are then soaked in water to soften them up and lightly squeezed. These are dipped in well-beaten curd, garnished with boiled potato, boiled Bengal grams, chopped onion, tamarind and coriander chutney along with salt, red chilli powder and roasted cumin seeds.</p>	<p>A preferred savory commonly served as a snack as well as along with the main meal.</p>






<p>Gur channa (Roasted bengal gram coated with jaggery)</p> 	<p>Powdered jaggery is heated in a broad pan till it melts. Roasted Bengal grams are then mixed into it and allowed to cool. This allows for a thin coating of jaggery on the roasted chana.</p>	<p>A quick ready to eat a gluten-free snack which is a good source of protein and energy along with some iron and fiber – provides early satiety.</p>
<p>Gur moongfaligachhak</p> 	<p>Jaggery, desi ghee and peanuts are heated in a pan till the jaggery melts. This mixture is molded into desired chikki-like shape and allowed to cool. On cooling, this makes crunchy chikki or gachhak as it is called in Punjab.</p>	<p>An easily available snack commonly eaten during winter months makes for an energy and protein-rich option with healthy fats like MUFAs and also some iron.</p>
<p>Gur tilChikki / Gachhak</p> 	<p>Jaggery, desi ghee and sesame seeds are heated in a pan till the jaggery melts. This mixture is molded into the desired chikki like shape and allowed to cool. On cooling, this makes crunchy chikki / gachhak.</p>	<p>Easily available during winter months, it is an energy and protein-rich option and a source of PUFA and micronutrients like calcium, magnesium, manganese, zinc and vitamin B6.</p>
<p>Til Bhugga</p> 	<p>Roasted sesame seeds and roasted khoya (condensed milk or mawa) are mixed and sugar is added as per taste to the hot mixture. This is then spread in the shape of burfi and allowed to cool. Chopped dry fruits can be added as an option.</p>	<p>Commonly made at home, it makes for high energy, high fat, protein-rich snack with the goodness of til / sesame seeds.</p>
<p>Roasted puffed Bajra n Jaggeryladdoos</p>	<p>Roasted and puffed <i>bajra</i> is mixed with a small amount of jaggery syrup (one thread consistency) and shaped as laddoos.</p>	

<p>Makkiki roti</p> 	<p>A dough is made with maize flour and warm water. The dough is then flattened or can be rolled in the form of a chapatti. Roast both sides well on a hot Tawa (can also be roasted on a <i>tawa</i> with ghee). Serve hot with <i>Sarson ka saag</i> and fresh homemade butter.</p>	<p>Naturally, gluten-free and fibre rich can be roasted and topped with white butter (not always shallow fried). Makes a yummy breakfast if made with added methi leaves &amp; radish which would add to the fiber and iron content along with increased satiety. Also relished as such with ghee and <i>shakkar</i>.</p>
<p>Missi Roti / Parantha</p> 	<p>A dough is made out of Bengal gram flour and wheat flour is taken in equal quantities. Ajwain, salt n chopped coriander and green chillies can be added to the dough as per choice. Chapattis or paranthas are rolled and roasted on a tawa with or without ghee/oil.</p>	<p>A cereal pulse combination makes it a complete or better amino acid profile.</p>
<p>Sarsonkasaag</p> 	<p>Mustard leaves, ginger, garlic and green chillies are washed, chopped and pressure cooked for 10-15 minutes. Once it cools down, a small amount of besan is added and the leaves are blended with a mixer. This smooth mixture is then cooked on a low flame for about 2 hours. A tempering of onion made in desi ghee is added while serving. Some people prefer to top it with a dollop of fresh homemade butter.</p>	<p>Besan is added which improves nutrients/protein content along with antioxidants and vitamins and fiber. Enjoyed best with hot <i>makki ki roti</i>. Some people do add amaranth leaves, turnip, radish and their leaves also to the mustard leaves while making this saag.</p>

<p>Chulai da saag</p> 	<p>Various varieties of amaranth leaves, little green gram, ginger, garlic and green chillies are washed, chopped and pressure cooked for 10-15 minutes. Once it cools down, the leaves are blended with a mixer. This smooth mixture is then cooked on a low flame for about 2 hours. A tempering of onion made in desi ghee is added while serving. Some people prefer to top it with a dollop of fresh homemade butter.</p>	<p>Very rich source of calcium – since amaranth leaves are available in many colors like red, they are also a source of phytochemicals.</p>
<p>Moth &amp; Bajra Khichri</p> 	<p>Soaked bajra (hand-pounded to remove peel), rice, moth dal and water are pressure cooked till done. Served as such, topped with ghee/butter.</p>	<p>A cereal pulse combination with lots of fiber – high satiety value which makes it a good choice for weight watchers</p>
<p>Chibberki chutney (Cucumis melo var. Agrestis or wild melon)</p> 	<p>Peeled chibbers, green chilli, salt and red chilli powder are blended to form a paste.</p>	<p>Though it's made up of 88.9% moisture, Chibber fruit contains sufficient amounts of all essential nutrients. This chutney is relished with almost every Punjabi meal.</p>



<p>Aloe vera Pickle</p> 	<p>After washing, the peel is removed and aloe vera stems are cut into small pieces and kept in sun for two days. Mustard oil, salt, red chilli powder, fennel, fenugreek and onion seeds are added and the mixture is placed in a jar. Pickle will be ready in a month.</p>	
<p>Kikar/ babool pods(pods of gum Arabic tree /<i>gond</i>) pickle</p> 	<p>Kikar pods are boiled and dried. Salt and red chilli powder are mixed and it is kept. After 3-4 days, excess water is removed and mustard oil is poured over it.</p>	
<p>Moolimoongreki chutney</p> 	<p>Made with coarsely ground and chopped radish, radish seed pods, salt and red chilli powder.</p>	<p>This is a fiber-rich chutney commonly eaten with meals and is sometimes substituted for a vegetable in rural Punjab.</p>
<p>Moringa bean pickle</p>	<p>Soft moringa pods are washed and chopped, dried and put in a jar. Leftover masala from any old mango pickle along with mustard oil is added. Pickle is ready in about 15 days.</p>	

## WINTER FOOD

The winter cuisine differs from food consumed during the summer months. The low winter temperature warrants a tweak in the diet to counter the many effects of the cold winter on the body[13].

Cold temperatures tend to make people feel hungrier, because of the increased energy required to keep the body warm. In other words, as the surrounding temperature decreases, the metabolism of the body increases to produce more energy to maintain body temperature.

Warming foods are more nutrient-dense and help satisfy the craving of the body during the cold winters. Root vegetables, oilseeds, nuts and foods of animal origin are considered to be warming [15].

Combinations of high energy, high protein foods provide the fuel that the body requires to combat the cold winter.

Winter menus include *chikkis*, sesame seeds, peanuts, *pinni*, *bhugga*, dried fruits, *panjiri*, *reori*, green leafy vegetables to help warm the body and contribute towards the body's iron and zinc stores[13, 16]. Another famous winter food combination is *sarson ka saag and makki di roti* which is a wholesome and nutritious combination of leafy vegetables and grains[10].

Rice in combination with jaggery (*Gur walla chawal*) or combination with green peas (*matar walla chawal*) are winter delicacies[13].

**Vegetables:** Fresh leafy vegetables like *sarson* (mustard leaves) are bountifully grown during winters and are an important source of micronutrients. Other vegetables like fenugreek or methi, spinach, peas, beans, cauliflower, roots like potatoes and yams, etc. are also liberally used in the winter cuisine[17].

The most warming vegetables are considered to be roots including potatoes, turnips, yams, garlic, onions, radishes, sweet potatoes, beets, carrots, etc. [16].

**Ghee:** Is another essential winter food. Ghee has a good shelflife and keeps well throughout the year. It is energy-dense and a rich source of essential fats and fat-soluble vitamins (like A, D and E). Ghee is a traditional Punjabi food ingredient that is widely consumed during winter[18].

**Beverages:** Another staple of the winter diet is a spicy drink called *kanji* made from black carrots. The combination of spices used to make this beverage is known to help maintain body heat and cope with the cold [9]. Hot *masala chai* is another all-time favourite winter beverage and is served with hot *pakoras* or *shakaar para* and *Matthis* [10].

## COOKING STYLES

Traditional Punjabi cuisine has adapted many cooking styles over the centuries. Most traditional



*Traditional sarsonkasaag and makkiki roti.*

homes are incomplete without a '*bhathi*', which is like a masonry oven and is made of bricks and clay covered with metal on top. Bamboo leaves are lit to provide a heat source. The traditional wood-burning stove used for cooking is called '*Chulla*' [12]. People living in urban areas do not use *chullas* for cooking, however, the food cooked on the '*chulla*' and '*bhathi*' provide a unique smoked flavor to the food which contributed to the robust flavors of the Punjabi cuisine [19].

The *tandoori* style of cooking is very popular and various dishes are prepared using a bell-shaped clay oven called the '*tandoor*'. The fuel for the '*tandoor*' is provided by wood and charcoal. This cooking style is used for traditional foods like bread (*naan*, *roti*), meats and fish [19].

Wood and charcoal are used as fuel and they give food its unique '*tandoori*' flavor. Different items like *naan*, *roti*, meats and fish dishes are prepared using this cooking style [19].

Based on the rich mix of cultural heritage, Punjabi cuisine has incorporated many different cooking styles that are both indigenous or copied from various invaders and passing traders. Traditional cooking styles include the following methods: [4]

- Frying or stir-frying
- Stewing or slow cooking
- Tandoori cooking (using tandoor)

## NUTRITIONAL BENEFITS OF TRADITIONAL FOODS

It is the fervent belief of the Punjabi people that food acts as nourishment and sustenance for the body and is provided as a gift from the Gods. Therefore, food is revered in Punjab [19]. Many ancient texts have explained the importance of food, the importance of traditional food, the foods to be consumed as per the change of season and their role in the body. All the ancient texts recommended foods based on geographical location, climatic conditions and body type [20].

It is interesting to note that the basis for the traditional Punjabi meal is derived from Ayurveda and incorporates a science of balance with 6 tastes: salty, sweet, sour, bitter, pungent and astringent which had to be present in every meal. This concept has been followed in the traditional Punjabi cuisine by all peoples irrespective of their class, religion, or caste [3]. For example, a traditional Punjabi meal with *parantha* is eaten in combination with a pickle which is 'salty', an 'astringent or bitter' raw chilly and a bowl of 'sour or sweet' *dahi* or milk and legumes [3].

## NUTRITIONALLY BALANCED MEAL

Traditional meals are based on the wisdom of the ancient peoples. The type of food consumed differs as per the temperatures to adapt to the body's need. The traditional Punjabi food is known to have a high nutritional value and is proven by various trials. The amino acid correction obtained by using a combination of cereals and pulses is a practice in almost all traditional meals.

Staple rural diets include combinations such as *methi roti* + *curd*, *chapati* + *dal* (*moong* or *moth dal*), *makai roti* + *Sarson saag*, and *kheer* + *poora*. A study conducted by Bains et al., demonstrated that the nutritional profile of these foods was found to justify their consumption [21].

The study showed that *Kheerpoora* was found to have the highest fat content owing to its deep-frying cooking method. In contrast, *methi roti* with curd had the lowest fat (10.84% vs. 5.4%). *Kheerpoora*; a staple during times of celebrations usually during the cold winter months. The high-fat percentage of the dish is meant to help the body maintain temperature and increase the feeling of satiety. *Methi roti* with curd is a daily staple. The nutrition factor is increased by the addition of green leafy vegetables (*methi*) and protein content is taken care of by the combination with curd [21].

Maize (*makke ki roti*) and *Sarson ka saag* had high levels of minerals such as iron, zinc and copper (6.8, 2.74 and 0.81 mg/100g, respectively); all of which are needed during the cold winter months. *Maize roti + sarson saag* and *Methi roti + curd* combination was found to be rich in phytin phosphorous (66.3 mg/100g) [21].

**Carbohydrates:** Rotis, being the staple food is the main source of carbohydrates, providing energy. Yams and potatoes, are energy-dense root vegetables and help contribute to the carbohydrate and energy requirement.

**Fats:** The fat requirement is met by the liberal use of ghee, white butter and oil in almost all meals. Other sources of fat include milk and milk products, nuts, eggs and meats. [13].

**Proteins:** Legumes or pulses, milk and milk products followed by eggs form the main sources of proteins in Punjab [9]. All traditional Punjabi meals seem to have a combination of a cereal pulse or a cereal and milk product. These combinations contribute to good quality protein requirements. Pulses, legumes as well as their flours (like besan) are widely used in food preparations and provide minerals and trace elements, in addition to protein, which are needed for well-being and are an essential part of the RDA [3].

**Vitamins and minerals:** The main source of vitamins and minerals are leafy greens, vegetables, nuts, fruits and pulses, Leafy green vegetables are packed with antioxidant vitamins and minerals.

Another study conducted by Gupta et al., showed that traditional Punjabi foods used a lot of fresh vegetables in their diet. It was interesting to note that the vegetable consumption in both traditional rural and urban households surpassed the recommended dietary allowance. Traditionally cooked vegetables may lead to losses of certain nutrients like ascorbic acid and beta carotene. However, they provide considerable amounts of other antioxidants and iron, which are crucial for body functions [17].

Punjabi cuisine is now one of the most popular and distinctive cuisines of India that offers a wide variety of dishes, both vegetarian and non-vegetarian.

## **CHANGING TIMES IMPACTING FOOD HABITS OF THE PUNJABI PEOPLE**

Punjabi people have been known, through the eras, for their adaptability and their ability to absorb various cultures and food habits. They have also been known to localize cuisines for better acceptability. For example; the conversion of the British outlet into *Aloo Tikki*.

This adaptability is observed even today, as evidenced by the Punjabi taste of foreign meals – for example, the delicious *Aloo Tikki Burger*, proudly displayed on the menu of the prestigious burger chain, the *Chicken Tikka pizza* toppings and the masala spice mix on French Fries. Even though this

virtue of adaptability speaks volumes about the big-heartedness and acceptance of the Punjabi people, it does not seem to bode well for their health.

The shift from traditional food habits and its impact on the population of Punjab is very evident from the National family health survey (NFHS)-4 survey conducted in 2015-2016. Based on these results, the prevalence of overweight or obesity (BMI  $\geq 25.0$  kg/m<sup>2</sup>) has seen a tremendous rise when compared to the NFHS-3 conducted in 2005-06 (Table 6) [22].

Obesity/overweight among women has risen from 29.9% in NFHS-3 to 31.3% (NFHS-4). 32.4% of urban women and 30.6% of rural women now fall into the obese/overweight category. Similar trends were found among Punjabi men, where obesity/overweight has risen by almost 5% in a decade (22.2% in 2005-06 to 27.8% in 2015-2016). The prevalence of obesity/overweight in urban Punjabi men is 32.1%, while in rural areas it is 25.0% [22].

These statistics are not restricted to adults only. The Comprehensive National Nutrition Survey of Punjab (2017-2018) has revealed some alarming statistics. It showed that 8.2% of urban children and 7.8% of rural children aged 5 to 9 years are obese or overweight (having a z-score  $>+1$  standard deviation SD). Similar statistics are seen among adolescents aged 10 to 14 years. 11.4% of urban and 9.2% rural adolescents are overweight or obese (BMI for age) z-score  $>1$ SD [23].

The demographic and nutrition transition, lack of physical activity has contributed largely to the emerging epidemic of non-communicable diseases (NCDs) [15]. According to the latest NFHS survey (2015-2016), 2.5% of urban women and 3.3% of urban men have very high blood sugar levels ( $>160$  mg/dl). Similar trends are also found in rural areas, with 2.7% of the rural men and women having very high blood sugar levels (Table 5) [22].

It is disturbing to find that there seems to be a high prevalence of NCDs even in children and adolescents in Punjab. It has been observed that 8.9% of children (5-9 years) and 9.7% of adolescents (10 to 19 years) suffer from high fasting plasma glucose, which is indicative of pre-diabetes. Low-density lipoprotein (LDL) levels are also found to be increased in both children and adolescents; 1.9% and 3.3% respectively. (Table 6) [23].

**Table 5: Key indicators of NCDs in adults [22]**

Adults	Urban	Rural	Total (2015-2016)	Total (2005-2006)
Women with blood sugar level – high ( $>140$ mg/dl)	5.7	6.3	6.1	na
Women with blood sugar level – very high ( $>160$ mg/dl)	3.3	2.7	2.9	na
Men with blood sugar level –high ( $>140$ mg/dl)	6.8	6.6	6.7	na
Men with blood sugar level – very high ( $>160$ mg/dl)	3.3	2.7	2.9	na

**Table 6: Key indicators of NCD risk in children and adolescents [23]**

<b>Children and adolescents</b>	<b>Children (5-9 years) Total (95% CI)</b>	<b>Adolescents (10-19 years) Total (95% CI)</b>
Prevalence of high total Cholesterol <sup>1</sup> (%)	2.2 (1.2-4.1)	3.8 (1.9-7.6)
Prevalence of high LDL Cholesterol <sup>2</sup> (%)	1.9(0.9-3.6)	3.3(1.6-7.0)
Prevalence of high Triglycerides <sup>3</sup>	24.4(20.3-29.0)	9.8(7.1-13.5)
Prevalence of high fasting plasma glucose <sup>16,17</sup> (indicative of prediabetes) <sup>4,5</sup> (%)	8.9(6.0-13.0)	9.7(6.4-14.5)
Prevalence of glycosylated haemoglobin concentration 5.7-6.4% (indicative of prediabetes) <sup>5</sup>	13.2(9.6-17.8)	14.0(10.3-18.7)

<sup>1</sup>Total cholesterol e” 200 mg/dl; Cut-offs taken from National Cholesterol Education Program

<sup>2</sup>LDL e” 130 mg/dl; Cut-offs taken from National Cholesterol Education Program

<sup>3</sup>For children aged 5-9 years: serum triglycerides > 100 mg/dl; and for adolescents aged 10-19 years: serum

triglycerides > 130 mg/dl; cut-offs taken from National Cholesterol Education Program.

<sup>4</sup>Plasma glucose > 100 mg/dl &<126 mg/dl, indicative of prediabetes

<sup>5</sup>Cut-off taken from Global International Diabetes Federation

LDL: Low-density lipoprotein; CI: Confidence interval

The increasing prevalence of overweight and obesity and NCDs can be attributed to the changing food habits in both rural and urban areas as demonstrated by a study conducted by Tripathy et al, which evaluated the difference between the intake of rural versus urban Punjabi households. The results showed that both urban and rural households had a low intake of fruits and vegetables as compared to the recommended daily allowance (2.3and 2.2 in urban and rural areas respectively) [24]. This low intake of dietary fiber and antioxidants could be major contributors to the rising prevalence of obesity and NCDs among the indigenous Punjabi population, especially among the younger generation.

Another study conducted by Dixit S et al studied the trans-fatty acid intake through edible oils and fats among Indians. The results show that Punjab had the highest consumption of hydrogenated vegetable oils; 1.09-fold higher as compared to the rest of India. This alarming trend could be the reason why the Punjabi population seems to be at a high risk of developing cardiovascular disease [25].

Modern citizenry seems to be so eager to adapt to the dietary habits of other cultures, that they tend to forget their traditional cuisines. There seems to be a gravitation towards the flavor rather than the nourishment of food and this may often lead to meals that are nutritionally compromised.

### **THE NEED FOR NUTRITIONALLY SOUND MEAL CHOICES**

A glance at the growing rates of non-communicable diseases is all that is needed to understand the gravity of the current situation. It is important to realize that not all acclaimed modern superfoods are meant for the indigenous population.

It is crucial to remember the phrase, “One man’s meat is another man’s poison.”

The citizens must realize that the value of traditional foods and cooking styles can measure up and be even better than any superfood that the Western world can offer. For example, the traditional snack ‘*chikki*’ is as good as a granola bar, while the fatty acid content of olive oil is no match for the traditionally used mustard oil.

While absorbing food choices from other cultures, it is important to note that every region has its own locally grown, indigenous food, that best suits its population.

Traditional cuisines are created based on the local produce, climate and lifestyle of the indigenous people. This is evidenced by some common examples, like the use of ghee; which is purported to be bad by modern health gurus. However, the fact remains that ghee is one of the easily digestible fats, needed to keep the body warm during cold winters. It is locally produced, is a widely available source of energy and fat-soluble vitamins for the indigenous population.

Another benefit of traditional diets is their ability to create and maintain a delicate balance in the gut microbiota. Traditional Punjabi cuisine is a tribute to this, as it involves a lot of fermented yogurt or *dahi* in almost every meal, creating a favourable microenvironment for the development and maintenance of gut bacteria, thus protecting from many ailments.

Modern lifestyles that involve foods influenced by Western culture, combined with a sedentary lifestyle is playing a major role in the deteriorating health status of the Punjabi people. It is time to increase awareness about food choices and to inculcate in our young, the virtues of traditional foods and lifestyle.

Adapting to modern dietary choices is not bad, but making it a way of life is something that needs to be thought about carefully.

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# ANTHROPOLOGY OF FOOD AND DIETARY CULTURE OF HIMACHAL PRADESH

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## ABSTRACT

Himachal Pradesh is the land of gods and is traditionally a rich state. Its diversity is seen across its culture, anthropology, environment, and topography, and reflection of this diversity is evident from day to day life. Traditional food is the heritage of Himachal Pradesh and it separates the state into twelve parts as Himachal has twelve districts and each district is distinguished by its own rich culture and traditional foods. Agriculture is the main source of income and employment in the state. The traditional crops mainly include cereals (wheat, maize, red rice), millets (foxtail millet, barnyard millet, finger millet, proso millet, barley, amaranth), pseudocereals (buckwheat), oilseeds (sesame seed, flaxseed), and pulses (black gram, green gram, cowpea, kidney bean, *arhar*, chickpea, lentils, and soybean). Agricultural diversification towards fruit and vegetable crops in Himachal Pradesh, especially in some areas in the districts of *Shimla*, *Kullu*, *Solan*, and *Lahaul & Spiti*, started in the late sixties and continued in the seventies and the eighties. In the nineties, the process of crop diversification gained momentum and has now encompassed many new areas in the low and mid-hill districts. The indigenous crops grown in the state are area and climate-specific and their consumption is seen in various types of food preparations of that area which are consumed as staple foods or as special foods during special occasions like festivals, ceremonies, etc.

The treasure of food heritage- the ethnic foods of the district are an integral component of the state. Some of these foods are specially prepared during marriages, local festivals, and special occasions. Although ethnic foods serve as nutritional supplements yet due to modernization in food habits, old traditional preparations are on the verge of disappearance. Some of the fermented cereal-based fermented

foods like *bhaturu* constitute staple food in many rural areas of Kullu, Mandi, Kangra, and *siddu* in Kullu, Shimla, and Lahaul Spiti districts whereas, other traditional food preparations are usually consumed during local festivals, marriages, and special occasions (Anju et al, 2010). People of different regions of the state use the available raw materials, indigenous knowledge, and traditionally grown crops to make a wide variety of food preparations that are utilized according to seasonal and occasional requirements. The typical daily meal of the people of Himachal Pradesh includes rice, dal, some seasonal vegetable with chappati, and the special food preparations including sweet dishes are cooked and consumed during special occasions.

## INTRODUCTION

Himachal Pradesh is known as '*Dev Bhoomi*' i.e. the abode of God. It is situated in the North-western part of India, surrounded by Jammu and Kashmir in the north, Tibet in the northeast, Uttaranchal in the east/southeast, Haryana in the south, and Punjab in the southwest/west. The state shares an international border with China. The state's name was coined from Sanskrit- *Him* which means snow and *achal* which means land or abode [Acharya Diwakar Datt Sharma, one of the eminent Sanskrit scholars (Verma, 2020)].

Himachal Pradesh is a diverse state-based on culture, anthropology, environment, and topography. The reflection of this diversity is evident from day to day life. There are 12 districts in the state- *Shimla*, *Kangra*, *Mandi*, *Solan*, *Sirmour*, *Bilaspur*, *Una*, *Chamba*, *Lahaul and Spiti*, *Kullu*, and *Kinnaur*. *Shimla* is the capital of Himachal Pradesh. People of different regions of the state use the available raw materials, indigenous knowledge, and traditionally grown crops to make a wide variety of food preparations that are utilized according to seasonal and occasional requirements. These indigenous food recipes are specific to a particular region and rely greatly on local ingredients and cooking methods like boiling, simmering, steaming, baking, frying, sautéing, sun drying, etc.

The high nutritional requirements of the inhabitants, geographical and climatic conditions of the state are the major factors affecting the cuisine of the hill state. Accordingly, the modified cuisine has been developed to provide maximum heat and energy to the people. All these indigenous foods are prepared under natural conditions using simple devices and other staple ingredients.

## GEOGRAPHY and CULTURE

The location of Himachal Pradesh is 30 degrees 22' 40" to 33 degrees 12' 20" North latitudes and 75 degrees 45' 55" to 79 degrees 04' 20" east longitudes. It is predominantly a hill state situated in North-Western India. About 45% of the net state domestic product is from agriculture as it is the main source of income and employment for the people of the state. Hence agriculture is the backbone of the state and more than 93 percent of the state's population depends on agriculture in one way or the other. The total geographical area of Himachal Pradesh is 55.673 sq km and it is divided into the following four agro-climatic zones:

- **Shivalik Hill Zone:** This zone has a subtropical climate and includes foothills and valley areas from

350 to 650 meters above the mean sea level. This zone covers about 40 percent of the cultivated area of the state.

- Mid Hill Zone: This zone has a mild temperate climate and extends from 651 meters to 1800 meters above mean sea level. It occupies about 32 percent of the geographical area and covers about 37 percent of the cultivated area of the state.
- High Hill Zone: With a humid temperate climate and alpine pastures, this zone extends from 1801 to 2200 meters above mean sea level and covers about 35 percent of the geographical area and about 21 per cent of the cultivated area of the state.
- Cold Dry Zone: This zone comprises an area that is 2200 meters above mean sea level and occupies only about 8 percent of the geographical area and 2 percent of the total cultivated area. Owing to its favorable climatic conditions, this area is suited for the growth of wheat, barley, and pseudocereals like buckwheat and amaranth.

Most of the geographical area of the state is under forests, pastures, and grazing lands. Less than ten percent of the area is under cultivation. There is a large range of mountains and valleys rising from 350 meters to 7000 meters above the mean sea level. The annual rainfall is 350 millimeters and the climate ranges from sub-tropical to sub-arctic. The diverse climate varies from semi-tropical in the lower hills to semi-arctic in the cold desert areas of Spiti and *Kinnaur*. The temperature varies from -25 degrees Celsius to 42 degrees Celsius. There are natural lakes and snow-fed parts in the state.

The major factors that provide wide opportunities and potential for agriculture and horticulture in the state are its topography, soil, climate, temperature and rainfall. Due to its hilly terrain, the economy of the state is predominantly mixed farming, agro-pastoral, Silvi-pastoral, and agri-horticultural. Most of the group based farming systems engaging a majority of the farmers are found in the valleys of *Yamuna, Satluj, Beas, Ravi, Chanderbaga*, and their tributaries.

People of Himachal Pradesh have retained their age-old customs and traditions. They have also kept pace with the changing times by embracing new influences. Their rich culture is reflected in their colourful dresses and amazing celebrations. A variety of fairs and festivals which showcase the rich cultural heritage of the state are worth describing. People put on festive ensembles that consist of colourful dresses and elegant jewellery. A variety of mouth-watering traditional dishes are also prepared. All the celebrations may it be ceremonies, marriages, or festivals are incomplete without folk music and dance. These folk dances and folk music differ from region to region but are popular among all Himachalis. The popular dance forms of the state are the *Kayang* dance, the *Bakayang* dance, the *Rakshasa* dance, *Jhoor* dance and the *Rasa* dance (Verma, 2020). The popular fairs and festivals and special foods prepared during their celebration in Himachal Pradesh are as under:

<b>Fair and festival</b>	<b>Area where celebrated</b>	<b>Significance</b>	<b>Special foods prepared</b>
<i>Halda</i>	<i>Lahaul Spiti</i>	To welcome the New Year	<i>Manna and siddu with ghee, Geri or shakal, marchu/ poltu/polay</i>
<i>Lohri /Maghi</i>	<i>Kangra, Una</i>	A ceremonial ritual on the onset of harvesting of Rabi crop.	<i>Til choli, khichari</i>
<i>Losar- Tibetan New Year</i>	<i>Lahaul Spiti, Kangra (Dharamsala)</i>	The New Year celebration of Tibetans. Prayers for peace, happiness and good fortune by worshipping the holy deity of the monastery	Special cake ( <i>kapse</i> ) and alcoholic beverage ( <i>chang</i> )
<i>Doongri Festival or Hadimba Devi fair</i>	<i>Kullu</i>	Celebrated in honour of Hadimba Devi's birthday.	<i>Bhallay, stuffed bhaturay, halwa</i>
<i>Maha Shivaratri</i>	<i>Mandi</i>	To celebrate Lord Shiva's marriage with Goddess Parvati	<i>Bhalle, Bedwain roti mithru, poday, madra, channe</i>
<i>Phulaich Festival</i>	<i>Kinnaur valley</i>	Festival is associated with the blooming of flowers	Meat, rice, liquor
<i>Halda/ Phagli</i>	<i>Lahaul Spiti</i>	A grand carnival to welcome the New Year	<i>Marchu, poltu/polay, Geri or shakhal</i>
<i>Dholru</i>	<i>Bilaspur, Kangra, Hamirpur</i>	Celebrated in the first month of the lunar year and the first day of the month to bring happiness and prosperity	<i>Aenkadu/ askalu, gulgulae, malpuday</i>
<i>Kullu Dusshera</i>	<i>Kullu</i>	Worshipping lord Rama to commemorate victory of good over evil.	<i>Siddu, bhaturu, mithdoo</i>
<i>Minjar Fair</i>	<i>Chamba</i>	Celebrated as a tribute of victory of the Ruler of Chamba over the ruler of Trigarta	<i>Babroo, bada, khaatay aalu, halwa and sagot</i>

## AGRICULTURE/CROPS /LOCAL FOODS ESPECIALLY UNIQUE HEALTHY CROPS/FRUITS

Agriculture is considered a major source of income and employment. More than 93 percent of people depend directly on agriculture and it provides direct employment to 71 percent of people. Agricultural diversification towards fruit and vegetable crops in Himachal Pradesh, especially in some areas in the districts of *Shimla, Kullu, Solan*, and *Lahaul & Spiti* started in the late sixties and continued in the seventies and the eighties.

Traditional agriculture in the past was for subsistence with a cereal-based farming system where millets and pseudocereals were important components in the state. Some of the traditionally grown grains of the state include amaranths, *Arhar daal*, Chenopod (*Bathua*), Bengal gram (*Chana*), Barnyard Millet (*Shownk, Sawa*), Ragi, Barley, Flax seeds, Horse gram (*Kulthi*), Sesame (*til*), finger millet (*Kodra*), Red rice, kidney beans (*Rajmah*), Lentil (*masoor*), Soybean, Lobia, fox tail millet (*Kangani*), etc. Finger millets (*ragi*) is the most important minor millet of the state. Other millets grown are Proso millets or common millet (*Cheena*) and Italian millet or Fox millet (*Kangni*).

Wheat, Barley, Maize, and Amaranth are grown in all the districts of Himachal Pradesh whereas, Barnyard millet is grown in Sirmour, Shimla, and Kinnaur districts only. Kangra, Mandi, and to some extent *Paonta* Valley of Sirmour district are the major producers of wheat, rice, and maize while barley is mostly grown in *Shimla* district. Kidney bean, Proso millet, Horse gram, Flaxseed, Lentil, Soybean, Finger millet, *Bathua*, Sesame, Lobia, Black gram, and Foxtail millets are grown in Shimla, Kangra, Mandi, Chamba, and Sirmour districts. Red rice is grown in Shimla, Kullu, Kangra, Chamba, Sirmour, and Mandi districts. Buckwheat is grown in Shimla, Mandi, and some parts of *Kangra* District. In *Lahaul and Spiti* district, Kidney beans, *Buckwheat, Bathua, Kodra* are grown. *Arhar dal* is grown in Hamirpur, Bilaspur, Kangra, Sirmour, Shimla, Mandi, and Solan Districts.

In *Shimla, Kullu, and Lahaul* areas, potato is grown for seed purpose. Fruit cultivation is another field that has proved to be an economic boon to the farmers. ‘Apple State of India’ is another popular name given to Himachal Pradesh as it produces large scale of fruits. Ginger, vegetables, vegetable seeds, mushrooms, chicory seeds, hops, olives, and figs are also grown as commercial crops of HP.

### HEALTH BENEFITS OF INDIGENOUS CROPS GROWN IN DIFFERENT AREAS OF HIMACHAL PRADESH:

1. **Amaranth:** Amaranth is commonly known as *Sayool* or *Choolayee* is grown in every district of Himachal Pradesh. Lysine and tryptophan are the main amino acids in amaranth. It helps boost the immune system of the body. It is believed to reduce blood cholesterol. It is gluten-free and is a good food option for those with gluten intolerance.
2. **Barnyard millet:** Commonly known as *Shownk* and is grown in *Shimla, Sirmour*, and *Kinnaur* districts of Himachal Pradesh. It is high in dietary fiber hence useful in managing overweight and hyperlipidemia. It contains high amounts of linoleic acid, minerals, and amino acids. It has a low Glycemic Index, therefore, recommended for managing diabetes.

3. **Chenopodium:** Commonly known as *Bathua*, is an excellent source of proteins, lipids, sugar, minerals, and vitamins. It is a rich source of the vitamin B complex, C and E. It has good amounts of folic acid. It is a rich source of phytochemicals.
4. **Buckwheat:** Commonly known as *ogla* or *fafra*. It is a good source of fiber and helps in reducing overweight, cholesterol, and cures arteriosclerosis and diabetes. Good source of proteins so helpful in boosting the immune system. Buckwheat proteins are rich in amino acids like lysine, arginine, aspartic acid and contain less glutamic acid, proline than cereal proteins. The significant contents of rutin, catechins, and other polyphenols as well as their potential antioxidant activity are also of significance to the dietary value (Dhaliwal and Verma, 2019)
5. **Finger millet:** Popularly known as *kodra*, it is a good source of dietary fiber that helps in weight as well as cholesterol management. The good iron content in finger millets helps in curing anemia. Good source of amino acids tryptophan and methionine. It is a rich source of calcium and potassium which is good for bones and teeth health. It is a good source of phytochemicals. Being gluten-free it is a good option for celiac patients having a gluten intolerance.
6. **Barley (Jau):** It has marked its presence in almost all the districts of Himachal Pradesh. It is a good source of insoluble dietary fiber hence useful in the management of diabetes and overweight. It has good antioxidant properties because of the presence of good amounts of selenium and Vitamin E in it.
7. **Flax seeds:** It is popularly known as Linseed or *alsi* seed. It is grown in all the districts except Kinnaur and Lahaul Spiti. They are rich in omega 3 fatty acids. Flaxseed contains lignans and isoflavonoids, also known as phytoestrogens which influence estrogen metabolism and reduce the incidence of breast cancer.
8. **Proso millet (cheena):** It is rich in protein with lysine, methionine, and tryptophan contents twice higher than wheat and rice. The proteins present in *cheena* are a potential therapeutic intervention in type-II diabetes. It is rich in antioxidants and plays an important role in boosting immunity.
9. **Foxtail millet:** It is popularly known as *Kangni* and is grown as a mixed crop with rice/ maize and is occasionally grown as a sole crop in Sirmour, Bilaspur, Una, Hamirpur, Kangra, Mandi, Kullu, Solan, Shimla, and Chamba. It has a low glycemic index and is hence helpful in controlling blood sugar levels. It helps in lowering triglycerides level, thus reduces the risk of a heart attack. It is a good source of linoleic acid and tocopherols which boosts antioxidant activity. It is an excellent source of fiber and protein-rich in isoleucine, methionine, lysine, cysteine, leucine, and tryptophan.
10. **Sesame seeds:** Also known as Gingelly seeds or *Til*. It contains sesamin and sesamol known to have a cholesterol-lowering effect in humans and to prevent high blood pressure. It is rich in proteins and has antioxidant properties. It has antidiabetic, antitumor, antiulcer, anti-inflammatory, cardiogenic, and analgesic properties.
11. **Bengal gram (chana):** It is a good source of proteins. They have high antioxidant, anticancer, and diuretic properties. Consumption of *chana* helps in the regulation of cardiovascular diseases and digestive disorders.

12. **Soybean:** Soybean is a good source of proteins as well as fats. It contains omega-3 fatty acids which lower cholesterol levels and helps in preventing cardiovascular disorders. Regular consumption of soybean lowers the risk of cancer, alleviate postmenopausal problems and osteoporosis.
13. **Horse gram:** Popularly known as *kulthi*. It is rich in antioxidants. It helps eliminate kidney stones. Selenium present in red rice protects the body against infections.
14. **Lentil:** Lentils are rich in protein, fiber, iron, folate, and other important nutrients. They have anti-carcinogenic, blood pressure-lowering, hypo-cholesterolemic, and glycemic lowering properties. Consumption of lentils is helpful in the prevention of diabetes, cancer, and cardiovascular disorders.
15. **Red Rice:** Commonly known as *lal dhan* is rich in anthocyanins. It helps protect against body infections due to the presence of good amounts of selenium in it. It is used for curing blood pressure and fever. A local variety of *lal dhan* known as *Kafalya*, is used for treating leucorrhoea and abortion complications. The manganese present in red rice helps in strengthening metabolism, while magnesium along with calcium helps in maintaining healthy bones/teeth and prevents the risk of arthritis/osteoporosis.
16. **Kidney bean (*Rajmah*):** It is a good source of proteins, carbohydrates, vitamin B complex (thiamine, riboflavin, niacin), and folic acid. It provides iron, copper, zinc, phosphorus, potassium, magnesium, calcium, and high fiber content.
17. **Maize:** Popularly known as *Makki* and is grown in all the districts of Himachal Pradesh. It has high nutritional significance enriched with abundant amounts of macronutrients like starch, fiber, protein, and fat along with micronutrients like vitamin B complex, B-carotene, and essential minerals like magnesium, zinc, phosphorus, and copper.
18. **Wheat:** Wheat is grown in all the zones of Himachal Pradesh. Wheat bran is used as a source of dietary fiber that prevents colon diseases.
19. **Black Gram:** Popularly known as *Mash* or *desi maah*. It is grown as a mixed crop with maize as well as sole crop in all the districts except *Lahaul* and *Spiti*. They are a good source of protein and possess antioxidant activity.
20. **Green Gram:** Also called *Mung* are a good source of proteins. Seeds and sprouts of moong have health-promoting effects. Regular consumption of *moong* could reduce the risk of hypercholesterolemia and coronary heart disease.
21. **Cowpea:** Also known as *Lobia* or *rongi*. It is grown in all the districts of Himachal Pradesh except for *Kinnaur* and *Lahaul Spiti*. It is rich in fiber and is used to treat constipation. It contains some anti-nutritional elements, notable phytic acid, and protease inhibitor which reduces the nutritional value of the crop but roasting/ soaking/ cooking reduces the anti-nutritional factors.

#### **TRADITIONS/FOOD HABITS /CUISINES ITS RELATIONSHIP TO FOOD AND NUTRITION SECURITY OF VARIOUS POPULATION GROUPS.**

The people of the state belong to several castes, creeds, and religious groups and there is strong cultural coalescence. The rich culture and traditions of Himachal Pradesh are reflected in its cuisine that



encompasses a wide range of delicacies enriching the palate with a plethora of aroma and taste. The cuisine of Himachal is influenced by the neighbouring lands of Punjab and Tibet. The daily cuisine is simple and bears similarity to that of other north Indian states. The geographical and climatic conditions of Himachal Pradesh have a strong effect on the dishes and how they are prepared. The staple diet of people largely consists of rice, maize, and paddy. In the barren regions of Kinnaur and Lahaul and Spiti, there is a greater emphasis on locally-grown coarse grains like buckwheat, millet, and barley. Milk and its products are liberally used in cooking in areas with pastoral tradition (Gulshan and Sampy, 2019).

The typical Himachali meal consists of *dal-chawal-sabzi* and *roti*. Special dishes are cooked only during festive or ceremonial occasions (Sharma and Singh, 2012). '*Madra*' of *Chamba* is unique as it includes more than ten spices and is made of *Rajmah* and cooked in yogurt and *desi* ghee on slow fire. The *Makki* or fresh corn flour of Himachal Pradesh is especially delicious as it is ground slowly in *Paani ke Gharaats* i.e. water-propelled mill and eaten with milk in breakfast. *Makki* or lentil and spices with *Chhachh* i.e. buttermilk are eaten by hardy mountain folks. *Sidu* is a kind of fermented bread made from wheat flour and is normally consumed with ghee, dal, or lentil broth as well as mutton. A pancake type of dish prepared during festive occasions using rice flour is popularly known as *ankalian* in many parts of the state. Similarly, *aktori* which is prepared with leaves of buckwheat mixed with wheat flour and made into cakes is a delicacy in dry *Lahaul Spiti* valley. *Patande* is a dish like pancakes which is the specialty of *Shimla*, *Sirmour* and *Chamba* areas. *Poltu*, *chilte* or *hoda*, *du phanitang*, *muri*, *chulphant*, *joote* and *kaoni* are typical dishes of *Kinnaur* (Pratibha, 2009). The *dham* is a traditional festive meal in *Kangra* and *Chamba* regions which is cooked without onion and garlic.

Traditional food is the heritage of Himachal Pradesh. Traditional foods involve different preparation techniques which make traditional foods even more nutritious and delicious. The techniques of preparing and preserving these foods, both fermented and non-fermented with selected natural herbal additives have provided them a unique flavour that has enhanced their deliciousness and has made them highly acceptable not only to the local people but nationally and globally as well. Most of these food preparations are designed for daily consumption but a number of them have been developed for ceremonial occasions as well as for pediatric, geriatric, and other purposes.

Many of the traditional ethnic food preparations, estimated to be over fifty, which were originally developed and prepared for consumption at home for family, have evolved slowly into commercial products to meet the changing social and economic needs. In upper areas, *Guchhi*, *chulli* (wild apricot), *baimi* (wild peach), grapes, almond, peach, plum, walnut and *chilgoza* are important products besides apple. In cold areas, dried meat is considered as a delicacy. Mutton, chicken, and goat meats are mostly consumed. In tribal and some other areas in the middle belt, the staple food is barley, buckwheat, and potatoes (Verma and Dhaliwal, 2007) Thick stew of roasted barley flour (*Sattu*) is also consumed. People of *Chamba* regions consume maize and potatoes almost daily whereas, wheat and barley in the ratio of 1:1 are consumed during the summer season (Kishtwaria and Dhaliwal, 2003). Traditional food is nutritionally rich food. It has all the essential components which a body requires for its healthy growth.

Traditional foods of Himachal Pradesh can be classified broadly under different categories based on the raw materials belonging to different food groups used to prepare those foods:

**1. Cereal and legume-based traditional food recipes:** Wheat, rice, maize, buckwheat, barley, and millets are the major cereals consumed by the people of the state. The food preparations based on these are consumed either on daily basis or are prepared and consumed occasionally during festive occasions.

Food preparation	Main ingredients	Type of preparation	When prepared	Areas of consumption
<i>Bhaturu</i> **	Wheat flour	Fermented-baked and fried	Staple food	<i>Kangra, Hamirpur, Bilaspur, Mandi, Kullu, Lahaul Spiti,</i>
<i>Chillae/ Chilru</i>	Buckwheat flour and wheat flour	Shallow fried pancake	Staple food	<i>Kullu, Kinnaur, Mandi</i>
<i>Babro</i> **	Wheat flour/rice, salt/salt, sugar, ghee	Fermented shallow fried	Breakfast food/ snack food	<i>Kangra, hamba, Mandi, Kullu</i>
<i>Beduan roti</i> **	Wheat flour, black gram, oil	Fermented and fried	Festive	<i>Mandi, Hamirpur, Bilaspur, Kangra</i>
<i>Dhandar</i>	Wheat, sugar, ghee	Shallow fried pancake type	Festive	<i>Hamirpur</i>
<i>Gulgulae</i> **	Wheat flour, sugar and ghee	Fermented deep fried	Social ceremony	<i>Kangra, Mandi</i>
<i>Mithdoo</i> **	Wheat flour sugar/jaggery, Coconut, poppy seeds, aniseeds	Fermented and fried	Festive occasion	<i>Kangra, Hamirpur</i>
<i>Seera</i> **	Wheat, sugar, ghee	Fermented and fried in ghee	Social ceremony/ snack food	<i>Kangra, Hamirpur, Bilaspur, Mandi</i>
<i>Aenkadu</i>	Rice flour	Shallow fried	Festive occasion	<i>Bilaspur, Hamirpur, Solan</i>

<i>Aet</i>	Wheat flour	Baked	During marriage	<i>Lahaul Spiti</i>
<i>Baari</i>	Wheat flour	Cooked thick Wheat flour paste eaten with ghee	Social ceremony	<i>Kullu, Shimla</i>
<i>Patande**</i>	Rice flour	Thin pancakes	Festive occasion	<i>Chamba, Sirmour, Shimla</i>
<i>Tchhosro roti</i>	Kodra flour, oil	Baked thick rotis	Festive occasion	<i>Lahaul Spiti</i>
<i>Siddu</i>	Wheat flour, black gram/poppy seeds/ sesame seeds/walnut	Fermented and steam cooked	Staple food	<i>Kullu, Shimla, Lahaul Spiti, Sirmour</i>
<i>Marchu Poltu/Pole*</i>	Wheat flour	Fried Rotis	Occasional	<i>Lahaul Spiti, Kinnaur, Kullu</i>
<i>Mand e/Manna*</i>	Wheat flour	Baked thin rotis	Festive	<i>Solan, Lahaul Spiti</i>
<i>Malpude*</i>	Wheat flour	Fried	Festive	<i>Bilaspur</i>
<i>Mangjangkori*</i>	Buckwheat bran	Thin rotis	Occasional	<i>Lahaul Spiti</i>
<i>Chhang lugri</i>	Rice/ barley, Herbs	Brewed product	Occasional	<i>Lahaul Spiti, Kullu, Kinnaur</i>
<i>Thhispoley</i>	Buckwheat flour	Fried and Baked as pancakes	Staple food	<i>Kinnaur</i>
<i>Luchian</i>	Refined wheat flour	Fried	Occasional	<i>Chamba, Mandi</i>
<i>Sagoat**</i>	Refined wheat flour	Fried	Occasional	<i>Chamba, Mandi, Kangra</i>
<i>Meetha Bhat**</i>	Rice, ghee, sugar	Sweet preparation	Ceremonial/ Occasional	<i>Chamba, Kangra, Hamirpur, Kullu</i>
<i>Aktori</i>	Wheat flour, buckwheat leaves	Shallow fried pancakes	Staple	<i>Lahaul Spiti</i>
<i>Tudikiya bhaat</i>	Rice, vegetables, curd	Steamed and fried	Occasional	<i>Chamba, Kangra</i>
<i>Ghainda/ Baadi</i>	Wheat flour, jaggery	Roasted	Occasional	<i>Shimla</i>
<i>Chawal ke beduan roti**</i>	Rice flour, Black gram dal	Baked	occasional	<i>Mandi</i>

Source- \* Savitri and Bhalla, 2007, \*\* Verma and Dhaliwal, 2007

## 2. Legume based traditional food recipes:

The main traditional legumes and pulses grown in different agro-climatic zones of Himachal Pradesh include kidney bean, horse gram, lentil, chickpea, Arhar, green gram, black gram and lobia. *Madra* a popular *pahari* dish is a very rich dish made of lentils, or chickpeas, or kidney beans or lobia made with curd and ghee. Deep-fried dumplings of black gram popularly known as *Mah dal ke pakoru* are popular in Kangra, Mandi, Hamirpur, Bilaspur, and Chamba. *Sepubari/Mukand bari* made of black gram is also a popular dish consumed as a specialty dish on various occasions in Mandi and Hamirpur (Shweta, 2012). Other popular dishes based on legumes and pulses are as under:

Food preparation	Main ingredients	Type of preparation	When prepared	Areas of consumption
<i>Sepubari*</i>	Black gram, oil	Fermented, steamed, and then deep-fried	Festive Occasions/ Marriages/ Special days	<i>Mandi, Bilaspur, Kullu, Kangra</i>
<i>Badi*</i>	Black gram/green gram, grated ash gourd (optional) spices	Fermented/Non fermented, sun-dried	Staple food/ special occasions	<i>Mandi, Hamirpur, Bilaspur, Chamba, Kangra</i>
<i>Pakoru</i>	Black gram dal/ Kesari dal	Fried	Festive occasion	<i>Mandi, Hamirpur, Bilaspur, Chamba, Kangra</i>
<i>Taleya maah</i>	Whole black gram, Mustard oil, spices	Steamed and roasted	Festive occasions/ Dham	<i>Kangra</i>
<i>Kaand al/ Khadi badi/ Khand ola*</i>	Black gram, spices, petioles of colocasia	Fermented/nonfermented Sundried	Staple preparation	<i>Kangra, Mandi</i>
<i>Baday</i>	Black gram, spices, oil	Fermented/nonfermented Deep-fried	Festive occasion/special occasion	<i>Kullu Mandi Shimla, Kangra, Chamba</i>
<i>Boondi ka meetha</i>	Bengal gram flour, sugar	Fried	Occasional/ ceremonial	<i>Una, Mandi, Bilaspur, Solan, Shimla</i>

Source- \*Shweta, 2012

### 3. Milk and milk products based food recipes.

Livestock is an integral component of the agricultural production systems in Himachal Pradesh (Savitri and Bhalla, 2007). Milk of different species of indigenous cattle, buffalo, goat, sheep and *churu* (hybrid of cow and yak) is commonly used in traditional milk-based products. Milk, curd, and by-products of milk are known by different names by local people and are utilized in various preparations. Curd locally known as *dahin* constitutes an important part of the local diet of people of Himachal Pradesh. In *Lahaul Spiti* it is known as *noo* or *nuch* and in *Kinnaur* it is famous as *doyang*. Buttermilk, a byproduct of butter extraction is locally called *chaa* or *lassi* and is liberally consumed as a beverage for its good digestive and carminative properties.

Food preparation	Main ingredients	When prepared	Areas of consumption
<i>Churpe</i> <i>Churpa</i> *	Buttermilk	Frequently	<i>Lahaul Spiti</i>
<i>Curd /dahi</i> *	Milk	Frequently	<i>All over Himachal</i>
<i>Jhol</i> *	Buttermilk/dahi	Occasionally	<i>Mandi, Kangra, Kullu</i>
<i>Kadi/Kadu/kheeru</i> *	Buttermilk/dahi, besan	Occasionally	<i>Kangra, Bilaspur, Hamirpur, Solan, Kullu</i>
<i>Kulu</i> *	Wheat flour, buttermilk	Frequently	<i>Lahaul Spiti</i>
<i>Lassi</i> *	Milk	Frequently	<i>All Over Himachal</i>
<i>Nudu</i> *	Milk, Wheat flour	Occasional	<i>Lahaul Spiti</i>
<i>Rehru</i>	Buttermilk, Rice	Frequently	<i>Kullu, Mand i, Kangra, Hamirpur</i>
<i>Tchaku</i> *	Milk, green tea leaves, butter, salt	Frequently	<i>Lahaul Spiti</i>
<i>Pakk</i>	Buttermilk, barley	Frequently	<i>Kullu</i>
<i>Khobli</i>	Buttermilk, rice, wheat flour and maize	Frequently	<i>Solan, Shimla, Sirmour</i>
<i>Khoru</i>	Butter milk	Occasionally	<i>Kangra</i>
<i>Kheer</i>	Milk, rice, sugar	Occasionally	<i>Kangra, Kullu, Mand i, Hamirpur, Shimla, Chamba, Una, Bilaspur, Solan</i>
<i>Palda</i>	Curd	Frequently	<i>Kangra, Una, Hamirpur</i>
<i>Bhangolu kadi</i>	Curd, Cannabis seeds	Occasional	<i>Mand i</i>

Source - \*Savitri and Bhalla, 2007

#### 4. Vegetable and fruits based food preparations

Himachal Pradesh is known for rich biodiversity, especially for wild edible plants which play an important role in meeting food demands (Arti et.al 2020). Besides having good nutritional and medicinal value, these indigenous plants are organic by default. Wild nettle commonly known as *bicchu buti* is relished as a vegetable in the form of *saag* in Chamba District. *Lasore or lasiare ke sabji* and *Karalen* or *kachnar ki sabzi* is wildly grown vegetables consumed by the people for their medicinal value. Fried lotus stem popularly known as *Bhey* are very popular snack foods. *Bhruni ki sabji*, prepared from tender leaves of fig is another popular dish of wild vegetables and is relished by the people of Himachal. *Kachalu* (*Colocasia*) is an all-time favourite and its various parts are used in many ways. The leaves, stem, and bulb of *Colocasia* are cooked as *Khati bhujji/ Garyali bhujji* which is a sour delicacy in rural areas. The leaves of colocasia are layered with a mixture of gram flour and other spices and then rolled, steamed and fried, and relished as snacks, popularly known as *Patrode*. Some popular pickles are prepared from vegetables and fruits like *galgal*, *lungru* (fern), brinjal, pear, peach, plum, bottle gourd, *bidana*, etc., and consumed in various parts of the state especially in Kangra, Kullu, and Mandi districts. The details of popularly consumed traditional food preparations based on fruits and vegetables are as under:

Food preparation	Main ingredients	Type of preparation	When prepared	Areas of consumption
<i>Bicchu buti ka saag*</i>	<i>Bicchu buti</i> spices, oil	Sautéing	Seasonal	Chamba
<i>Karalen ki sabzi*</i>	<i>Kachnar</i> , spices, tamarind pulp	Boiling and sautéing	Seasonal	Kangra, Hamirpur, Bilaspur
<i>Lasiare ki sabzi/pickle*</i>	<i>Lasiara</i> , spices, mango powder	Boiling and sautéing	Seasonal	Mandi, Hamirpur, Kangra
<i>Lungru ki sabzi</i>	<i>Lungru</i> , spices, curd	Boiling and sautéing	Seasonal	Kangra, Chamba
<i>Bhangolu ki kadi</i>	<i>Bhang</i> , spices, curd, galgal juice	Simmering	Occasional	Mandi
<i>Bhruni ki sabzi*</i>	<i>Bhruni</i> , green chillies	Sautéing	Seasonal	Kangra, Hamirpur, Bilaspur, Chamba, Mandi
<i>Ambua</i>	Mango, spices	Boiling	Seasonal	Hamirpur, Kangra, Mandi, Una
<i>Chacha</i>	Mango, onion, spices	Grinding	Seasonal	Hamirpur, Kangra, Mandi

<i>Mahni</i>	Mango, Onion, Salt, Chillies	Boiling and mixing	Seasonal	<i>Hamirpur</i>
<i>Patrode and Chakoltu*</i>	<i>Kachalu</i> , gram-flour, spices Leaves	Steaming and shallow frying	Seasonal	<i>Hamirpur, Kangra, Mandi, Bilaspur</i>
<i>Khatti bhujji/ Garyali bhujji*</i>	<i>Kachalu</i> , spices, dried mango slices	Boiling and sautéing	Seasonal	<i>Kangra</i>
<i>Barah ki chatni</i>	<i>Barah / Rhododendoren</i>	Ground paste	Seasonal	<i>Kangra, Kullu, Mandi</i>
<i>Tremble ki sabji</i>	<i>Tremble/Java fig</i>	Boiling and sautéing	Seasonal	<i>Mandi, Kullu</i>
<i>Phafru ka sag</i>	<i>Phafru/Buckwheat</i>	Boiling and sautéing	Seasonal	<i>Kangra, Hamirpur, Mandi</i>
<i>Ganthur</i>	Leaves of buckwheat, cabbage, turnip	Boiling and sautéing	Occasional	<i>Lahaul Spiti</i>
<i>Phempra</i>	Mixed vegetables, rice, spices	Boiling and sautéing	Occasional	<i>Lahaul Spiti</i>
<i>Auriya Kaddoo</i>	Pumpkin , mango powder	Roasted	Occasional	<i>Kangra, Mandi, Chamba,</i>
<i>Bhey</i>	Lotus stem, gram flour	Steam and Roasted	Occasional	<i>Chamba</i>
<i>Rainta</i>	<i>Kajur</i> , Spinach, Walnut paste	Boiled and fried	Occasional	<i>Kangra,</i>
<i>Tardi ke sabji</i>	<i>Tardi</i>	Fried and roasted	Occasional	<i>Mandi</i>

Source -\*Sharma and Singh, 2012

### 5. Non-Vegetarian Food Preparations:

Although the traditional foods and beverages prepared in Himachal Pradesh by using meat are very limited yet they are very popular in the areas where they are consumed. *Juma* is prepared and enjoyed in winters as a favorite dish in *Lahaul Spiti* valley. A sausage-like dish prepared by stuffing sheep intestines with the dough of wheat flour/millet flour mixed with spices is relished in Lahaul Spiti. This is steam cooked and eaten hot with *chutney* or *tchati* (mutton soup). In *Kullu* trout, grilled fishes, chicken with

*anardana* are very popular. *Chha gosht*, *chashni*, *jarees*, *khamod*, *darruwala* are popular in the Chamba district whereas, *rarh*, *khatta* meat, *mohra* meat are popular delicacies of Kangra.

<b>Food preparation</b>	<b>Main ingredients</b>	<b>Type of preparation</b>	<b>When prepared</b>	<b>Areas of consumption</b>
<i>Geri/shakhal*</i>	Mutton	Boiled	Occasional/Festive	<i>Lahaul Spiti</i>
<i>Juma*</i>	Sheep intestines	Stuffed sheep intestines	Occasional	<i>Lahaul Spiti</i>
<i>Tehat*i</i>	Mutton pieces, <i>churpa</i>	Soup	Frequently	<i>Lahaul Spiti</i>
<i>Thungpa*</i>	Meat, roasted barley powder	Soup	Frequently	<i>Lahaul Spiti</i>
<i>Khamod</i>	Mutton, ghee, curd, condiments	Fried	Occasionally	<i>Chamba</i>
<i>Jarees</i>	Minced mutton	Fried	Occasionally	<i>Chamba</i>
<i>Chashni</i>	Mutton, dry fruits	Roasted prepared is sweet in sour	Occasionally	<i>Chamba</i>
<i>Darruwala</i>	Mutton, <i>anaardana</i> , jaggery	Roasted	Occasionally	<i>Chamba</i>
<i>Chha Gosht</i>	Lamb meat, Yoghurt, gram flour	Marinated and roasted	Occasionally	<i>Chamba</i>
<i>Khatta meat</i>	Mutton	Fried and Roasted	Occasionally	<i>Kangra</i>
<i>Mohra meat</i>	Mutton	Fried and Roasted	Frequently	<i>Kangra</i>
<i>Rarh</i>	Mutton, curd	Roasted	Frequently	<i>Kangra</i>
<i>Jumba*</i>	Clotted whole blood, spices filled in intestines	Fried	Frequently	<i>LahaulSpiti</i>

Source - \*Savitri and Bhalla, 2007

### THE TRADITION OF COMMUNITY MEALS:

The tradition of serving community meals popularly known as *Dham* is very popular in all the districts of Himachal Pradesh. *Dham* is prepared during religious festivals and special occasions and is



considered a traditional festive meal of Himachal Pradesh. It is believed that *Dham* originated in *Chamba* Valley more than 1000 years ago. A variety of dishes from across the valleys were prepared by the cooks popularly called *botis* (a particular caste of Brahmins who are hereditary chefs) and the tradition of *dham* has continued since then. The entire meal is *satwik*, which means even onion, ginger, or garlic is not used to prepare it (Monica et al, 2017). However, with time, *dham* was served on every occasion and gathering like marriages, family events, and religious events in Himachal Pradesh. Preparations for this elaborate mid-day meal begin a night before. Thick copper and brass vessels with a broad base and narrow opening called *Charoti* or *Batloi* are generally used for cooking the food which is served on *pattals* / *Pattalu* or leaf plates to people seated on the ground with cross-legged in rows or *Painth*. Vegetables are not used in any of the dishes except in *Kinnaur* and *Lahaul Spiti* which is the most unique aspect of the *dham*. Dishes of *dham* are purely made from various types of lentils and dairy products.

In Ayurveda, *Ahar* (food) is considered as one of the major tripod of life. As per Ayurveda a good diet consists of all six rasa and are taken in proper sequence of *Madhura* followed by *Amla*, *Lavana*, *Katu*, *Tikta*, and *Kashaya*. Thus *Dham* is a good example of complete food as per Ayurveda having all six rasa and is served in a proper sequence. The traditional *Dham* differs in every region of the state (Sumeet et al. 2017). However, the *Kangri Dham* is the most famous among all, which comprises almost 10 to 11 dishes. The *dham* ends with the *meetha bhaat* – sweet rice Dishes in a *Kangri dham* are devoid of artificial colours and are a perfect blend of oils and spices essential for the body (Monica et al, 2017). In *Mand iyali dham*, ayurvedic pattern of serving food is followed where the sweet dish is served first (Goel et al. 2017).

**The famous *Dhams* and their special foods are as under:**

Name of community meal	Area where served	Special foods served in the community meal
<i>Chambyali Dham</i>	<i>Chamba</i>	<i>Madra</i> , <i>Rajmah</i> and <i>Kaala chana</i> , <i>Chamba kadhi</i> , <i>Gucchi</i> (local mushroom) pulao, <i>Khatta</i> followed by <i>meetha bhaat</i> (sweet pulao) or halwa mixed with poppy seeds.
<i>Kangri dham</i>	<i>Kangra</i>	Chickpeas <i>madra</i> , <i>Rajmah</i> , <i>sepubari</i> , <i>chana dal</i> , <i>moong dal</i> , <i>telia mah</i> , <i>kaale chane ka khatta</i> , rice followed by <i>meetha bhaat</i> .
<i>Mand iyali Dham</i>	<i>Mandi</i>	<i>Boondi ka meetha</i> , <i>Sepubadi</i> , <i>kaddu ka khatta and mah ki dal</i> , <i>rajmah madra</i> , <i>kadi</i> and rice. In the last <i>jhol</i> (buttermilk like drink)

<i>Kullvi Dham</i>	<i>Kullu</i>	Madra like <i>rajmah madra, chickpea madra or Gucchi Madra, kadhi pakora, maah ke daal, chane ka khatta</i> with rice followed by and <i>meetha bhaat</i> .
<i>Kinnauri Dham</i>	<i>Kinnaur</i>	<i>Puri, halwa, and seasonal vegetables, rice, mutton and liquor and apricot</i> is included in the <i>dham</i> in form of different chutneys.
<i>Hamirpuri dham</i>	<i>Hamirpur</i>	Traditional <i>madra, khatta, palda, maah dal, rajmah and chana dal, kadi pokora, sepubadi and meetha bhaat</i>
<i>Lahauli dham</i>	<i>Lahaul Spiti</i>	<i>Dal chana,, rajmah, kale chanay,, aloo gobhi sabji and mutton.</i>
<i>Solani dham</i>	<i>Solan</i>	<i>Chana daal, Maah daal, Rajmah, kadi pakora, Yam (Jimikand ), Matar paneer, and a potato preparation, Boondi ka meetha or Sooji ka halwa</i> usually served as the first course of <i>dham</i> .
<i>Unaini dham</i>	<i>Una</i>	<i>Chana daal, rajmah, maah ki daal along with palda, rice and boondi ka meetha.</i>
<i>Sirmauri dham</i>	<i>Sirmour</i>	<i>Maah ki daal, rice, pude, jalebi, halwa, shakkar, patand e, aenkulu, and siddu.</i>
<i>Bilaspuri dham</i>	<i>Bilaspur</i>	<i>Moong dal</i> cooked in ghee, <i>urad daal, tur daal, sebu badi, khatta (pumpkin, chickpeas), kadi pakoda and boondi ka meetha.</i>
<i>Shimlai dham</i>	<i>Shimla</i>	<i>Dal chana, dal maahl, safed chane, paneer ki sabji, kale chane ka khatta, badanae ka meetha) or meethe daal.</i>

## CONCLUSION:

The state of Himachal Pradesh is known for its rich traditional foods. The knowledge of traditional cuisine is passed from generation to generation and is treasured by the local people in maximum parts of the state. The climatic and geographical conditions of the state have a strong influence on the food pattern and food requirements of the people. However, the availability of raw materials also influences the type of food preparations. There is several communities, castes, races with strong cultural coalescence.

Although the cuisine of the state has been influenced by *Punjabi*, *Mughlai* and Tibetan food style yet the taste of the people vary from area to area. With changing food habits and the availability of a variety of convenience foods, the majority of the ethnic food preparations find their place on special occasions. The most preferred techniques of food preparation include steaming, boiling, frying, roasting, smoking, and fermentation. Sun drying is a commonly used technique for drying fruits and vegetables.

The process of fermentation destroys many harmful microorganisms in foods, improves digestion and increases beneficial nutrients. Various cereal-based traditional foods like *bhaturu*, *chilru*, *babroo*, *siddu*, *mithdoo* are very popular even in the present times and as they are fermented so they are believed to be good for gut health. *Khichri*, *beduan bhaturu* and *beduan chawal ke roti* are good examples of complementation of foods where the limiting amino acids of cereals and pulses complement each other, making these food preparations a complete food. Buttermilk, which is popularly known as *lassi* or *jhol* is a probiotic food and is believed to strengthen the digestive system and the immunity of the body as they are a rich source of Riboflavin, cyanocobalamine, and calcium. As per Ayurveda, *dham* which is a traditional meal served in the proper sequence is a good example of a complete food. The entire *dham* is a rich source of energy, proteins, carbohydrates, and vitamins like riboflavin and thiamine.

It can be concluded that ethnic food preparations of Himachal Pradesh are rich in nutrients but due to modernization in food habits, consumption of these traditional preparations is limited only to special occasions like festivals, marriages, religious ceremonies, fairs, and other celebrations. The tapping of knowledge about traditional cuisine in combination with modern food preparation may also be very well utilized to reduce the consumption of junk food as traditional recipes are nutritionally rich.

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# FOOD AND DIETARY HABIT FROM LAND OF GOD (UTTARAKHAND)

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## INTRODUCTION

Uttarakhand hills have a distinct food culture and traditions which provide a source of energy and nutrition having enormous health benefits to cope up with the cold climatic conditions of the region (Atkinson, 1882). The native food culture of Uttarakhand can be discussed based on local Indigenous Knowledge in the context of food spirituality, food security, health benefits regulations and restrictions, and reliance on locally available food materials (Bisht, et.al2018). Indigenous food and traditional diet provides nutrition and health benefits to the society which is not only food rich in energy but also with micronutrients - the vitamins and minerals and other trace elements considered necessary for normal growth and development of human being(Sharma 1939). The dimensions of nature and culture that define a food system of an indigenous culture contribute to the whole health picture of the individual and the community-not only physical health but also the emotional, mental, and spiritual aspects of health, healing, and protection from disease (Albritton, 2012).

Anthropologists have long been interested in the study of food and food habits to understand other aspects of a culture. Garrick Mallery's (1888) *Manners and Meals* and Robertson Smith's (1889) *Lectures on the Religion of the Semites* were some of the pioneering works to understand or to study the anthropology of food. A more functionalist approach to the study of food was applied by Malinowski (1978) in his study of the Trobriand Islanders, he explained the importance of the crops produced and the role of food which not only serves as fuel for the body but which is also deeply intertwined with other aspects of their traditional society. Levi Strauss' basic culinary triangle (2013) which is formed by the categories of raw, cooked, and rotted takes a structuralism approach, while Mary Douglas' *Deciphering*

a Meal (1972) considered food as a code and the message encoded can be found in the patterns of the social relations expressed.

## **FOOD AND CULTURE**

Food symbolized the culture of a community which provides it with a distinct identity. The social forms, customary beliefs, and material traits of racial, religious, and social groups are some of the characteristics of a culture, while ethnicity is the affiliation with a race, people, or cultural group (Willow 2005). Culture and ethnicity are essential foundations of the study of food and people. Religion is a strong factor in cultural identity and the shared common beliefs and practices that are central to a particular religion create common threads that bind people together into a culture (Demi, 2016).

India is a land of varied cultures where each geographical region has its different food to locally available natural resources that lead to lots of possibilities to come up with unique food culture (Bhatt 2008). Uttarakhand is also referred to as 'the land of Gods'. Where Garhwal and Kumaon are two regions, most of the areas fall in hilly regions and only one-fourth of its area is adjoining part of the plain (Chopra and Pasi 2002). Apart from the picturesque valleys to the inexplicable beauty that makes it a heaven on earth. Since India is a land of varied culture, each of its states has its food too. The common phrase "the way to a man's heart is through his stomach" simply exemplifies the delicacies prepared in the region (Fanzo, et al 2013). This place has a whole lot of delicacies while one thing that is unique about the food of Uttarakhand is that they are mostly cooked over burning wood or charcoal which bestows them with additional nutritional qualities. Cooking has beneficial effects that improve the appearance and palatability of foods and confer new flavours but nowadays people are being introduced with LPG connections for this purpose. The primary food includes vegetables with wheat and rice being a staple for the locals. The food made with lentils and cooked over slow fire has a balanced flavour. The sparing use of tomatoes, milk, and milk-based products in cooking is what makes every dish unique. The food not only consists delicious but comes with health benefits as well (Bernard, 2006). The agrarian societies with farming skills did not apply to societies that lived primarily by hunting, fishing, and gathering. These societies' meals commonly consist more palatable and appetizing that led people to eat more (Wahlqvist, 2005).

## **SOME IMPORTANT FOOD ITEMS OF UTTARAKHAND**

The food of Uttarakhand is simple in its nature and texture, it has is fine blend of carbohydrates and proteins that remain on the base of any food item. There are two distinct regions Kumaon and Garhwal that offer flavour some delicacies of food items that are unique in their way.

### **Kaffuli**

Kaffuli is a famous food of Uttarakhand, this dish is a boon for all diet-conscious people. It is a nutritious food which is primarily prepared of Spinach and fenugreek leaves some times mixed with flour, besan, and curd or buttermilk. It is prepared in an iron utensil (kadhai) which is complemented by hot steaming rice. It is the most nourishing and health-conscious dish in the region. Kaffuli is a delicious dish enjoyed mostly in the winter season because of its property which is hot and it protects from feeling cold and low during the winter. Every household in Uttarakhand hills there will be cow or buffalo for the

milk and its by-products, therefore, they use buttermilk for the making of kaffuli.

### **Phannah**

This heavenly Uttarakhand food is a staple of most people and is good enough to satiate both your eyes and stomach. It happens to be one of those dishes that will simply leave you craving for more (Tiwari 1989). Since it is so divine in its taste and aroma, Garhwal Ka Fannah has become a must food item in the menu card for every occasion. This dish of the Garhwal region of Uttarakhand has a complex preparation owing to the mixing of different varieties of lentils (Gahat dal) that are soaked in water overnight. It is made with lentils including the native Gahat dal and tastes delicious. Phaanu is mostly served with rice. It is helpful in jaundice, property the dish is also hot and which protects from feeling cold during the winter, this food added good source of protein, carbohydrate and minerals in the mountainous diet.

### **Kand alee Ka Saag**

This food of Uttarakhand which is highly popular among the older generation is none other than the Kand alee Ka Saag. It is a green leafy vegetable prepared in an ordinary way like all the other vegetables, The Nettles (*Bichchu ghas*) tender leaf being boiled, stir-fried or made into soupy dishes by taking out its extract. It was always a part of village diets where there it grows plentiful and freely in every knock and corner. This food is considered as a superfood because it is full of antioxidants and with a host of medicinal properties-which local folklore has always recognized.

### **Aloo Ke Gutke**

In Uttarakhand, fried potatoes or aloo ke gutke is prepared on festive occasions; it is one of the basic dishes prepared with boiled potatoes. Aloo ke gutke is popular for its simple preparation with the use of dry spices. It is a spicy dish with a burst of mouth-watering flavours in every bite which is a good source of carbohydrates and minerals. This breakfast is served with puri and raita. These potatoes are fried with onion, garlic, and ginger paste but those who don't eat onion used cumin or coriander seeds.

### **Baadi**

Baadi is a popular food among the locals known for its lingering aroma and tangy taste. It is rich with all essential nutrients like vitamin B12 and vitamin A among others. Baadi is an easy-to-make and can be prepared in a short period. It is made by adding Buckwheat flour or Finger millets (*Eleusine coracana*) flour to the boiling water and served with a dash of ghee to enhance the flavour. These millets are considered as poor man's food (Kazmi 2003). Buckwheat (*Fagopyrum esculentum*) which having vital functional substances flavonoids, phytosterols, fagopyrins, fagopyritols, phenolic compounds, resistant starch, dietary fibre, lignans, vitamins, minerals, and antioxidants. It keeps the body worm and quenches the stomach fire for a longer period.

### **Chainsoo**

It is a famous preparation of the Garhwal region made with urad dal. Chainsoo is a dish cooked by roasting the lentils and making a paste of it, which is cooked in an iron pot. This dish is a rich source of protein. Although it looks dark black while cooked in the iron pot (Karai) but its unique taste attracts the

most. This is usually prepared during winter it also keeps the body warm and healthy.

### **Thhatwani**

This delicious dish belongs to the Kumaon region of Uttarakhand. Thhatwani, also known as Ras is a fine soup with a mix of rice paste, lentil stock, and pulses that are cooked in an iron pot over low heat. Later, the lentils are removed and the stock is served with steamed rice. Its property is also hot which keeps the body warm in winter.

### **Chudkaani**

This delectable dish is prepared in the kitchens of Kumaon Region in Uttarakhand . For the preparation of Chudkaani, the local lentil of Bhatt (black soybean) or *bhat* of Uttarakhand hills is considered to be a source of complete protein soaked in the water overnight, and then it is cooked with powdered spices and prepared as a soupy dish that is served with rice.

### **Gahat (Kulath) Ki Dal**

Gahat or Kulath is also well known for its positive impact on the kidney it helps dissolve stones from the kidney. This delicious dal of Gahat (Kulath) is tempered with asafoetida, and cumin seeds. It keeps your body warm thus mostly cooked during the winter season. It has a very good amount of carbohydrates, protein, minerals in *gahat* dal. In the early days when there was no dynamite available, people use the extract of this dal for the purpose.

### **Dubuk**

Dubuk or Dubke is a local dish of Kumaon region and is known for its incredible taste. It is prepared with local pulses like Gahat and Bhatt and is best served with rice. While, you may think that what is unique about a dish made with dal, Dubuk will change your perception. Dubuk is mostly savoured during the winter season because it has hot properties that keep the body warm. It is a good source of protein in the diet.

### **Raita**

Like the Bhang ki Chutney, Kumaoni Raita is yet another dish that accompanies every other cuisine of Uttarakhand. The locals of this state can't do without Kumaoni Raita which is prepared from curd, turmeric, and cucumber. The goodness of cucumber is an asset for your system, but the heavenly taste beats it all

### **Bhang ki Chutney**

Bhang ki chutney is a part of the cuisine of Uttarakhand . It is prepared with roasted bhang seeds and roasted cumin seeds with lots of lemon juice, chillies and green coriander leaves. It is served with other snack dishes to enhance the taste. It has a fresh aroma and lingering tangy taste. It is served as a side dish which works as an appetizer in both Garhwal and Kumaoni food.

### **Jhangora ki Kheer**

This is the belief among hill people of Uttarakhand that if you don't eat kheer during the month of



“Srawan” or in rainy season next birth you will be turned as a snail so for all Uttarakhand i’s it is mandatory to have ‘Kheer’ with ‘Ghee’ on the day of “Gheesangran” i.e. onset of Shrawan month. The reason behind the tradition might be during rainy season every household have plenty of milk and milk products so to make better use of the produce local belief made the people who do not like to have milk they also would have it during the season. Ghangora ki kheer is made of ‘Barnyard millet (*Echinochloa Frumentacea*)’ is a delightful dessert of Garhwal region in Uttarakhand . It makes for a delicious sweet dish and is quite popular in the state. Jhangora ki kheer is a must-have after the meal. It has a rich texture with the goodness of milk and a unique taste to die for. It is good source of Carbohydrate, protein, it has Cholesterol-lowering effects that lessen the problems of constipation and obesity is important health benefits that can be achieved through the functional substances of this cereal (Belton and Taylor 2002).

### **Gulgula**

This dish which is highly popular and must prepared food during festive occasion; it is a delectable sweet of Uttarakhand. The sweet local snack made of jaggery traces its origin to the Garhwal region. This is a very common dish you will find in the State since it uses extremely basic ingredients (Wheat flour) that are available near the local people. Gulgula has eventually found its place in the delicious desserts in many parts of Northern India with different names.

### **Arsa and Rotna**

One of the most interesting desserts in the Uttarakhand region, Arsa is very delicious. It is popular for its great taste. Every festival and special occasion in Uttarakhand is incomplete with Arsa. It is made with simple ingredients like cane sugar, jaggery, and rice flour deeply fried in mustard oil. Rotna’s are made of wheat flour instead of rice mixed with coconut crust powder, fennel seeds and milk or butter used to make the dough. These dough pieces they put in between the moulders, with the help of moulder they make the particular design over on the small cakes which being deeply fried in refine or mustered oil. During marriage and in old days when a married girl visit her father’s house and when she returns to her in-laws’ home she carries these delicious traditional sweet snacks. These are slowly being replaced with readymade market sweets.

### **Singori**

Singori also called Singodi / Singauri is a widely known sweet dish in Uttarakhand that’s made with Khoa, a dairy product of thickened milk that is wrapped in a Maalu leaf. It is a cone-shaped sweet savoury that’s available in Almora the Kumaon region and even in old Tehri of Garhwal of Uttarakhand.

## **INTAKE OF FOOD ITEMS**

People of Uttrakhand eat breakfast, lunch, and dinner three times a day that is their daily diet routine. Morning breakfast, they use to have tea, milk, paratha, roti, and vegetables. Daytime lunch, they eat rice, pulses (gurunsh, lentil, soybean, urd) vegetables (pumpkin, torai, pinalu, radish) and sometimes roti. Evening dinner, they mostly eat roti, poori, vegetables (potato, onion, tomato, gaderi, rye, spinach, mustard, gethi, tarur, gaba) meat, fish, eggs, chicken, milk, curd, ghee, whey, and butter. Other than this, they use fruits, nuts, wild fruits and some traditional foods like Jhangora ra ka bhat,

Koni ki kheer, Bhat ki bhatwani, Gahatki dal, Maduwe ki roti, Missi Roti and sometimes especial dishes on the occasion of traditional festivals and traditional worships in the local or village temples. Mostly, the foods come from the market and sometimes from the household. The villagers work hard, so their diet level is high. Some of the villagers are malnourished some landless people and especially scheduled caste because they have less land for cultivation. The diet is the mixture of traditional and modern styles as nowadays due to commercialization even in the interior village one could easily be fined the access to junk foods like chowmin, samosa, cake, chips, and cold drinks, etc.

In Uttarakhand, the average dietary food system of each person per day is as follows according to the recommended daily allowance by ICMR. Moisture (403.96 g), protein (54.04 g), fat (14.74 g), fibre (8.68 g), carbohydrate (259.68 g), calcium (1.43 g), phosphorus (1.008 g), iron (32.02 mg), calorie (1478 kcal), carotene (1044 mg), thiamine (1.12 mg), niacin (11.00 mg), riboflavin (0.75 mg), and ascorbic acid (30.16 mg) approximately which fall less from the average except for calcium and iron intake in their diet(Gopalan, 1990).

## CONCLUSION

Uttarakhand both Garhwal and Kumaon people are spiritual and religious, they usually take naturally grown vegetarian food except on some occasions when there is no taboo to have non-vegetarian food. The food of Uttarakhand hills considered as an agrarian society following the core-fringe-legume pattern proposed by Mintz, where the core being rice, wheat and different types of millets, relish with a different legume, fringe is a vegetable stew (Richards 1935). Diverse food items are found in the region. They eat thrice a day but due to lack of nutrients available in grown food items or unavailability of food; their daily recommended allowance is far behind and less than other Indians (ICMR 1990).

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# FOOD HABITS, LOCAL CUISINES OF UTTARAKHAND AND ITS RELATIONSHIP WITH FOOD AND NUTRITION SECURITY

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## ABSTRACT

Food security in the hilly communities in Uttarakhand primarily depends on local agricultural productivity and food purchasing power. Subsistence agriculture is mostly forest-based and is the main source of rural food and livelihood. The hilly terrain and high level of soil erosion is the main cause of food insecurity. The traditional food habits continue to exist in many villages in which crop and livestock small-scale systems of mixed farming encourage traditional food consumption. Effective community-based actions must be implemented at a national level. Communities should be mobilized from a centralized to a decentralized approach, with wider community participation to maximize household food security. Local biodiversity should be recognized as a significant contributor to a sustainable agriculture-food-nutrition strategy.

## ETHNOGRAPHIC DATA OF UTTARAKHAND

Uttarakhand, formerly Uttaranchal is a state located in Northwestern India. It is bordered to the northwest by Himachal Pradesh, to the northeast by the Autonomous Region of Tibet (China), to the southeast by Nepal, and the south and southwest by Uttar Pradesh. The state is divided into two divisions, Garhwal and Kumaon, consisting of 13 districts. The winter capital of Uttarakhand is Dehradun, the most populous city of the state. Gairsain, a town in Chamoli district was declared as the summer capital of Uttarakhand on June 8, 2020.

On November 9, 2000, Uttaranchal, the 27th state of India was carved out of Uttar Pradesh, and in January 2007 its name was changed to Uttarakhand, meaning “northern region,” the traditional name for the area and often referred to as ‘Dev Bhoomi’ meaning “The Land of God”.

The area covered by Uttarakhand is 53,483 sq km which is 1.63% of the geographical area of India.

The climate and vegetation vary greatly with elevation, from the Himalayan glaciers at the highest elevations to subtropical forests at the lower elevations.

The total population of Uttarakhand as per the 2011 Census was 10,086,292 of which males and females were 5,137,773 and 4,948,519 respectively. The population of Uttarakhand formed 0.83 percent of India in 2011. According to Unique Identification Aadhar India, updated on 31, May 2020, by mid of the year 2020 the projected population is 11,250,858.

## **TOPOGRAPHY**

Uttarakhand has a vast, highly varied topography, with snow-covered peaks, glaciers, and rivers originating in the North and dense tropical forests in the foothills in the South. Uttarakhand is home to some of the highest mountains in the world such as Nanda Devi (the second highest peak in India), Kamet, and Badrinath.

Uttarakhand can be divided into several geographic zones. The northern zone, the Himadri, contains segments of the Zaskar and the Great Himalaya ranges. The lesser Himalayas, known as the Himachal has two linear ranges, Mussoorie and Nag Tibba. The Shivalik Range lies to the south of the Himachal. The Himadri, Himachal, and Sivaliks together are known as the Kumaun Himalayas. flat-floored depressions lie south of the Shivaliks and are known as duns, such as the Dehradun.

## **DRAINAGE**

The state of Uttarakhand is drained by various rivers of the Ganges. The Yamuna River originates from the Yamunotri Glacier and its major tributary, the Tons River flows through Garhwal. The Bhagirathi and the Alaknanda river join to form the Ganges at the town of Devaprayag. Mandakini, Pindar, and Dhauliganga are the main tributaries of Alaknanda. To the east are the southward-flowing Ramganga and Kosi rivers and draining to the southeast in the same region are the Sarayu and Goriganga, both of which join the Kali at Uttarakhand's eastern border with Nepal.

## **SOILS**

Uttarakhand has various types of soil that are susceptible to soil erosion. The five main types of soil found in this region are Volcanic soil, Brown soil, Alluvial soil, Quartzite soil, and Tertiary soil. In the north, the soil consists of gravel which is the debris from glaciers and stiff clay. Brown forest soil is shallow and rich in organic content - humus is found farther to the south. Alluvial soil which is fertile and suitable for the cultivation of rice and sugarcane is found in the lower slopes of Shivalik range, Doon valley, Bhabar, and Tarai region.

## **CLIMATE**

The climate of Uttarakhand is temperate with seasonal variations and affected by tropical monsoons. January is the coldest month, with daily high temperatures averaging below freezing and July being the hottest month, with temperatures typically rising till around 40°C daily. The climate of the higher altitudes is extremely cold and harsh whereas it is hot and dry in the plains. Most of the annual precipitation is

brought by the southwest monsoon, which blows from July through September. Floods and landslides during the rainy season are common in the lower stretch of the valleys.

### **PEOPLE and LANGUAGE**

Uttarakhand has a multiethnic population spread across two regions: Garhwal, in the northwest, and Kumaun, in the southeast. Rajputs, Garhwali, Gujjar, and Kumauni communities, along with immigrants—constitute a large portion of the population of Uttarakhand. The majority of Uttarakhand's residents are Hindu. Muslims constitute the largest religious minority and smaller communities consist of Sikhs, Christians, Buddhists, and Jains.

Hindi is the official language of the state. Other languages used in Uttarakhand include Garhwali and Kumauni (Pahari languages), Punjabi, and Nepali.

### **AGRICULTURE and FORESTRY**

Almost 60 percent of the working population of Uttarakhand is engaged in agriculture, but less than one-fifth of the total area of Uttarakhand is cultivable. Steep slopes require careful terracing and irrigation. The water is drained from the upper levels to irrigate lower levels. This method of terrace cultivation helps fields to be sown more than once per year. The widely cultivated crops are wheat, rice, and various types of millets. Sugarcane is grown extensively in the southern foothills. Other major crops include peas, chickpeas, soybeans, peanuts, mustard seeds, and assorted fruits and vegetables.

Animal husbandry is practiced by many farmers of Uttarakhand and majority of cattle for dairy farming is found in the southern foothills.

Tropical forests such as Sal and Shisham are widely distributed in Tarai, Dehradun, and Shivalik regions which provide timber for construction, fuelwood, and handicrafts.

### **CULTURE**

Many pilgrimage centers for Hindus are located in the mountains of Uttarakhand. The Yamunotri temple where Yamuna, the Hindu river goddess is worshipped, lies in the western part of the Garhwal region. The Gangotri Temple is situated in the northwestern part of the state - Uttarkashi surrounded by cedar and pine trees. The temple is dedicated to Goddess Ganga and a natural rock Shivalinga is submerged in a river at this site. The Kedarnath Temple is situated in Rudraprayag District of Uttarakhand. The stone temple is dedicated to Lord Shiva where a large statue of the bull Nandi stands outside the temple door. The Badrinath temple is located on the bank of Alaknanda River and is the abode of the Lord Vishnu.

An important Sikh shrine and pilgrimage site located in Chamoli district is Hemkund Sahib which honours the tenth Guru of Sikh religion, Guru Gobind Singh.

### **LOCAL CROPS and FOOD**

The traditional practice of mixed cropping is practiced by farmers of Uttarakhand in which Barahanaja

(a mix of 12 grains and pulses are sown simultaneously in one field) during monsoon. Mixed cropping protects against total crop failure and is an effective instrument of food security.

The traditional crops grown are Amaranth (*Amaranthus oleracea*), Buckwheat (*Fagopyrum esculentum*), Barley (*Hordeum himalayens*), Maize (*Zea mays*), Kidney bean (*Phaseolus vulgaris*), Horse Gram (*Macrotyloma uniflorum*), Soybean (*Glycine soja*, *Glycine max*, *Glycine*), Adzuki bean (*Vigna angularis*), Blackgram (*V. mungo*), Cowpea (*V. unguiculata*), Pigeon pea (*Cajanus cajan*), Perilla (*Perilla frutescens*), Sesame (*Sesamum indicum*), Hemp (*Cannabis sativa*), Roselle (*Roselle*, *Hibiscus sabdariffa*) and Cucumber (*Cucumis sativus*). Millets have traditionally remained a part of the diet in many hilly regions of Uttarakhand.

### TRADITIONAL FOOD CUISINES

The primary food of Uttarakhand is vegetables with wheat being a staple food for the locals. Due to the harsh terrain, coarse and high fibre grains are commonly grown in the state. The traditional crops, Buckwheat (locally known as *Kuttu*), Amaranth, Finger Millet (*Mandua*) and Barnyard Millet (*Jhangora*) are widely consumed in Kumaon and Garhwal. The commonly used cooking oils are Desi Ghee or Mustard oil (*Kacchi Ghani*). The Himalayan *Jakhya* is a crunchy spice used to temper Pahadi cuisines. The famous *Bhang chutney* is made from Hemp seeds, chilli, and mint leaves is a regional cuisine.

*Bal Mithai* is a popular fudge-like sweet made out of khoa and sugar balls. Other popular sweets include Arsa (a fried dessert made using rice flour, jaggery, dry fruits, and cardamom powder), *Gulgule* (similar to Arsa but using wheat flour and semolina instead of rice flour), Singori (a khoa and coconut-based dessert), *Jhangore ki Kheer* (Barnyard millet cooked in milk, cardamom, and sugar, garnished with nuts and tossed in desi ghee).

A well-known *pahadi* breakfast item is pumpkin raita tempered with *jhakia*, a mustard-like seed along with Maize flour (*Makki ki Roti*) or Buckwheat Flour (*Mandua ki Roti*).

*Gahat* (a variety of horse gram) and *bhatt* (soya bean) are widely consumed in Uttarakhand. *Gahat* (also known as *kulath*) is consumed in the form of dal, *gahat* stuffed parathas and soupy preparations with vegetables. *Kafuli* is another *Pahadi* main dish in which spinach and fenugreek leaves are cooked together along with spices and the gravy is prepared by making a watery paste made out of rice or wheat. A regional variation of *Kadhi* prepared using curd and besan or rice flour called *Jhoi* or *Jholi* is a popular dish.

*Phanu* is a Garhwali dish, made with ground *gahat* (horse gram) soaked overnight and boiled on slow fire till soupy and served with green vegetables and rice or local millets.

Amaranth (*chulai*) and nettles (*bichu ghas*) are traditional greens which are also known as superfoods, full of antioxidants and medicinal properties.

### CURRENT DIETARY TRENDS IN UTTARAKHAND

The NFHS 4 data suggests that the most consumed food groups among men and women of



Uttarakhand include milk and milk products, pulses/beans and dark green leafy vegetables whereas the least consumed foods were nonvegetarian and junk food. Urbanization has led to rapid nutrition transition, especially in rural communities. Earlier, the dietary needs were met within the local ecosystem. During the Green Revolution, the agricultural policies that were adopted led to a rapid change in the traditional agricultural and cropping practices which neglected the traditional food crops and favoured the production of wheat and rice. This led to a decline in net sown area, per capita food availability, and access to food especially in the hilly districts of Uttarakhand. Earlier, a major part of the population was more dependent on locally grown millets, pseudocereals, wild vegetables, and fruit is grown locally. The dependence gradually shifted from millets and pseudo-cereal to cereals. The consumption of millets/pseudocereals/fresh fruits and vegetables has reduced, thus becoming completely insignificant in the present day. This major decline in traditional food consumption has led to a drop in the health and nutritional status of the rural population of Uttarakhand. The latest CNNS data shows that the majority of children and adolescents suffer from micronutrient deficiencies such as anaemia, folate, vitamin B12, and zinc deficiencies which indicates poor dietary diversity and feeding practices.

### **FOOD SECURITY IN UTTARAKHAND**

Food security in the hilly communities primarily depends on local agricultural productivity and food purchasing power. Subsistence agriculture is mostly forest-based and is the main source of rural food and livelihood. Food security is dependent on agricultural land due to high erosion, low soil fertility, traditional cultivation methods, less irrigation, poor infrastructure, and insufficient minerals and petroleum products. The crop yield is lower in hills than in plains and the majority of Uttarakhand comprises hilly terrain, leading to food insecurity.

The traditional food habits continue to exist in the majority of villages to date. High crop production and dietary diversity are linked with better community health and nutrition.

The crop and livestock small-scale system of mixed farming encourages households to consume more traditional crops instead of meat and dairy products. The livestock is mainly fed with crop by-products while substantive food is reserved for human consumption, thereby preventing humans from competing with livestock for food and ensuring food sufficiency. Industrial agriculture contributes to creating food insecurity through the use of whole grains and cereals as key components of animal feed. The local communities depend on diverse plant resources of the hills and ensure that the plant species are protected to maintain sustainability without disturbing the balance of the ecosystem.

To reduce malnutrition, effective community-based actions must be implemented in national policies and programs. Household food security can be maximized by effectively mobilizing communities and shifting from a centralized to a decentralized approach, with wider community participation. At the community level, efforts to enhance household food security, increasing people's participation, and empowerment of women and marginal groups are needed to address local food and nutrition problems. Local biodiversity should be recognized as a significant contributor to a sustainable agriculture-food-nutrition strategy.

**TRADITIONAL LOCAL DISHES AND RECIPES OF GARHWAL AND KUMAON DISTRICTS OF UTTARAKHAND WHICH CAN BE PROMOTED FOR THE EAT RIGHT MOVEMENT**

<b>Garhwali Dishes</b>	<b>Kumaoni Dishes</b>
1. <i>Chainsoo</i>	1. <i>Rus</i>
2. <i>Kaafuli</i>	2. <i>Singhal</i>
3. <i>Jholi</i>	3. <i>Jhangore ki Kheer</i>
4. <i>Phaanu</i>	4. <i>Badeel</i>
5. <i>Til ki Chutney</i>	5. <i>Bhatwani</i>
6. <i>Baadi</i>	6. <i>Thechwani</i>
7. <i>Roat</i>	7. <i>Lesu</i>
8. <i>Sinsunak Saag</i>	8. <i>Bhatt ki Churkani</i>
9. <i>Gahat (Kulath) Soup</i>	9. <i>Kaapa</i>

**GARHWALI RECIPES**

**1. Chainsoo**

Chainsoo is a local garhwali dish prepared by using black gram dal (Urad Sabut). As black gram dal has high protein and low digestibility, it is roasted to increase the digestibility.

**Ingredients**

- Black Gram (Kali Urad whole) – 1 cup
- Mustard Oil – ½ cup
- Garlic – 4 to 5 cloves
- Cumin seeds – 1 tsp
- Black pepper – 4 nos.
- Red chillies whole – 4 to 5
- Asafoetida – a pinch

- Dry coriander powder – ½ tsp
- Turmeric powder – ¼ tsp
- Red chillies powder – ½ tsp
- Water – 3 cups
- Garam masala – ½ tsp
- Salt to taste

### Method

- Add Sabut Urad (black gram) in a kadai and roast it without oil for about 3 to 5 minutes on medium flame till the pleasant aroma of roasted seeds comes. Grind the roasted dal into a coarse powder.
- Heat oil in the Kadai and add garlic cloves. When the garlic turns light brown, add cumin seeds, red chillies, black pepper, and heeng (asafoetida)
- Immediately add the dal powder and fry it for 1-2 minutes. Add turmeric powder, dry coriander powder, red chillies powder, salt and water. Bring it to boil.
- Cover and cook till the dal becomes soft. Simmer for 20-30 minutes. Before removing from the heat, sprinkle garam masala over chhainsoo.
- Garnish with pure ghee and chopped coriander leaves. Serve with hot steamed rice.

## 2. Kafuli

Kafuli is a thick gravy preparation made from green leafy vegetables. Kafuli made of Spinach leaves is the most common preparation. The dish is antioxidant-rich and provides necessary micronutrients such as Iron, Potassium, and Vitamin A.

### Ingredients

- Spinach (Palak ka saag) – 2 bunches
- Fenugreek leaves (Methi) optional – 1/2 bunch
- Green chillies – 4 to 5
- Oil – 2 tbsp (preferably mustard oil)
- Garlic – 4 to 5 cloves
- Ginger – a 3 cm piece
- Cumin seeds – 1 tsp
- Asafoetida – a pinch
- Dry coriander powder – 1/2 tsp
- Turmeric powder – 1/4 tsp

- Rice powder or rice paste – 1 tbsp 12. Curd- 2tbsp (optional)
- Water – 1-2 cup
- Salt to taste

### Method

- Wash Palak and Methi in running water. After washing, chop and boil both vegetables along with green chillies in a little water till tender. Mash into a paste using a blender.
- Finely chop ginger and garlic. Heat oil in a frying pan. Add garlic and ginger in the hot oil. When the garlic turns light brown, add cumin seeds and asafoetida. Add mashed vegetables, turmeric powder, dry coriander powder and salt
- Add the required amount of water to Kafuli and bring to boil. Now add rice paste or rice powder dissolved in water.
- Cover and cook for about 8 to 10 minutes on slow fire till the gravy is thick. If dry add some water and boil.
- Garnish with pure ghee and serve hot with roti or steamed rice.

### 3. Jholi

#### Ingredients

- 1 cup Besan / bengal gram flour
- 1/2 teaspoon Red chillies powder
- 1 teaspoon Turmeric powder
- 1/2 teaspoon Dry coriander seed powder
- 1 pinch Asafoetida/hing
- 4 red chillies, whole
- 1 teaspoon jeera / cumin seeds
- 5 garlic cloves
- 1/2 cup ghee
- 3 cups Curd
- Chopped spinach / local green vegetables – optional
- Salt as per taste

#### Method

- Beat besan alongside little water, turmeric and minimal salt to thick glue.
- Steadily add curd and blend well to the streaming blend.

- Heat oil. Splutter cumin seeds. Fry garlic till light brown. Add red chillies and hing.
- Add curd mixture and spice powders – coriander seed powder, red chilli powder and turmeric powder.
- Stir continuously till gravy thickens and boils.
- Cook for 5-10 minutes. Modify taste with salt and consistency with water.
- Add the green vegetables. Cook for a couple of minutes till the leaves are delicate.
- Topping with coriander leaves/chillies and serving. Jholi as a side dish to rice alongside ghee

#### 4. Phaanu

Brief: Phanu is also made of dals (lentils) like chainsoo, but in this case the dals are soaked in water for about 4 to 6 hours before its use. A different variety of dals like- Gahat, Arhar or green Mung can be used to prepare Phaanu.

##### Ingredients

- Gahat or Kulath (Horse gram) – 1 cup
- Oil – 1/2 cup (preferably mustard oil)
- Garlic – 4 to 5 cloves
- Ginger – 1/2 inch piece
- Green chillies – 3 to 4
- Jakhiya or Cumin seeds – 1 tsp
- Asafoetida – a pinch
- Dry coriander powder – 1/2 tsp
- Turmeric powder – 1/4 tsp
- Water – 3 cups
- Salt to taste

##### Method

- Soak the Gahat dal in water overnight. If using Arhar dal, soak for 1-2 hrs.
- In the morning wash and rub the daal in running water so that it is free of seed covering (chilka). Then, grind it into a dry thick paste in a mixer or on a silbatta (stone grinder) along with green chillies, garlic and ginger.
- Place a tawa on a moderate flame. Put some oil and make thick pancakes (like cutlets) with dal paste. Use only half of the paste for making the pancakes.
- Mix water with the remaining paste making it of pouring consistency. Heat oil in a pan and add

jakhiya seeds and asafoetida. Now add Gahat paste, turmeric powder, dry coriander powder and salt.

- Cover and cook for about 10 minutes on slow fire. Add the Gahat cakes to the gravy and continue simmer for another ten minutes. The gravy should have pouring consistency. If thick add some more water and heat till it boils.
- Garnish with pure ghee and chopped coriander leaves. Serve with steamed rice.

### 5. Til ki Chutney

Brief: This chutney is mainly prepared during winters and is consumed with Toor ki dal and rice or with Gahat ke paranthe. It can also be used as a dip for various snacks. It is rich in iron and calcium.

#### Ingredients

- Til (sesame seeds) - 3-4 tbsp
- Coriander leaves - 1 bunch
- Garlic cloves - 3-4 nos.
- Green chillies - 2-3 nos.
- Yoghurt or Lemon Juice - 3-4 tbsp
- Salt to taste
- Sugar 1/2 tsp (optional)

#### Method

- Dry Roast Til seeds in a pan on a moderate flame for 4-5 minutes.
- Grind Til seeds with coriander leaves, garlic cloves and green chillies.
- Add lemon juice or yoghurt and grind to a paste.
- Adjust salt and sugar.

### 6. Baadi

Brief: Baadi is made from Kwada ka Aata (also known as Choon or Mandua flour and is black in color) Baadi is best eaten with Gahat ki dal or Phaanu.

#### Ingredients

- Kwada ka Aata - 1-2 cup
- Water - as required
- Ghee - 1-2 tbsp

#### Method

- Heat water in a pan till it boils.

- Now mix choon (kwada flour) in water and cook for 2 minutes.
- Add ghee to it and serve hot.

## 7. Roat

Roat is a traditional Garhwal bread that is prepared in family or religious festivals. It is energy dense and rich in iron and calcium.

### Ingredients

- Whole wheat flour (atta) – 2 cups
- Cold milk – 1/2 cup
- Ghee – 150 grams
- Green cardamom (Elaichi) – ½ tsp
- Aniseed (Saunf) – 1 tsp
- Jaggery(gur) – 1 ½ cups
- Water – 1 cup

### Method

- Heat the water and dissolve the jaggery in it. Sieve the jaggery solution through a muslin cloth. Set aside, and allow the solution to cool.
- Mix thoroughly the wheat flour with the milk along with two-tbsp. ghee. Add Saunf and elaichi, mix well. Add the jaggery solution to the prepared wheat our, gradually kneading it.
- Continue adding the jaggery solution and kneading the flour till it turns into a stiff dough. Make thick roats like rotis out of the dough.
- Place an iron tawa on a moderate flame. Pour about a tsp. ghee on it. When the ghee gets moderately hot, place the roat on the tawa. Turn the roat upside down and add more ghee to cook if needed. Cook each roat till it becomes brown. Remove the roat from the tawa. Serve it when cool.

## 8. Sisunak Saag

Sisunak (Nettle) saag has high nutritional value. The leaves from where this saag is prepared are locally known as “Bichhu Ghas” and Kand ali in Garhwal region. It is rich in Magnesium and Iron.

### Ingredients

- Sisunak (Kandali) – 2 kg
- Jakhiya – 50 gm
- Salt to taste
- Oil – 30 ml

**Method**

- Take small leaves of Bichu, boil them in water and cook well, till the leaves become pulpy.
- Wash the pulp 3 times, drain the water and grind it.
- Heat oil in a thick-bottomed pan and add Jakhiya. Stir well.
- Add the pulp and fry. Add salt.
- Garnish with tomato and butter. Serve hot with boiled rice.

**9. Gahat (Kulath) Soup**

Brief: It is a soup prepared from Gahat (Kulath) lentil. It is high in protein and beneficial for those having kidney stones.

**Ingredients**

- Boiled Gahat water – 500 ml
- Whole Garam Masala – 10 gm
- Cream – 10 gm
- Gahat Dal – 150 gm
- Ginger and Garlic water – 50 ml

**Method**

- Boil Gahat dal soaked overnight in a pan with garam masala
- Separate the boiled dal and water
- Grind the dal in the mixer and keep aside
- Heat boiled dal water in a pan, add ginger and garlic water, salt, black pepper powder and dal paste.
- Simmer the above mixture on low heat for 4-5 minutes.
- Garnish with cream and serve hot soup

**KUMAONI RECIPES****1. Rus**

Kumaoni delicacy prepared with mixed dal stock, thickened by rice paste and served with steamed rice.

**Ingredients**

- Bhatt(Black Soybean) – 50 gms
- Gahat (Kulath) – 50 gms



- Rajma – 50 gms
- Chana – 50gms
- Urad – 50 gms
- Rice – 30 gms
- Ginger – 30 gms
- Garlic – 5-6 flakes
- Cumin seeds – 1 tsp
- Cloves – 5-6
- Black pepper – 1 ½ tsp
- Green Coriander – ½ Bunch

### Method

- Soak rice overnight and grind into a fine paste
- Soak dals overnight and boil in plenty of water, till tender
- Make a paste of black pepper, cloves, ginger, garlic, and cumin seeds
- Fry the ground paste in oil.
- Add dal extract (stock) and thicken it with rice paste. Cook it for 10-15 minutes.
- Garnish it with chopped green coriander and serve with rice.

## 2. Singal

Singal is a highly nutritious and energy-dense dish served with evening tea.

### Ingredients

- Suji - 300g
- Curd - 150g
- Ghee - 50g
- Sugar - 75 g
- Banana – 2
- Oil to fry

### Method

- Beat Suji with Ghee, mashed Banana, and mix.
- Add beaten Curd and Sugar and mix thoroughly.

- Leave aside for 2-3 hours.
- Prepare a piping bag with cloth.
- Make a hole of about 1/2" in diameter at the bottom of the bag.
- Heat oil or ghee in a frying pan and pour the mixture through the bag
- Deep-fry from both sides till golden brown. Serve hot or cold.

### 3. Jhangore ki Kheer

It is a traditional kumaoni dessert prepared with Barnyard Millet or Jhangora and Nuts. It is high in digestible proteins and vitamins.

#### Ingredients

- Jhangora – 500 gms
- Sugar – 200 gms
- Milk – 2 ltr
- Cashewnuts – 50 gms
- Raisins – 50 gms
- Chironji – 100 gms
- Kewra essence – 2-3 drops.

#### Method

- Wash and soak Jhangora in water for 1 hour.
- Boil milk and add Jhangora. Stir well to avoid lumps.
- Add sugar and cook till it done
- Add kewra essence and mix well.
- Garnish with Raisins, Cashewnuts, and Chironji

### 4. Badeel

Badeel is a popular Kumaoni dish which is rich in protein and antioxidants. It is a breakfast item and also served as an appetizer, with the main course. It can also be consumed as a snack.

#### Ingredients

- Bengal split gram (chana) – 1 cup
- Ginger – 1 inch peeled
- Garlic – 5-6 Flakes
- Cumin seeds – ½ tsp

- Turmeric Powder – ½ tsp
- Black pepper – 1 ½ tsp
- Green Coriander – ½ Bunch
- Water – ½ cup
- Mustard oil – 1 ½ tbsp
- Vegetable Oil – 2-3 tbsp

### Method

- Wash and soak Bengal split gram (chana dal) overnight or for a minimum of 5 hours.
- Drain out water.
- Transfer soaked dal to the mixer. Add ½ cup water and grind it along with salt, garlic, ginger and green chilies into a fine paste.
- Heat mustard oil in a thick bottom steel wok (kadai) and add cumin and dal paste.
- Stir the paste continuously.
- When it begins to boil, reduce the flame and cook on low flame stirring continuously.
- The mixture begins to change colour, becomes thick and the raw smell goes away as it gets cooked. When the mixture becomes really thick, reduces in quantity and moves in one lump while stirring, it is done. Turn off the heat.
- Grease a plate. Let the mixture cool for about 10 minutes.
- Drop the dal mixture in the plate. Apply some oil in the palms, and spread the mixture to a uniform thickness in the plate by pressing with hands.
- After 10 minutes, cut diamond shapes with a sharp knife. Keep aside to cool completely.
- Heat a non stick pan. Add 1 tablespoon of vegetable oil. Add the badeel pieces and cook on medium flame till they turn pink. Turn and cook on the other side.
- Serve hot or cold with coriander garlic chutney.

### 5. Bhatwani

Bhatwani is a well known traditional dish prepared from Pahari Bhatt Dal (Black Beans).

#### Ingredients

- Bhatt ki Dal (Black Beans) – 1 cup
- Oil – ½ cup (preferably mustard oil)
- Garlic – 4 to 5 cloves
- Cumin seeds – 1 tsp

- Black pepper – 4 nos.
- Red chillies whole – 4 to 5
- Asafoetida – a pinch
- Dry coriander powder – ½ tsp
- Turmeric powder – ¼ tsp
- Red chillies powder – ½ tsp
- Water – 3 cups
- Salt to taste
- Garam masala – ½ tsp

### Method

- Place an iron frying pan (Kadai) on a moderate flame. Put Bhatt Ki Dal (Black Beans) in it and roast it without oil for about 3 to 5 minutes or till the pleasant aroma of roasted seeds comes. Do not overcook it. Grind the roasted seeds into a coarse powder.
- Heat oil in the Kadai and add garlic cloves. When the garlic turns light brown, add cumin seeds, red chillies, black pepper, and heeng (asafoetida)
- Immediately add the dal powder and fry it for 1-2 minutes. Add turmeric powder, dry coriander powder, red chillies powder, salt and water. Bring it to boil.
- Cover and cook till the dal becomes very soft. Simmer for 20-30 minutes. Before taking the heat, sprinkle garam masala over Bhatwani.
- Garnish with pure ghee and chopped coriander leaves. Serve with hot steamed rice.

### 6. Thechwani

Thechwani is prepared using radish root or potatoes. The preparation is called by this name as the radish root or potato is never cut, but crushed (thincho) into pieces.

#### Ingredients

- Radish root – 3 to 4
- Potato – 1
- Oil or Ghee – 2 tbsp
- Garlic – 4 to 5 cloves
- Ginger – 3 cm piece
- Onion – 1 medium chopped
- Tomato – 1 medium chopped

- Dry Faran or Cumin seeds – 1 tsp
- Red chillies whole – 4 to 5
- Asafoetida – a pinch
- Dry coriander powder – ½ tsp
- Turmeric powder – ½ tsp
- Red chillies powder – ½ tsp
- Water – 6 cups
- Salt to taste

### Method

- Wash and peel the radish and potatoes and crush them into small pieces.
- Crush the ginger and garlic into a fine paste
- Heat oil in the frying pan on a moderate flame. Stir-fry crushed garlic and ginger in the hot oil. Add the crushed radish and potato. Fry the mix for 2 to 3 minutes. Set aside.
- Add cumin seeds, red chillies, asafoetida in the remaining oil, add chopped onion and fry till light brown. Add turmeric powder, dry coriander powder, red chillies powder. Fry for a few seconds. Add fried vegetables, chopped tomatoes, salt and some water.
- Boil for 2 to 3 minutes. Add remaining water and pressure cook or cook on a low flame for about 30 minutes till the radish becomes soft.
- Garnish with coriander leaves and green chillies (split apart into two pieces).

### 7. Lesu

It is a Kumaoni Bread prepared by stuffing Mandua dough into wheat flour dough and eaten with Ghee.

### Ingredients

- Wheat Flour – ½ Kg
- Mandua Flour – 300gms
- Ajwain – ½ tsp
- Salt to Taste

### Method

- Knead wheat flour and keep aside.
- Mix Ajwain and salt into mandua flour and knead. (Keep it aside)
- Take wheat flour dough and stuff with mandua flour dough.

- Roll into chapati and cook on a griddle.

## 8. Bhatt ki Churkani

Made with black soybean, this sour preparation is eaten with rice and is well known for its unique taste and high nutritious value.

### Ingredients

- Black Soybean (Bhatt) – 300 gm
- Rice paste or plain flour
- Onion – 1
- Jeera – 2 tbsp
- Dhaniya powder – 1 tbsp
- Jeera powder – 1 tbsp
- Chilli powder – 1/2 tbsp
- Oil – 2 tbsp
- Salt – To taste
- Water – 4 to 5 cups

### Method

- Soak the bhatt overnight.
- Heat oil in a kadai and add jeera, chopped onion and soaked bhatt together in the kadai and fry till the onions start getting brown.
- Now add 1-2 tablespoon of plain flour or rice paste and fry
- Add haldi, dhania, jeera powder and chilli powder and fry for a few more seconds.
- Add 4 cups of water and cook on high flame.
- Cover and simmer for 30-40 minutes or till bhatt is soft and curry is thick. The colour of churkani should be dark greenish black.
- Serve it with hot steamed rice.

## 9. Kaapa

A typical Kumaoni delicacy prepared with mixed dal stock, thickened by rice-powder paste and served with rice

### Ingredients

- Spinach – 1 kg

- Curd – 300 g
- Chili Powder – 50g
- Turmeric powder – 20g
- Garam Masala – 20g
- Cumin seeds – 20g
- Asafoetida (hing) – a pinch
- Oil – 50 ml
- Salt to taste
- Rice paste – 20 g

### Method

- Wash and chop the spinach and boil.
- Heat oil, add Cumin seeds and asafoetida.
- When the seeds crackle, add chili powder and turmeric powder.
- Fry the spice well.
- Add boiled spinach and cook for 5 minutes
- Add beaten curd and a required amount of water and thicken with rice paste.
- Add salt and garam masala and serve with bhat (steamed rice).

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# TRADITIONAL FOOD AND CUISINE OF WEST BENGAL AND ITS NUTRITIONAL IMPACT

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## ABSTRACT

Traditionally, Bengal has been renowned for its extraordinarily fertile agricultural land and production of paddy. At the same time, the rivers of Bengal are an inexhaustible resource of different varieties of fish, thus from ancient times, rice and fish emerged as the staple food for the Bengalis. Bengali meal is a multi-course meal served course wise. There is ample use of has various kinds of sweet water fishes, ample usage of green leafy vegetables and other vegetables in Bengali cuisine. Using vegetables in non-vegetarian dishes like fish curry and using fish heads and bones in various vegetarian dishes proved the versatility of Bengali cuisine and its power to enrich a dish with nutrition in all possible ways. Using chana and jaggery in Bengali sweets again made them more nutritious and easier to digest. Many influences in Bengali cuisine shaped it into the form it is today among them partitioning of Bengal, restriction on widows regarding food consumption, Mughal and British influences were significant. Despite the availability of abundant agricultural land, various nutritious fruits, vegetables, and GLVs, a variety of fishes there is still the problem of the double burden of malnutrition. Therefore, local traditional healthy foods and dishes with nutritional benefits should be promoted by dietitians, nutritionists & health practitioners.

## INTRODUCTION

The history of West Bengal, began in 1947 post-independence when the Hindu dominated Western part of the British Bengal province became the Indian state of West Bengal. It is located in the eastern part of the Indian subcontinent at the apex of the Bay of Bengal and is dominated by the fertile Ganges river delta. Civilization in Bengal has been reported 4000 years ago and the ancient Greeks and Romans called it *Gangaridai* which was a powerful kingdom whose elephant forces did not permit Alexander the Great to conquer Eastern India. Bengal kingdoms (*Janapadas*) and cities have been cited in Vedic

texts and it has been the entry point of the famous silk route with trade links with Persia, Arabia, and South East-Asia. It was ruled by many dynasties such as the Mauryans, Guptas, Gaudas, Varmans, Khagdas, Palas, Chandras, Senas, and Devas till the 12<sup>th</sup> Century and later by the Muslims of the Delhi Sultanate, Ilyas Shahi Dynasty, Hussain Shahi Dynasty, Suri Empire, Afghani Karrani Empire, Baro Bhuyans, the Sutans of Mughal empire, Nawab, Nassir and Afsar dynasties. Later colonial rulers from Portugal, French, and Britishers. Therefore the Bengali language, script, art, music, architecture, and cuisine has influences of Hinduism, Buddhism, Persian, Islam, Chinese and English culture.

### **INTRODUCTION: MULTI-COURSE MEAL OF THE SUBCONTINENT**

A Bengali meal follows a multi-course tradition where food is served course-wise rather than all at once, usually in a specific format, marking it as the only meal of the subcontinent to have evolved such convention. It is quite similar to the present-day service à la russe style of French cuisine. Daily meals are simple, geared to balance nutrition, and make extensive use of vegetables. The courses progress broadly from lighter to richer and heavier and go through various tastes and taste cleansers. Rice remains common throughout the meal. It is written in 11<sup>th</sup> century Bengali texts that ‘Fortunate is the man whose wife serves him on a banana leaf some hot rice with ghee, mourala fish, fried leaf of jute plant, and some hot milk’ (Banerji 2005).

### **BHAAT: THE STAPLE**

The practice of multi-cropping is quite common in Bengal which has earned fame for producing varied and good quality rice. Nearly 5,000 years ago, paddy cultivation came to Bengal from Southeast Asia and rice became a major calorie resource of Bengali daily life (Murshid 2008). Paddy cultivation is practiced in Bengal three times a year. Among them, *aman* cultivation is important when paddy is planted during the monsoon and harvested in the late autumn. The next most important plantation is *aus*, which is planted around May-June and harvested during August-September. The *boro* plantation is a relatively new practice and has been popularized with the emergence of new irrigation techniques among Bengali farmers. This cultivation takes place during the winter and the crop is harvested in early summer.

Bengalis prefer to eat parboiled rice, where un-milled rice (still in its rough outer husk) is boiled or steam-heated for a short time. This drives the B vitamins (thiamin, riboflavin, and niacin) from the outer bran into the center of the grain. Thus, parboiled white rice has more B vitamins than plain white rice, which loses those vitamins when its bran is removed. Besides boiled rice, different kinds of puffed and parched rice such as *muri*, *khoi*, and flattened rice also fulfilled the daily needs of the common Bengalis.

*Khichudi*, a preparation of rice and dal and some spices, often offered to the deities as *bhog*, is also a significant dish in Bengal, which determines the importance of rice and dal in Bengali daily life. The traditional *Khichuri* is made with *Govindobhog* rice, desi ghee, moong dal, nuts, and dry fruits and is also served as *Prasad* during Durga Puja. *Gobindobhog* is short-grained and sticky. It is locally grown and cultivated in many areas in Bengal and is prized for its wonderful aroma. It is believed that the name *Gobindobhog* was derived from the time it was used in preparing the special *Prasad* and *bhog* for Lord Govinda Ji, the family deity of the Setts of Kolkata.

In August 2017, the *Gobindobhog* variety of rice was allotted the geographical indication tag by the Government of India which signifies that only the rice grown in West Bengal can be termed as *Gobindobhog* as it possesses certain unique qualities and is cultivated and processed using traditional methods specific to its place of origin.

The traditional *Payesh*, a sweet dish on Bengal gives the best results with *Govindbhoog* rice. Locals believe It has been medically proven that *Gobindobhog* rice accelerates the burning of the fat in the body as it has essential nutrients that help in mobilizing the fat from the liver.

In rural areas, the rice left over after dinner is kept in a pot with water in it which gets slightly fermented the next morning. This rice popularly called '*panta bhat*' is consumed as breakfast along with green chilies, onion, roasted red chilies, lime, fish fry, papad, or pickle. The water in which the rice is soaked along with lime etc cools the digestive system and protects the body from heat.

### THE BITTER STARTER

The first item of the Bengali cuisine is a thick soupy mixture of vegetables in a ginger-mustard sauce named *shukto*, which is claimed to be a palate-cleanser and of great medicinal value. It is made of seasonal vegetables such as *kôrola* or *uchhe* (forms of bitter gourd) or tender neem leaves in spring season. *Shukto* is rich in iron and these bitter starters are recommended for diabetics, people with liver problems and this soup is also an excellent natural remedy for the common cold. Other components of *shukto* are Indian pumpkin (*chalkumro*), brinjal, drumstick and potatoes.

*Neem bhaja*, made out of young neem leaves are fried in oil with tiny pieces of brinjal (eggplant) are also sometimes the first item of the Bengali meal instead of *shukto* and is eaten with rice.

### SHAAK: THE HEALTHY GREENS

The first course is then followed by *shak* (leafy vegetables) which are steamed or cooked in oil with other vegetables such as brinjal. Steamed *shak* is sometimes accompanied by a pungent paste of fermented mustard seeds, which is called *Kashundi*.

All the greens are loaded with minerals and vitamins especially carotene, folic acid, vitamin C, K, iron, calcium, potassium, etc, rich in soluble and insoluble dietary fibre, high in antioxidants, Posses antihistaminic, anti-inflammatory, antimicrobial, anti-fungal, analgesic properties, good for liver, eyes, skin, keep the body hydrated, prevents constipation, keeps gut healthy, acts as a natural detox, low on glycaemic index thus control blood sugar, helps to keep blood pressure low, help in weight loss and boost overall immunity.

**The individual names and their nutritional importance are written in following table.**

Name of the Shaak (Greens)	Nutritional importance
Kumro shaak (Pumpkin leaves)	High in vitamin A and C
Sojne shaak (drumstick leaves)	High in vitamin A and C

Kochu shaak (Colocasia leaves)	reduces cholesterol level, prevents anemia, helps in foetal brain development, controls blood pressure, helps in weight loss.
Pui shak (Malabar spinach)	rich in Vitamins A, C, and B complex and minerals such as potassium, manganese, calcium, potassium, and copper. It is also rich in antioxidants, nourishes the skeletal system, and improves the haemoglobin count.
Kolmi shak (water spinach)	high in <b>beta-carotene</b> , natural <b>antioxidants</b> , protein, carbohydrates, and dietary fibers. Kangkong is also extremely rich in electrolytes, such as sodium and <b>potassium</b>
Note shak (Amaranth leaves)	high in iron content and dietary fiber, it is good for anaemic patients and reduces cholesterol and risks of cardiovascular diseases
Lal shak (red, leafy vegetable)	One of the major sources of anthocyanins, which are directly involved in protecting use against cancer, diabetes, aging, and oxidative damage. Anthocyanins are water-soluble chemicals that are mostly available in berries (blueberry, raspberry, strawberry, etc.). Recently researchers found that 100g lal shak contains 250-667 mg anthocyanins whereas 100g berries contain 25-648 mg anthocyanins. However, berries are expensive and also not available in our country. Therefore, lal shak can be our source of anthocyanins.
Helencha or water cress leaves	treats skin disease, acidity, liver problems, sleeplessness, weight loss, antifungal, and anti-microbial properties
Kulekhara leaves	The leaf extract from Kulekhara is used to cure diarrhea, inflammation, pain abdominal disorders, and anaemia. The seeds of this plant also have medicinal values and have been used in the treatment of several blood disorders and urinary problems.
Paat shak (Jute leaves)	rich in iron, protein, vitamin A, C, and E, thiamine, riboflavin, niacin, folate, and dietary <u>fibers</u> . They have anti-inflammatory properties.

## DAL: BENGALI'S ADAPTATION OF PULSES

Dal has been another source of calories among the Bengali population; surprisingly it was missing in the pages of the early Bengali texts. The first Bengali texts of the 11th century, the Charyapadas,

describe fishing and hunting and mention many kinds of food crops including rice and sugarcane, but there is no reference to any kind of dal. It is only in 15th-century texts, such as the Mangalkavyas, that different kinds of dal and the process of cooking are mentioned. The shift occurred with the emergence of the Vaishnava Bhakti cult whose followers were vegetarian. As a result, a substitute for fish and meat had to be discovered, which is what helped to popularize dal among Bengalis (Banerji 2005).

Dals are a must in Bengali Cuisine. These are low calorie, low fat and protein, and iron-rich food as well as being inexpensive. They provide more folic acid than any other food. Soluble fibre found in lentils decreases blood glucose and cholesterol and decreases insulin requirements for people with diabetes.

*Bori*, is a low-cost, pulses fermented food consumed in West Bengal. For the preparation of *bori*, pulses first cleaned then soaked in water overnight, and then after some time, the Dal (pulse) were ground to paste form. This ground paste of Dal is mixed with the appropriate quantity of salt, white *til*, some spices like chili powder and then pressed into oval to round to cylindrical cakes and kept on the bamboo carpet and sundried for 3-5 days in summer and 5-10 days in winter.

### **TORKARI: VARIATIONS IN VEGETABLES**

Items comprising of vegetables referred to as '*torkari*' which can be cooked alone, in combinations as also with non-veg ingredients such as spare pieces of fish such as bits of the head or gills, or spare portions of meat. Dishes like *chhyanchra*, *potoler dolma/dorma* are prepared using a mix of veg and non-veg items. People from Bangladesh who migrated to West Bengal influenced the cuisine a lot by incorporating delicious dishes made out of often rejected parts of vegetables like leaves, peels and stalks such as *Laudoga & Laukhola* (Upper end of the bottle gourd plant and bottle gourd peels). Some popular and exclusive Bengali vegetables which made into delicious recipes are mentioned below along with their nutritional benefits:

- *Mocha* (Banana flower): *Mochar Ghonto* is a delicious preparation of banana flower, crushed coconut, and potato, cooked with some cumin and bay leaves. Rich in antioxidants, fibre, proteins, vitamin E, and flavonoids. Prevents ulcer, reduce blood glucose levels
- *Thor* (Banana stem): Rich in fibre, potassium, and vitamin B6. Good for weight loss and controlling blood pressure
- *Kochur loti* (Colocasia root): good for diabetes, cancer, skin disease, overall immunity
- *Echor* (tender jackfruit): Rich in dietary fiber, vitamin A, vitamin C, and various B vitamins, as well as potassium, iron, manganese, magnesium, zinc, and phosphorus
- Fried flowers: pumpkin flowers (rich in vitamin B9, improves vision, prevents cold), drumstick flowers (antibacterial), *bokful* (rich in vitamin C, beta carotene)

### **MACH: EXPLORING THE FISHES**

The next course is the fish course. Generally, there is one fish course a day, because Bengalis tend to eat fish and generally derive the necessary protein intake from fish and dal. The meat was generally

a once-a-week affair until the 1990s, but now with changing culture, meat is served more often in the household.

The coastline region of Bengal is abundant with rivers like the Ganges, Padma, Meghna, Damodar, Mayurakshi, Teesta, and Rupnarayan among others, and other water bodies like ponds and lakes that offer the populace a wide variety of fish like *rui*, *katla*, *pabda*, *tangra*, *koi*, *hilsa*, *pomfret* and *bhetki* and other sea animals like shrimp, prawn, and crabs.

Generally, the most common fish dish is the *Jhol*, where a thin gravy of fish is made with ginger, turmeric, chili and cumin (the basic group of spices), and fish, and sometimes potato or other vegetables. Apart from that *jhal*, a more spicy and hot one like *pabda macher jhal*; *kalia*, a rich and gravy preparation like *ruhi maacher kalia*; and *korma*, a more sweetish form, *tel koi*, *chitol maacher muitha*, *ilish maacher paturi*, *ilish maach bhapa*, *chingri maacher malaikari* are some popular fish recipes. *Bhapa* (steamed) fish and vegetables are prepared in different fuel-efficient procedures like placing such items in a covered bowl atop a pot of boiling rice.

Fish is a high protein food that is low in calories, total fat, and saturated fat. Also, a large proportion of the fat in seafood is polyunsaturated. The protein in fish is also easy to digest. The omega-3 fatty acids found in fish and shellfish, can reduce the risk of heart disease and ensures proper development of brain and eye tissues.

Bengalis also cook fish heads and *Maacher tel* (fish liver oil) which are very rich in vitamins A & D and minerals like iodine. Eating whole small fish also provides calcium and phosphorus.

There was no prohibition on the brahmins' consumption of non-vegetarian food (Ray 1987). In *Brihadharmapurana*, it is said that the brahmins widely consumed white-scaled fishes such as *ruhi*. Jimutavahana, a 12th-century poet, told that the *hilsa* fish and its oil (in which the fish is fried) were popular in Bengal (Ray 1987).

### **CHUTNEY: THE TONGUE CLEANSER**

After the main dishes comes the sweet and sour chutney, a slightly thick and saucy item called chutney that can be made of tomatoes, pineapple, papaya, mango, tamarind, olives, dates, or with a mix of different fruits including the dry ones. It acts as a palate cleanser. It is generally complemented with papad.

### **LOCAL FRUITS AND TRADITIONAL BEVERAGES**

Ata (custard apple), lichu (lichee), kamranga (carambola), amra (hog plum), jamrul (rose apple), kul (jujube), Koromcha (karanda/Bengal currant), sobeda (sapodilla), kotbel (Wood apple), panifol (water caltrop), talshash (ice apple or sugar palm fruit), chalta (elephant apple), batabi lebu (Pomelo), horitoki (black myrobalan), Kanthal (jackfruit) are various fruits which are exclusive to Bengal and widely available here. Lichees were native to southern China. The Portuguese brought it to Bengal at end of the 19th century. Guava or peyara may have originated in Peru. Known in Eastern India as early as 1550. Widely grown in Bengal.

Am pora Sharbat (Beverage made of burnt raw mangoes) and Gondhoraj Ghol (a beverage made of

king lime unique to Bengal) are two popular exclusive Bengali beverages that are made of fruits and rich in Vitamin C and other micronutrients.

### **MISHTI: DOMINANCE OF CHANNA AND JAGGERY**

Channa based sweets were introduced in Eastern India from about the 18th century; as the process and technology involved in synthesizing “Chhana” was introduced to the Indians by the Dutch in the 1790s. *Rasogolla*, *Pantua*, and various kinds of sweets such as *Sandesh* were made out of channa and very exclusive to West Bengal.

Sukumar Sen (1943) provides detailed information regarding popular Bengali food culture which included sweets made of jaggery and cereals before the chana was introduced and still very popular in Bengal. For example *nādu* (a kind of hard sweet, referred to in Sanskrit as *ladduka*), *moya* (a kind of soft sweet, in Sanskrit called *modaka*), *pitha* (in Sanskrit called *pishtaka*, a sweet cake made with rice powder, raw-sugar, ghee and oil).

In both Bangladesh and West Bengal, the tradition of making different kinds of pan-fried, steamed or boiled sweets, lovingly known as *pithe* or the “*pitha*”, still flourishes. The richness lies in the creamy silkiness of the milk which is mixed often with molasses, or jaggery made of either date palm or sugarcane, and sometimes sugar. Generally, rice flour goes into making the *pithe*. The *Pati Shapta* variety is a thin-layered rice-flour crepes with a milk-custard creme-filling. New rice, rice flour, *khejur gur* that is date palm syrup, milk, and coconut are used to prepare a variety of sweet dishes.

Jaggery activates the digestive enzymes and helps clean the intestinal tract. It is high in iron and increases the haemoglobin level and helps to treat anemia. It is rich in magnesium as well, which regulates the nervous system. This natural sweetener is packed with antioxidants too, which protect the body from the damaging effects of free radicals.

### **FORON AND MOSHLA: THE UNIQUE BENGALI SPICES**

A variety of spices and their mixes are used in preparing Bengali cuisine, the common ones being *halud* (turmeric), *jira* (cumin), *dhone* (coriander) *radhuni* (wild celery seeds), *kalo jeera* (black onion seeds), dried red chilli, bay leaves, *shorshe* (mustard), *poshto* (poppyseed), *methi* (fenugreek), *mouri* (fennel), *peyaj* (onion), *ada* (ginger), *narikel* (ripe coconut) and a combination of five spices called “*panch phoron*” which comprise of *kalo jeera*, cumin, black mustard seeds, fenugreek and fennel. *Phoron* that is frying the spices singly or in combinations either at the beginning of preparing a recipe or adding later to it plays a dominant role in Bengali cooking style. Traditionally Clove, cumin, ginger, *karpur* (camphor), *jaifal* (nutmeg), *hing* (asafoetida) were popular in Bengali cooking (Ray 1987).

#### **Nutritional benefits of *Panch foron*:**

- **Fenugreek** present in *Panch phoron* is beneficial to keep blood sugar in control, which means it is great for diabetics. It also gives you glowing skin and improves hair growth. Methi seeds is also used as a natural way to increase breast milk supply.
- **Cumin** keeps digestive issues at bay and helps in the secretion of pancreatic juice that is good for your stomach as it accelerates digestion. It also helps you lose weight.

- **Nigella seeds** are very well-known for its health benefits. It is rich in sodium, iron calcium, and potassium and has been used in several medicines in Ayurvedic treatments. Here's how to use Kalonji seeds for weight loss. It is known to help relieve hypertension, diabetes, various types of aches, eye ailments, hair loss, jaundice, constipation, etc.
- **Fennel seeds** are known to help lower blood pressure, cardiac issues, improve immunity. It helps relieve menstrual pain, curbs indigestion, constipation, and bloating. It also helps you lose weight, beat water retention, help solve skin problems and regulate blood pressure.
- **Mustard seeds** can help protect you from gastrointestinal cancer, curb symptoms of asthma, slow down aging, help you lose weight, and is extremely beneficial for rheumatoid muscle and arthritic pain.

Apart from mustard seeds, mustard oil is mostly used in preparing different dishes barring a few delicacies as mustard production is high in the state. The use of whole black mustard seeds either as *phoron* or as a paste in different cuisines is also used in Bengali dishes. *Kashundi*, a special sauce prepared out of mustard paste is savoured with Shak served with boiled rice and with different other fried items like fish fry.

*Posto*: A must ingredient in most Bengali dishes, *postho* or poppy seeds are a powerhouse of calcium. One tablespoon of place contains 127 mg of calcium. Poppy seeds are also natural coolants and help relieve stress.

## THE INFLUENCES ON BENGALI CUISINE

Bengal has a rich and significant past that includes the rule of several dynasties and empires including that of foreign invaders like the Mughals and the British. It also witnessed the presence of many other foreign communities like that of the Chinese, the French, and the Dutch among others. Gradually the ever-gastronomic Bengalis embraced many of the delicacies of such foreign communities.

Amongst the famous and popular ones are the Chinese foods like *chowmin*, Chinese soups, Chilli Chicken; The Chinese-origin people of Kolkata form a substantial and successful community with a distinct identity and Chinese street food is commonly available at almost every street corner. Indian Chinese food was given a second boost since the 1950s when a large number of Tibetans migrated into Indian Territory after 14<sup>th</sup> Dalai Lama's flight. Tibetans also brought their delicacies such as momos (*dumplings*) and noodle soup (*thukpa*).

Influence of Mughlai cuisines is seen in the presence of foods such as *biriyani*, *kababs* and *murg tandoor*, and the Persian culture of use of saffron and mace, extensive use of *ghee*, and marinating meat with yoghurt and chilli are also visible till date. Mughals also included mutton into mainstream Bengali cuisine and increased the use of milk, cream, and sugar along with expensive spices such as cardamom and saffron in the Bengali sweets.

English and Jewish bakers dominated the confectionery industry and a range of baked confectioneries, chops and cutlets were influence of the Britishers. The habit of drinking tea was influenced by the Christian community and today a typical dau for a Bengali start with a cup of tea and biscuits.



The Portuguese introduced some new vegetables and food items such as potato, chili pepper, okra, tomato, cauliflower, cabbage, bread, cheese, jelly and biscuits (Habib 2014, Sen 1997) to Bengali cuisine.

### **Diet of Bengali widows**

Hindu Bengali widows lifestyle was highly restrained, restricted within the household, mimicked a monastic life, and were supposed to follow a strict restricted vegetarian diet. Use of *mushur* dal, onion, and garlic was prohibited and expensive spices and ingredients like cloves, saffron and dry fruits were not allowed in their diet. Their food preparations were made from rejected and left-over ingredients like vegetable peels and spinach ends. “Hot Foods” such as shallots, garlic was prohibited, but ginger was permitted.

These economic and social restrictions influenced Bengali widows to create a brand new set of meals that utilized only vegetables and cheap spices.

### **CURRENT DIETARY TRENDS OF THE REGION**

Over centuries, the Bengali consumption culture has transformed and the Bengalis have adapted to other cultures without any collision. Globalization and corporate culture have greatly affected the regional cuisine. Shifts from traditional to modern cuisines have led to a decrease in the consumption of local green leafy vegetables.

Due to lack of time and disappearance of joint families, most of the Bengali families nowadays don't follow a multi-course pattern and restricted to one single vegetable dahl and fish preparation with rice on regular basis. Consumption of chapati at night gained popularity. But the popularity of chana-based sweets and fish remains the same among Bengali people. The rural population is also affected by the corporatization of food and spending money on unhealthy foods rather than producing and consuming more nutritious GLVs.

### **CONCLUSIONS AND RECOMMENDATIONS:**

Bengali cuisine is unique in the ingredients it has. The dishes retain much of the fibre and a lot of proteins are eaten in every meal cooked with healing spices. It is considered to be a perfect blend of various vegetarian and non-vegetarian preparations. When eaten right, and in courses, as described in the age-old recipe books, the well-balanced dishes help you maintain a healthy weight. Studies (Bhattacharya, 1987) reported stagnation in food consumption of rural households, stagnation in marine fisheries in the coast of West Bengal (Dutta, 2016) as well as less demand for traditional foods, less cultivation of local foods due to lack of awareness about their nutritional impacts, consumption of fried foods and fast foods (Samaddar, 2020).

Some traditional Bengali recipes which can be promoted in the “eat right” movement are the bengali fish curry (*maacher jhol with alu begun bori*), *choddo shak*, *sukto*, *Mochar ghonto*,

Despite the availability of abundant agricultural land, various nutritious fruits, vegetables, and GLVs, variety of fishes there is still the problem of the double burden of malnutrition. Therefore, local traditional healthy foods and dishes with nutritional benefits should be promoted by dietitians, nutritionists & health practitioners. A shift towards planetary health diets will require a change in general nutrition

education and local interpretation and adaptation that reflects culture, geography, demography of the population, and individuals (Willett et al, 2019)

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# RELIGION FOOD AND CULTURAL ANTHROPOLOGY OF ODISHA

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## ABSTRACT

Odisha, situated on the western coast of the Bay of Bengal has 480 km of coastline rich in natural resources and minerals. Odia cuisine uses low fat and spice but packs in an abundance of flavour. A typical Odia meal consists of rice, *dali /dalma*, one or two vegetable dish/fry and a fish/meat curry. Traditional dishes comprises of *pakhala*, *chenna poda* and *mansa tarEmail:kari* and the Mahaprasad' or the sacred food offered as 'Bhog' to Lord Jagannath invites several Hindu devotees to the state. This chapter is an attempt to describe Odisha's diverse food culture from *pakhala* to *mahaprasad*.

## INTRODUCTION

**Odisha**, is bounded by the states of Jharkhand, Andhra Pradesh, Telangana, West Bengal, Chhattisgarh, and the Bay of Bengal to the East. Therefore, there is an immense cultural amalgamation in this state.

Previously known as Orissa, meaning "*Odra Vishaya*" or "*Odradesa*", the state has was known as Kalinga, Utkla, Odra, Kosala with rulers such as Asoka, Kharavela, Kapilendra Deva, Utkala Sammilani, and even the British (Das, 2016) and in 2011 the state's name was officially changed from Orissa to Odisha.

The Oriya identity has evolved over centuries and includes its unique Oriya language, vibrant folk traditions, blooming crafts, and the majestic cult of Jagannath. There was the influence of many religions such as Hinduism, Jainism, and Buddhism which is confirmed by the presence of architectural marvels such as the Mukteshwara, Lingaraja, Jagannath Puri and Konark temples, Dhaulagiri, Udaigiri, and Khandagiri caves. Islam and Christianity are also practiced in certain localities of Sundargarh, Ganjam, Koraput, and Phulbani. Odisha is a center of migration route from North and East to South India.

The culture of the Adivasis (the original inhabitants of the land) is an integral part of modern Odissi heritage and the popular cultural festival from Odisha are the Rath Yatra or Chariot Festival of Lord

Jagannatha in Puri. Oriya belongs to the Indo-European family (Indo-Aryan branch) and resembles the Bengali and Assamese. A few tribal speak the Dravidian language and Munda language are still spoken by the Adivasis of the state. Odissi music is usually classified as a kind of Hindustani classical music of northern India, although some aspects of Odissi are unique. The famous classical dance form, Odissi originated in Odisha arguably inspired by the temple carvings. The state boasts of its rich tribal handicrafts and the Ikat handloom textiles, silver filigree work, stone carvings, horn-work of Cuttack, palm leaf etching, ivory work, making of mats, decorations made with paddy grains, and utensil making.

It is divided into four eco-cultural zones: (a) the hilly areas in the north and northwest, (b) the Eastern Ghats, (c) the central and western plateau, and (d) the coastal plains. The hilly areas in the north and northwest and the central and western plateau constitute the mineral belt of the state. Most of the tribal population of the State lives in this region. Some of the major rivers of Odisha are the Mahanadi, the Brahmani, the Budhabalanga, the Subarnarekha, the Salandi, the Rushikulya, the Banshadhara, the Bada, the Bahuda, and the Indravati. The Chilika Lake is home to several migratory birds every winter. The climate of Orissa is balanced and there are three well-marked seasons (Dash 1997).

### LOCAL CROPS AND FESTIVALS OF ODISHA

Over 73 percent of the population is employed in farming who contributes around 30 per cent to the Net State Domestic Product and a major portion of the farmland depends on rainwater. Rice, pulses, oilseeds, jute, coconut, and turmeric are the major crops. Other chief food grains include pulses like black gram, green gram, tur, and arhar, and oilseeds like groundnut, mustard, and castor oil. The economic importance crops are tea, cotton, groundnut, and rubber. **Odisha** contributes 1/10<sup>th</sup> of the total rice produced in India. Banana, mango, cashew, tamarind, turmeric, and other spices form a major part of horticultural crops.

In Odisha, food and agriculture is synonym to rice and has strong relevance to social customs and festivals. May-June *Akhyatrutiya* marks the seeding of rice, Mid-June *Raja Sankranti* marks the completion of sowing, October *Garbhana sankranti* symbolizes the reproductive phase of rice, harvesting of upland and low land rice coincide with the *Nuakhai* and *Laxmipuja* respectively and Mid-January *Chaita Parab* is celebrated by the tribal people as by this time rice is threshed and brought to the storehouse.

### FOOD CULTURE OF ODISHA

Owing to the importance of food in the religious culture of the state, Odia's love preparing food and celebrating festivals. Odia cookery is very simple with little or no oil but very flavourful. Rice (sun-dried and par-boiled) is the staple food and since Odisha has a long coastline, fish and seafood such as prawns, crabs and lobsters is an integral part of the non-vegetarians. Curd and coconut milk find great use in the diet of the people. '*Pancha-phutana*' a spice mix of cumin, mustard, fennel, fenugreek, and kala jeera is used for tempering vegetables and dals. Mustard oil is used in many dishes but ghee is used in temples and usually served in banana or *sal* leaves.

Vegetarianism is practiced by a large number of people because of their deep religious nature. Several well-known recipes credited to Bengal has their roots in Odisha. During the Bengal renaissance,

several cooks from Odisha known as *Ude Thakurs* (typically Puri brahmin cooks) were regularly employed in affluent Bengali families who incorporated several Odia delicacies into the Bengali kitchen. One such temple recipe is the *Kheera Mohana* popularly known as *Rasagulla*.

## TEMPLE CUISINE AND CULTURE OF ODISHA

Temples were the epicenter of socio-cultural activities in ancient Odisha. The temple cuisine comprises of indigenously grown local cereals and vegetables, cooked in “*satvik*” traditional methods using wood charcoal and earthen pots, and none of the age-old traditional recipes, cooking instructions and the rituals associated with food have been tampered with.

As per the Hindu mythology, Lord Vishnu bathes in Rameswaram, meditates in Badrinath, takes rest at Dwarka, and relishes his meal at Puri.

The ‘Mahaprasad’ or the sacred food offered as ‘Bhog’ to Lord Jagannath has gained international acclaim and has a deep-rooted cultural, spiritual and ritualistic importance for the Odias. Puri temple has the largest temple kitchen with a cooking facility for over 400 ‘*supkars*’ (cooks) and feed over 10,000 people. Lord Jagannath is the family head for the Odias and his leftover food, “*Krishna Ucchistam, Maha Prasadam*” has an in-depth significance for the Odias.

Cooking of the “*Mahaprasad*” involves a small fire ceremony in the temple kitchen when the traditional burners with six openings which can cook six dishes are lit and food in earthen pots are kept on top of the other over the burner and the pot at the top cooks first. Dishes such as *dalma, khechudi, ghanta, pitha, mitha* are prepared following strict regulations at lord’s home. Fifty-six (*chappan*) dishes are served to the Lord Jagannath as *chappan bhog* is traced to lord Krishna and his feat of holding the Govardhan Hill over the people of *braj* for seven days to protect them from the anger of Lord Indra. Lord Krishna missed eight meals of each *prahar* (3 hours) for all days of this week and to compensate for the skipped meals, Lord Krishna served 56 meals. During festivals such as *Makar Sankranti (Uttarayan)* over eighty-four recipes are served.

The temple complex at Puri has a *bhogamandap* in one of the *pancharath*, the *rosaghara* (kitchen) which employs the cooks *Mahasuaras* and *suaras*, *Anand bazaar*, the “Market of Joy” and is always abuzz with pilgrims across the country. ‘Mahaprasad’ is of two types. The *Sankudi mahaprasad* which include rice, ghee rice, mixed rice, cumin seed, and asaphoetida-ginger rice mixed with salt, and dishes like sweet dal, plain dal mixed with vegetables, mixed curries of different types, ‘*Saaga Bhaja*’, *Khatta*, porridge, etc. (bitter gourd, garlic, onion, tomato, and papaya are prohibited). The *Sukhila mahaprasad* consists of dry sweetmeats.

Another dry mahaprasad *Nirmalya* or *Kaibalya* which include dry-rice i.e. rice dried up in the hot sun in *Kaibalya Baikuntha* or all flowers, sandal paste, garlands, etc offered to deities and there is a belief among Hindus that if *Nirmalya* is given to a person on his death bed, he is certain to find a place for himself in the heaven after his death following atonement of all his sins.

### Daily offerings to the Lord include:

1. *Gopala Vallabha Bhoga*: The first offering to the Lord in the morning that forms his breakfast.

2. *Sakala Dhupa*: Offering at 10 am which consists of 13 items including the *Enduri cake and Mantha puli*.
3. *Bhoga mandapa bhoga*: Offering consists of *Pakhala with dahi and Kanji payas* and are made in the *bhog mandapa*, about 200 feet from the Ratna Vedi. This is called *Chatra Bhog* and was introduced by Adi Shankaracharya in the 8th century to help pilgrims share the temple food.
4. The *Madhyanha dhupa* forms the next offering at the noon.
5. *Sandhya Dhupa*: This offering to the Lord is made in the evening at around 8 pm.
6. *Bada Simhara Bhoga*: The last offering to the Lord.

Pilgrims often carry the *mahaprasad* back home for those who could not visit the lord, having the *darsan* of the *bhoga* is believed to be the second greatest means to receive the blessings of lord.

## FOOD OF THE COMMUNITY

**Dalma**- This is a high protein dish made with lentil dal cooked with a specific combination of vegetables and spices and is a part of the principal meal of Odias and commonly eaten with *Pitha* or pancake *Vada*.

**Pakhala**- The rice bowl *Pakhala*, word is derived from Sanskrit word '*prakhyalana*' which means to wash with water. In traditional Odia families, the leftover rice was kept in a *mati handi* or earthen pot with water and little curd/ lime juice was added to lengthen the shelf life of prepared rice, so that it can be preserved for a longer time. Over the night the rice gets fermented and is named *pakhala*.

*Pakhala* is cooked rice that is fermented overnight with water and consumed with an accompaniment of fried vegetables, mashed potato, leafy vegetable fry or fish fry. The alteration of rice by fermentation leads to the formation of a whole new product, i.e. *Pakhala*. The D-lactic acid generated in the fermentation of rice helps in building useful gut microbes and increases the digestibility of the food. It reduces body temperature and also regulates blood pressure. In summer, when the temperature rises, the environment becomes suffocating and sticky, *pakhala* gives huge relief to the body.

There are different forms of *Pakhala* based on time for preparation and presence of different spices/ ingredients in it. Conventionally, *pakhala* is used from par boiled rice (*usuna*), while raw rice (*arua*) is used during in temples and during festivals.

1. **Basi Pakhala** : Basi the most is common variant. This one has high D-lactic acid content and due to fermentation, this causes sleep. Rice is added with water and some curd. The container is stored in a cool, shade place for fermentation. It can be enjoyed with with *machha bhaja* (fish fries) and *badi chura*.
2. **Saja Pakhala** : Water is added to freshly cooked rice and eaten immediately. Sometimes a piece of lemon is added to it. *Saja* in Odia means fresh. It is the most preferred one, as it does not make you feel sleepy yet helps to beat the sun. The sap from the cut stem of a raw mango or lemon leaf which gives an unique flavor to this *Pakhala* can also be added.

3. ***Sugandhi Pakhala*** : Lord Jaganntha loves this. In the cooked raw rice, grated ginger, roasted cumin seeds, mustard seeds, curry leaves, lime leaves and salt are added along with water.
4. ***Dahi Pakhala*** : Beaten curd is added to cooked rice and topped with roasted cumin and salt.

### VEGETABLE CURRIES OF ODISHA CUISINE

***Chattu Rai*** - Mushrooms are quite common in Odisha. ***Chattu Rai*** is made using mustard paste with chilli and garlic cooked in mustard oil, potatoes, and mushrooms.

***Santula***- Santula is made with raw papaya, brinjal, parwal, potato, beans, raw plaintain, colocassia, tomato and many more vegetables the dish has more greens and fewer spices, thereby having all the makings for a healthy dish.

***Besara***- This is the mixed vegetable curry with mustard paste and forms one of the 56 dishes offered as *Mahaprasad* or *Chhappan Bhog*. Common man prepares it at home with addition of garlic to the mustard paste.

***Alu potala rasa***- This *parwal* gravy vegetable has coconut, poppy seed, and cashew nut gravy and all spices to give the dish a rich feel. This curry is mainly made during religious festivals when the uses of onion and garlic food are prohibited.

### NON VEGETARIAN CURRIES OF ODHISHA

***Macha Besara***- A famous fish recipe where fish is cooked with mustard paste.

***Macha Mahura***- Here fish is cooked with various vegetables and is a common household food.

***Chingudi Jhola***- It is a simple commonly prepared prawn curry prepare with potato and spices.

***Mansa Kassa***- Kassa is very famous Odisha thick gravy with extra spices and condiments and prepared in specific occasion and the basic spices include onion, garlic, ginger, chilli, tomato and whole spices such as eliachi, cinnamon etc.

### Khatta : Sweet sour flavour

***Ouu Khatta***- Sweet sour chutney made from elephant apple, jaggery and coconut. Basically available in winter season.

***Amba Khatta***- Sweet sour chutney made from raw mango, jaggery and coconut. Basically prepared in summer season. It is most popular accompaniment in odia food.

### SNACKS

***Gupchup***- *Gupchup*, which is known as '*golgappa*' in the north, '*panipuri*' in western India, '*puchka*' in Bengal, is the nation's favourite food. In this dish, crispy hollow balls made from maida or atta and suji; filled with mashed potato masala and dipped in spicy water with jal jeera, mint leaf, chilli and coriander leaf paste just enough to twist the taste buds on a different flavour.

***Chaula Bara***- Chaula Bara (rice vadas) is Odisha's very own a lip-smacking intricacy that leaves you salivate more. this snack is gobbled up after dipping them in delicious spicy and sour chutney.

**Dahibara Aludam-** This variant of *dahi vada* originated in Cuttack where the Vada is soaked in curd water and served with a *aloo dam* (potato curry), *guguni* (pea curry), raw onion and *sev*.

**Pitha** – A is a cereal based steamed cake prepared during festive occasions and of several varieties such as the *Chakuli Pitha*, *Poda Pitha*, *Manda*, etc.

1. **Chakuli Pitha:** This is a rice-based fried cake; prepared using rice flour: black gram (3:1), refined edible oil, and salt and is served with a wide variety of Odia side dishes like ghuguni and mutton curry.
2. **Poda Pitha:** This is prepared by the process of slow cooking with a special local rice. Baking of the fermented rice, black gram, grated coconut and jaggery overnight covered with banana/ sal leaves in an earthen pot add flavor to this dish which is slightly burnt from outside and has a soft and white inside. The combined taste of coconut garnished with cashew and burnt jaggery is amazing and this dish is prepared during *raja* festival and is Lord Jagannath's favourite *Bhoog*.
3. **Enduri Pitha:** This is prepared during *Prathamashanti* and *Gurubara Manabasa* (two prime festivals of Odisha). *Enduri Pitha* is prepared by wrapping steaming rice and black gram batter with coconut, cottage cheese, jaggery/sugar and black pepper in turmeric leaves. It has several health benefits including a laxative effect and the unique aroma of turmeric leaves and the jaggery-coconut filling make it extremely delicious.
4. **Kakara Pitha:** This a fried sweet cake prepared with semolina/refined wheat flour, grated coconut and cardamom as stuffing and can be served hot or cold on most traditional festivals and loved by children.
5. **Manda Pitha-** This is a low calorie steamed dessert without any oil/ghee and prepared in all parts of state during festivals such as *Manabasa Gurubara*, Durga Puja and Kumar Purnima. It is made with rice flour or semolina with grated coconut flavoured with cardamom and a steamed variant of *Kakara Pitha*.
6. **Arisa Pitha-** This delicious pancake is prepared especially on the occasion of *Manabasa Lakshmi Puja* and made of rice flour, kneaded in sugar or jaggery syrup and topped with sesame seeds and is crunchy from outside and soft from inside. This is a deep-fried *pitha* and can be preserved for 2-3 weeks.
7. **Taala Pitha-** This *pitha* is made from ripe fruit of palm or *taala*, *coconut and jaggery* is similar to that of *Kakara Pitha*.
8. **Chitau Pitha-** This *pitha* pancake batter has flavoured coconut and is prepared on the occasion of *Chitalagi Amabasya*, a festival related to Lord Jagannath and is a variant of the Neer Dosa of South India and usually served with a side dish such as *dalma* and a cauliflower curry.
9. **Chandrakanti Pitha-** This is made from moong dal (green gram) and rice flour and is a succulent deep-fried dessert cake of coastal Odisha but made by most Odia household during Diwali.
10. **Gaintha Pitha-** This is made of rice flour dough balls soaked in cardamom flavoured condensed milk. Very common during fasting, here the rice flour is cooked with boiling water and then kneaded



to form a dough, rounded into balls, and dropped into simmering milk cream. This is one of the most preferred Pithas, for all the sweet-lovers.

### COMMON LOCAL DRINKS OF ODISHA

1. **Bela Pana-** Bela or (agele marmelos) pulp is used to make a refreshing summer drink with *chenna* and black pepper and is useful for people suffering from gastritis, hyperacidity or flatulence. *Bela pana* is usually drunk around *Pana Sankranti* or Odia New Year in April.
2. **Tanka Torani-** This appetizing drink is generally served in earthen pots at Jagannath temple Puri and made by adding rice water to yogurt and topping with green chilies, curry leaves and lemon leaves and served after chilling.
3. **Fermented cooked rice (Handia)-** This drink is popular in summer because it keeps stomach cool and is a source of high energy. *Handia* is an un-distilled fermented rice beverage made in a *handi* (a big earthen pot) and a customary drink of the local tribes and is served in their festive occasions and social ceremonies. Handia drink helps the tribals in uninterrupted sleep by reducing tiredness (Dhal et al., 2010).
4. **Mahuli** – This is a distilled fermented drink made from *mahula* flowers commonly practiced by the tribal population of Odisha.

### SWEET RELICS OF ODISHA

1. **Rasagolla- Kheera Mohana,** it is one of Lord Jagannath's favourite sweet. The sweet which melts the gods, during the ritual *Niladri Bije* – when the Lord returns to the temple after the Chariot Festival. He begs goddess Lakshmi with a bowl of *Rasagulla* to forgive him as she was left alone in the temple. The dish is made from Cottage Cheese which are rolled into round shape and boiled in sugar syrup.
2. **Chennapoda-** A signature dessert of Odisha, it is prepared when cottage cheese mixed with sugar and put in a round vessel for circular shape. Then it's baked in an earthen oven covered with *sal* leaves. The burnt upper layer gives it that typical smoky flavour and adds to its taste.
3. **Chenna Jhili-** Typical to Nimapada a town of Puri, *Chenna Jhili* is essentially Jalebi made out of Cottage Cheese.
4. **Chhena Gaja** – This is prepared by combining *chenna* or cheese, sugar and little semolina and made in rectangular shapes. The fried sugary syrup Gaja is dipped in a sugar syrup while the dry *gaja* has the sugar crystals on the surface.
5. **Rasabali-** *Rasabali* is a deep fried flattened reddish brown cheese cake that is soaked in sweetened condensed milk with crushed cardamoms and is a soft sweet which melts in the mouth within a second. It is offered to Lord Balabhadra in the Balabhadra Temple of Kendrapada.
6. **Kheera Sagara-** Kheera Sagara, is small size *rasgolla* is dipped in condensed flavoured milk.
7. **Khaja-** This sweet is offered as a *prasad* by all devotees of Jagannath and is found abundantly in every street of Puri.

8. **Korakhai**- This is a classic traditional crunchy caramelised 'lia' (popped rice) sweet offered to Lord Lingaraja in Bhubaneswar.

## CONCLUSIONS

Odia cuisine has developed over time with local culture and hence has its distinct recipes and cooking processes. Compared to other regional Indian cuisines odia cuisine is less oily and moderately spicy, still very flavourful. The food in the central region is influenced by the Jagannath Temple. Mustard paste is used mostly in area close to Bengal border. The area close to Andhra Pradesh use curry leaves and tamarind more. Odisha offers a variety of traditional healthy foods which need more propagation across the country. Several low calorie sweets such as *Manda Pitha* and *Kakara Pitha*, seafoods and refreshing drinks of this state can be promoted in the Eat Right Movement.

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# LOCAL DIET PATTERNS AND FOOD SCARCITY AMONG SCHEDULES TRIBES OF ODISHA

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## ABSTRACT

The state of Odisha comprises 22% Scheduled Tribes communities and around 40% of the population comes under Below Poverty Line (BPL). Since the post-colonial era, the government followed the model of capitalist development and ignored people's basic needs and development requirements resulting in the famine type of situation especially in KBK region of the state. Under the liberalization economic drive, thousands of acres of tribal land have been captured by mining companies for cheaper rates. Millions were displaced and most of them have not been properly rehabilitated. Their protests were unheard of and suppressed by unlawful acts. To address the problems of starvation and malnutrition, the government of India introduced the Public Distribution System (PDS) in the year 1960 to ensure food security, later evolved that into Targeted Public Distribution System (TPDS) to focus on the poor population. Later Anganwadis and mid-day meal schemes were also introduced as solutions to the issue of food insecurity. After independence, the government and later NGOs have initiated many schemes for the betterment of socially isolated peoples but due to widespread corruption, their condition has remained quite the same even after seven decades. In year 2013, Odisha government launched a new PDS scheme for BPL citizens, namely One rupee One kg rice which was a boon for all poor people since one could get 12-25 kg per month depending on the number of family members. Such major steps have helped in reducing food insecurity problems but the quality and nutritional value have not been paid much attention to. In the COVID-19 pandemic situation, Since End of March 2020, India observed a lockdown scenario which has surely affected medical, food, and basic amenities among all those people who live in hilly areas and forest regions especially PVTGs. Many welfare schemes could not reach scheduled tribe communities as due to lack of transportation, they remained out of reach. Wage laborers

lost their jobs in the cities and many-headed back home. This paper examines issues and challenges of food security problems for scheduled tribes in the state of Odisha in contemporary times.

## INTRODUCTION

“There’s enough on this planet for everyone’s needs but not for everyone’s greed.” M.K.Gandhi.

There are around 62 scheduled tribe communities in the state of Odisha. They live in simple, almost preindustrial economies. Around one-fourth of Odisha’s population comprises of ST population and within that 60 percent of ST population stays Below Poverty Line (BPL) (Census Report, 2001). It becomes an everyday struggle for them to secure sufficient food for the daily needs. Earlier during the pre-colonial and colonial era, scheduled tribes were self-reliant and they used to completely rely on the forest for their everyday needs. But gradually post-colonial government adopted a capitalist-development model which led to a granting of large scale of land to mining companies in mineral-rich Odisha. This has resulted in demise of domestic economies and also massive tribal displacement with human rights violations. The state government acted as a managing agent for such industrial projects (Sahoo, 2005). Since then tribal people have started relying on Public Distribution System (PDS) for subsidized food. PDS was first introduced in 1960s with the aim to curb food scarcity, which was later adapted as TPDS (Targeted Public Distribution system) in 1997 to support and ensure food security problems among poor citizens of India.

## MEAL PATTERN OF THE TRIBALS

The average number of meals consumed by the tribals is 1.6 compared to an average of 2.66 meals per day in Odisha (Ranjan, 2014). Around the year, Scheduled Tribe (ST) communities experience meagre life but they face financial crises during fourth quarter and throughout such hard times they largely rely on their knowledge to consume Wild Edible Food Plants (WEFP). Tribals heavily depend on forest for their daily source of staple food. They have a wealth of knowledge about local indigenous forest products like roots, tubers, flowers, and fruits. Their daily diet pattern includes rice, *saag* (leafy vegetables), dal (lentils), roots, tubers, fruits, mushrooms, etc. Generally, local roots and tubers are boiled and then consumed. All this knowledge on local food products has been transmitted through generations by elders, which is slowly declining due to mass-exploitation of forest, displacement and urbanization.

Rice is a staple food for the poor tribals therefore government of Odisha introduced ‘one rupee per kg’ rice scheme in year 2013. Rice is consumed in various forms, and a major portion of rice is used in fermented form like *Pakhala* (Fermented rice), *Handia* (Rice beer), and *Pitha* (Fermented rice cake). Rice has an abundance of rich proteins and a high level of fibre; one can even prepare various food items after fermenting it. A large variety of rice species are grown depending on ground and weather conditions, such as *Kulia*, *Kumarmani*, *Benibhog*, *Kalakeri*, etc. in highlands; *Sarumundabali*, *Boropanko*, *Saruchinamali*, *Kakudimanji*, etc. in medium lands; *Karandi*, *Ratnachudi*, *Galleiganthi*,

*Dudumani*, *Padmakeshari*, *Magura*, *Kalambanka*, *Cuttackchandi*, *Mayurakantha*, *Kedargouri*, *Champa*, etc. in lowlands. In 1932, ICAR (Imperial Council of Agricultural Research) established a Rice Research station in Cuttack, where research on rice breeding started in 1938 under paddy specialist

late P.D. Dixit. Further, in the next half a century many special rice varieties have been developed in Odisha (Das SR, 2012). One of the main daily diets for common and poor people is *pakhala* bhaat (Wet rice) and gruel prepared from mango kernel and tamarind seeds. *Pakhala* bhaat is fermented rice that is prepared after pouring water in a bowl and then adding boiled fermented rice. Water is added more than the level of rice, and it is consumed with curd or tadka on it and side by side mashed potato or onion and salt. After eating all the rice from it, the left-over water is called *turani* (Salty water) which can be drunk or used for making *handia*. Tribal people's daily diet consists of mainly one full meal of *Pakhala* bhaat which is followed by *handia* for the rest of the day. *Pakhala* bhaat is nutritionally rich in calories, vitamin – B, easily digestible, and good for diarrhea (Sahoo, Lenka and Biswal, 2017). In humid and hot weather of Odisha, locally it is understood to have a filling and cool effect on the body. On some days they may also add mashed potato or dried fried fish or some vegetable to the meal. In Central India, one does find many rural communities consuming similar dishes consisting of fermented and rice like *Babru* (Himachal Pradesh), *Ambeli* (Central India), *Appam* (Kerala), and *Bihar Dal Pitha* (Bihar, Jharkhand). There is not much research on *pakhala* bhaat since it has not been taken as an important nutritional source, however, it is one of the most consumed dishes in rural India.

*Pakhala Bhaat* is also savoured by middle-class communities in Odisha also in diaspora nationally and Internationally. Recently some high-end restaurants in Odisha have introduced *pakhala bhaat* as a delicate cuisine being served with many types of *bhaja* (fried vegetables) and fried fish, salads, etc. (Sanghamitra and Sadual, 2020). *Pakhala Bhaat* is often seen as a connecting dish by middle-class Odiyas outside the state and it is reinforced ethnic identity.

## EDIBLE PLANTS USED BY TRIBALS OF ODISHA

Further to supplement rice, tribals usually reach out for forest Wild edible plants to wrap up nutritional requirements. Leafy vegetables are rich in antioxidants which help in reducing age-related problems. They even play a vital role in fulfilling nutrients and vitamins requirements for survival. These vegetables are eaten as *sag* (boiled vegetables) or can be eaten as mixed-vegetable lentils. Some popular leafy vegetables consumed by tribals are *Saaru* (*Elephant ear*), *poi* (*Malabar Spinach*), *pitta sag* (*Bitter Cumin*), *pija sag* (*Spring onion*), *lalkhada* (*Chinese spinach*), *Barada* (*Butterfly tree*), *bana sorisa* (*Dog mustard*), *Sunsunia* (*Four-leaf clover*), *Ambilti* (*Indian sorrel*) and *Gayasa* (*Thumbai*) (Sahu, Mishra and Biswal, 2020).

### Use of tubers and roots

Tubers are the best alternative as an adjunct to rice during the crucial fourth quarter of the year that is Sept-Oct-Nov-Dec. Tribals generally boil them before eating and certain species are chopped and mixed with flour before deep frying. Tubers available during winter are *Ban ole*, *Kanta aru*, *Baiom-sanga*, *Mahu aru*, *Pani aru* (eaten raw and sweet), and *Tunga aru*. While during rainy season *Bowla/Pit aru* is found, which is unpleasantly bitter, so its hair is removed followed by cutting it into slices and left in running water just because of its bitterness.

Speaking of roots, they have more medicinal use rather than consumption as food. A large variety of roots are found in the forest whose proper way of extraction is an inherited skill passed on by the elders.

Notable roots are *Kader*, *Andia Kidula*, *Ranuran*, *Hadem Ran*, *Nazam Rehed*, *Ot champa*, *Kitah*, *Atkir*, and many more (Ray and Swain, 2014).

### Use of leaves

Along with tubers, widely consumed edible products are leaves and fruits. Leaves are normally cooked as vegetables and fruits are eaten as raw or boiled and used in curries as per requirement. Some of the forest leaves are *Katai*, *Marmuri*, *Chakor*, *kikim*, *Phandari Patra*, *Ban poi*, *Kankodo*, *lotni* and *mansaru* and wild fruits are *Aonla*, *Amera*, *Ber*, *Badru*, *Bankundri*, *Barakhuri*, *Bin Ghangra*, *Bislambhi*, *Gaudani*, *Karmata*, *Kholan*, *Korkotta*, *Kongat Pinder*, *Lawa*, *Marmuri*, *Oserva*, *Porayani*, *Pakare*, and *Sal*.

### Use of flowers

A few edible flowers are also used for daily consumption and among them, *Mahua* tree flowers are dried and boiled in water with tamarind seeds or sal seeds to prepare an alcoholic drink for a summer drink. (Singha and Lakra, 2004).

## DIET OF DONGARIA KONTH TRIBE OF KALAHARI REGION

Dongaria Kondh tribe of Kalahandi region in Odisha supplementarily counts on local forest and wild edible foods. They follow a similar regular diet routine but different varieties of flowers, fruits, and tubers. They mainly reside on hill-tops and practice podu (shifting) cultivation, thus they face shortage of some necessary food for balanced nutritional diet. Every major Scheduled Tribe consumes rice or its fermented product (*Pakhala*, Pitha) as their staple food but their cooking style and knowledge about wild plants are what make them unique.

Popular wild edible flowers consumed by Kondh tribes are *agasthi phul*, *girli phul*, *kuti phul*, *Munga phul*, *makhan phul*, *mahul*, *neem phul*. Cereals and cereals products consumed by them are *Bamboo rice*, *Gurji*, *Kang*, *Khusla*, *Kudo*, *Ragi and Rice*. *Mandia* gruel is made by boiling ragi and rice which forms the main source of energy for breakfast and lunch along with green chilli or fried fish. While pulses include *black gram*, *broad beans*, *cow-peas*, *green grams*, *field beans*, *rajmah*, *red gram* and *horse beans* (Mishra and Padhan, 2011).

### ROLE OF ALCOHOLIC DRINKS

Besides food, alcoholic drinks play a vital part in regular diet routine. All the alcoholic drinks are made from local plants like *Mahua wine* is prepared from Mahua tree flowers, while Kantul, Tamarind wine, Jack Fruit wine, Mango wine, Salap, and Dates wine are quite popular too. It has been reported widely that ST due to illiteracy and poverty, they fall into the debt trap. Their drinking habits and scarcity of food during fourth quarter compel them to become indebted to Kunities (Moneylenders), even the *rina*(loan) is given at very high Adi (interest) (Devi, 2016).

### LOCAL PLANTS FOR MEDICINE

These tribes sometimes they follow barter system for purchase of goods but only among adjacent tribes and caste communities. During the winter season, they lean on these resources to curb their food

security problems. While roots are mostly used for medicinal use, accompanied by plants' leaves and stems. *Apamarga* root is used to treat diarrhea, *Panoari* is used to treat Dysentery, *Arakha* root is consumed orally to treat snake bite. *Manjuati* root paste with water is consumed to treat Jaundice, *Jhota* for Back Pain, *Rudra jata* for Piles, *Indramarisa* for Gastric, *Sugandhi* for Anemia and *Patladhudha* for Malaria. The above mentioned are local food habits followed by Dongaria Kondh tribe (Mishra and Padhan, 2011)

### DIETARY PATTERN OF THE JUANG TRIBE OF MAYURBHANJ DISTRICT

Speaking of the Juang tribe of Mayurbhanj District, they follow the same trait of staple diet but with a different bag of knowledge and consumption style. Mayurbhanj district receives slightly less rainfall compared to KBK (Koraput Balangir Kalahandi) region but this creates a huge difference in the existence of wild plant species.

Total 46 fruits are identified in that region, among them 30 are popular. Some of them are *Badru*, *Baincha Kuri*, *Bhawarkuri*, *Gauduni*, *Terrel*, *Rai*, *Soso*, *Sal*, *Kongat*, *Kashiphal*, *Kholan*, *Marmuri* and many more. *Kongra* seeds are roasted and eaten during March -April, while *Char* seeds are highly prized and rich in nutrients as well. Mushrooms are a seasonal delicacy; they are majorly consumed in the monsoon season (June-July-August). Some of the famous edible species are *Russula emetic*, *Russula delica*, *Termitomyces eurrhizus*, *Termitomyces* sp, *Lentinus sajor-caju*, *Lentinus* sp., *Pleurotus ostreatus*, *Pleurotus* sp, etc (Sachan et al., 2013).

While collecting mushrooms special care is taken since some poisonous mushrooms can severely harm anybody like Boedijn's Mushroom, Orange waxcap, Parasol mushroom, Pleated mushroom, and many more (Rout et al, 2020). Further, Tamarind or Sal seeds attract more population since it is mixed with *Mahua* flower to prepare local country alcohol.

*Mahua* or *Handia* consumption during hunger days provides good amount of instant energy to work through all day. Most of them eat a full bowl of *Pakhala* (Water Rice) for a single meal, followed by *Handia* till day end. Cooking methods include traditional firewood cooking. Woods were brought from forests, and during the monsoon season they use biomass fuel (Cow dung) or kerosene to ignite a fire. A *chulhi* (stand for clay pot during cooking) is made out of wet clay and further Katho (wood blocks) were inserted in it; after igniting a proper fire a Handi (Clay pot) is laid upon *chulhi*.

There is a total of 122 plants that are consumed by tribals which includes fruits, tubers, roots, flowers, leafy vegetables out of which Orange, ragi, turmeric, banana, brinjal, Siali leaves, castor, guava, Suan, banana, Zinger, Custard apple and mushrooms are majorly consumed during hunger period that is Winter season. While gruel from Mango kernel and tamarind seeds are vital sources of food during the Summer season. Besides their use for food these plants were used for medical purposes too like they can treat fever, dysentery, stomach disorder, snake bite, mouth disorder, indigestion, vomiting, and cough like *Bahal saag* is used to cure Dysentery and constipation, *Chun koli* for malnutrition, *Mutrimalar koli* for the urinary disorder, *Karmata* for food poisoning, *Tentuli* for piles, inflammation and indigestion, *Hadbhanga* for bone fracture, *Sikakai* for malaria, *Soronda kanda* for joint pains, etc. (Padhan and Panda, 2015). These plants are prescribed in the form of paste or powder and are consumed with warm water, milk, or common salt.



## SOCIAL SECURITY FOR THE TRIBALS

Throughout the year, tribal people count on forest products for fruits, fibers, roots, etc., and PDS for primary essentials like rice, wheat, sugar, salt, and kerosene. But during the fourth quarter of the year (Sept-Oct-Nov-Dec) they face severe food scarcity problems because of a lack of daily wage work since employment opportunities from government projects are run only after the Kharif season. The number of people suffering from hunger goes high up to 63 percent (Ranjan, 2014). The rate of outmigration of male members increases and female members start to manage the whole household work including poultry, sowing of seeds, watering of plants, cooking, cleaning, and managing their children as well. While procuring forest products, tribal women collect them in a group, a particular time is decided to meet and then they trek into the deep forest. Further, all the collected items are distributed as per the individual's requirement.

SHG (Self Help Group) plays a very important role in such situations. Basically, it is a group of people having the same socio-economic background and who provide mutual support in terms of medical aid, financial help, and mental support. This informal group system empowers them in various aspects like freedom of mobility – they were able to manage outdoor activities quite confidently, freedom from domination – they felt relatively relaxed from family and husband's domination, involved in decision making – they started understanding the different perspective of the outer world which made them well-informed about current topics and, economic security – they learned about money management, which made them aware of the loan system and savings (Acharya and Samantray, 2013).

The rate of exploitation of forests is on the fast track since the 1990s which led to decreasing in natural resources for tribal people year by year and simultaneously corruption and leakages in Public Distribution System pushed them into extreme living conditions resulting in hunger and malnutrition.

## CONCLUSIONS

Historically STs led very simple lives with virtually no luxury needs. Their economies that included food gathering and peasantry were relatively self-sufficient and sustainable taking care of food and nutrition requirements even through shifting cultivation. Being isolated from the modern world and privileges they inhabited in their eco-systems. The lack of development, land alienation and the demise of traditional economic systems have forced them to migrate on a massive scale and also engage in wage labour like construction and low skilled workers. Without any constant income source, they rely on one meal per day during fourth quarter of the year (Sept-Oct-Nov-Dec) as daily wage jobs are few for that period. Food systems generally include local vegetables and fruits. They consume roots, tubers, fibers, and sometimes borrow from their neighbors as well. Their traditional staple meal comprises *Pakhal* (Boiled rice with Salty Water) in the morning and *Handia* (Liquor drink made from fermented rice) for the rest of the day. Scheduled tribes in Odisha are still culturally vibrant, they organize some unique melas (*Uda Jatra*), *haato* (weekly market) and in some areas, they use a barter system for exchanging food items.

Ethnographies show that tribal people often just aim to secure present-day's meal with the help of daily wage jobs. Apart from the government's apathy, they have been discriminated against based on their ethnic moorings and treated lowest in the local caste hierarchy. Being engaged in menial manual

jobs at very low wages results in marginalization and exclusion which severely affects their access to food.

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# FOOD AND ETHNOGRAPHIC DATA OF JHARKHAND

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## ABSTRACT

Jharkhand is one of the newly formed states of India and due to large forest cover, is also a land of many indigenous tribes such as the *Santhals*, *Munda* and *Oraons* which have a distinct food culture.

## INTRODUCTION

Jharkhand means the “Land of Forests, is home to many indigenous tribes and was formed out of the state of Bihar on 15<sup>th</sup> November 2000. There are 32 tribal communities in Jharkhand of which the Santhals (31.7%) have the largest population followed by Oraon (19.8%), Munda (14.2%), and Ho (10.7%). The Oraon tribe is the 5<sup>th</sup> largest tribe in India.<sup>1</sup> The state of Jharkhand is noted for its rich mineral and forest resources. Jharkhand has proudly emerged culturally as an important multiethnic state. Over 30 indigenous communities exist harmoniously in Jharkhand.

## HISTORY OF FOOD OF JHARKHAND

*Dal*, *bhat* and *tarkari* are an integral part of a regular Jharkhand meal. This trio constitutes the staple food of this region. In general, the food cooked in Jharkhand is considered to be very light on the stomach and easy to digest. This fact can very well be demonstrated by the nature of Jharkhand food habits that have been imbibed by the native folks.

The recipes of Jharkhand are truly exquisite and they are poised with a distinct style of cooking which makes them that extra special. They chiefly utilize sumptuous proportions of mustard oil as the

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<sup>1</sup> (Census, 2011; Sikligar, 2004)

medium using which they cook their food. The most known and common recipes in Jharkhand that are practically prepared in every household includes *Phulka* or *Roti*, *Bhat* or Rice, *Tarkari* or *Sabzi* and last but definitely not the least, *achar* or Pickle. *Litti* and *Chokha* also form an important portion of Jharkhand food. The mouth-watering non-vegetarian Jharkhand food preparations like spicy chicken are also popular with a considerable section of Jharkhand.<sup>2</sup>

## GEOGRAPHY AND CULTURE OF JHARKHAND

This state is situated in the North-Eastern part of India and the Border States are Bihar in the north, Odisha in the south, West Bengal in the east, Chhattisgarh and Uttar Pradesh in the west.<sup>3</sup> Hindi is the official language of Jharkhand.

The vibrant culture of Jharkhand is highly influenced both by the tribal and the non-tribal community people and is seen in their music, festivals, handicrafts, dance, cuisine, and lifestyle. Some of the major festivals are *Sarhul*, *Karma*, *Sohrai*, *Badna*, *Tusu*, *Id*, *Christmas*, *Holi*, *Dussehra*, *Diwali*, *Chhath Puja*.<sup>4</sup>

## AGRICULTURE / CROPS / LOCAL FOODS

Agriculture is the mainstay for 80% of the rural population of the state and primary income-generating activity. The agricultural economy of the Jharkhand state is characterized by dependence on nature, inadequate irrigation facilities, and small and marginal holdings thus 92% of the total cultivated area is un-irrigated. There is a low investment, low productivity, and only mono-cropping with paddy as the dominant crop in this state.

The cultivable land resources of the state have good potential for higher production of horticulture and forest products. The soil is young and has a high capacity for the fixation of humus. The forest provides sufficient biomass to feed its soil.<sup>5</sup> Some of the main crops grown here are rice, oilseeds, wheat, potatoes, maize, pulses, etc. and vegetables like brinjal, cabbage, cauliflower, ladyfingers, onion, tomato, peas, potato, pumpkin, mushroom, capsicum, green chili, etc. They also grow fruits including mango, litchi, guava, banana, papaya, lemon, hack fruit, amla, etc. Animal husbandry is also practiced by the people where there are lots of cow farms, goat farms, pig farms in the villages of Jharkhand.<sup>3</sup>

Fisheries and aquaculture have emerged as one of the most promising sectors of food production. This sector is also important as it provides fish protein locally and easily. This sector contributes significantly to national income, nutritional security, export earnings, and fulfilling the various social

<sup>2</sup> "Jharkhand Food", <https://www.mapsofindia.com/jharkhand/people-culture-festivals/food.html>.

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<sup>3</sup> [Jharnet.com/Jharkhand-ka-bhugol/](http://jharnet.com/Jharkhand-ka-bhugol/)

<sup>4</sup> <https://www.indianmirror.com/culture/states-culture/jharkhand.html>

<sup>5</sup> [http://www.jharenvis.nic.in/Database/AGRICULTUREINJHARKHAND\\_2327.aspx#:~:text=The%20agricultural %20 economy% 20of%20the,and%20small%20 and%20marginal%20holdings](http://www.jharenvis.nic.in/Database/AGRICULTUREINJHARKHAND_2327.aspx#:~:text=The%20agricultural%20economy%20of%20the,and%20small%20and%20marginal%20holdings)

objectives. Aquaculture and fisheries play a very important role in terms of food/protein security, employment generation, and poverty alleviation in rural areas of the state.<sup>6</sup>

## TRADITIONS/FOOD HABITS/COUISINE

The staple foods of people of Jharkhand are rice, dal, vegetable and tubers. Common meals often consist of vegetables that are cooked in various ways, such as curry, fried, roasted and boiled. Not all traditional dishes are served at a restaurant but by visiting a local village one can get a chance to taste traditional exotic foods of Jharkhand.

### Some Traditional Foods & Dishes of Jharkhand

**Aaru ki sabzi:** Made with a root vegetable found in Jharkhand only.<sup>7</sup>

**Arsa Roti:** It is a sweet dish prepared during festivals. Rice flour and sugar or jaggery used in the preparation.<sup>8</sup>

**Bamboo shoot:** Bamboo shoots are used as a staple food (vegetable) in Jharkhand.<sup>9</sup>

**Baske Daka:** It is a tribal dish of starched rice.<sup>12</sup>

**Chilka roti:** It is popular roti in Jharkhand made with rice flour and besan.<sup>11</sup>

**Dumbu -** A rice dessert.<sup>10</sup>

**Dhuska:** A common food in Jharkhand is *dhuska*, which is deep fried rice & lentil pancakes that are mostly served with gram and potato curry.<sup>9</sup>

**Handia:** Handia is a rice beer which is prepared by the local community.<sup>8</sup>

**Khapra Roti:** Thick crepes made with rice or maida. The crepes are made without any oil or fat.<sup>11</sup>

**Maduwa khassi :** Smoked skin intact mutton served with rice.<sup>7</sup>

**Malpua:** Malpua is a sweet dish in Jharkhand which is mostly prepared in Holi festival.<sup>9</sup>

**Moonj Ada** It is a spicy dal, cooked over a low flame with a dash of lemon and chilli for flavour.<sup>12</sup>

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<sup>6</sup> www. <http://jharkhandfisheries.org/> Visited on 30/09/2020

<sup>7</sup> Jolly, Saarth (2016-02-05). "A taste of Jharkhand" <https://www.thehindu.com/features/metroplu/s/a-taste-of-jharkhand/article8199101.ece>). *The Hindu*. Visited on 30/09/2020.

<sup>8</sup> "14 Delectable Jharkhand Food Items You Must Try At least Once | Touch To The Tribal World (<https://pandareviewz.com/jharkhand-food/>). Visited on 30/09/2020.

<sup>9</sup> Sharaf , Roli "12 Mouth-watering Dishes of Jharkhand" <https://www.holidify.com/pages/food-of-jharkhand-1648.html>). Visited on 30/09/2020.

<sup>10</sup> "Mistress of spices, princess of the pitha" (<https://www.telegraphindia.com/jharkhand/mistress-of-spices-princess-of-the-pitha/cid/1330552>). *www.telegraphindia.com*. Visited on 30/09/2020.

**Namkeen Pittha:** Pittha is a rice floor patty made by stuffing cooked lentils and spices, by steaming process and is mostly prepared during festivals.<sup>11</sup>

**Sanai ka phool ka bharta** - It's a recipe from rural Jharkhand made of Sanai (*Crotalaria juncea*) flowers.

**Rohad Haku** - It is a dish of fried fish. The fish is dried in the sun and then stir fried in oil. Lemon and vinegar are added to it to make it spicy.<sup>12</sup>

**Spicy chicken:** It is another common non veg dish.

**Rugra:** *Rugra or Puttu* is a type of edible mushroom grows during monsoon season and is consumed as a vegetable.<sup>13</sup>

**Red ant chutney:** It is dish made of mashed red ants and their eggs.<sup>14</sup>

## CONCLUSIONS

Being a tribal dominated area, Jharkhand has many indigenous food items. Dried fish, mushrooms, bamboo shoots, local flowers and roots based foods are healthy and need more propagation in the EAT RIGHT MOVEMENT.

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<sup>11</sup> "Jharkhand Cuisine" (<https://www.shilpikitchen.com/2019/07/jharkhand-cuisine.html>). Visited on 30/09/2020.

<sup>12</sup> "Palate cold to tribal cuisine - Traditional delicacies from state still low on mainstream food list" (<https://www.telegraphindia.com/jharkhand/palate-cold-to-tribal-cuisine-traditional-delicacies-from-state-still-low-on-mainstream-food-list/cid/1621170>). *www.telegraphindia.com*. Visited on 30/09/2020.

<sup>13</sup> "Rugra on a rain high - Mushroom demand shoots up in holy month of Shravan" (<https://www.telegraphindia.com/states/jharkhand/rugra-on-a-rain-high-mushroom-demand-shoots-up-in-holy-month-of-shravan/cid/400619>). *www.telegraphindia.com*. Visited on 30/09/2020.

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# GASTRONOMIC DELIGHT OF BIHAR AND THE EAT RIGHT MOVEMENT

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## ABSTRACT

Bihari food culture comprises vegetarian and non-vegetarian foods including several freshwater fish and mutton items. The food culture revolves around the seasons and festivals of Bihar. Major cereal crops are rice (specially Basmati rice), wheat, and maize. Mandua/ragi/finger millet and kodo millet are extensively used in traditional cuisines along with local dals that are cultivated in the region such as *arhar, masoor, moong, udad, channa, matar and khesari*. Bihar is the largest producer of litchi, pineapple, *aaam/Mango, amrud/guava, kela/banana, kathal/jackfruit*. There are many healthy drinks, energy bars, and fish, mutton, and vegetarian items in Bihar which are discussed in this chapter.

## INTRODUCTION

Bihar State is located in the Eastern part of India and is surrounded by Nepal, West Bengal, Uttar Pradesh, and Jharkhand and lies in the plains of river Ganga. The soil is very rich and fertile because of River Ganga and its tributaries.

The history of Bihar can be traced back to Prehistoric times based on the mention of Mithila in Ramayan. The glorious days of the ancient Magadh period, the period of great king Ashoka, Chandragupt Maurya of Maurya dynasty. The origination and spread of Spiritual Buddhism by lord Budha and one of Akal Takht being here as Guru Govind Singh Ji was born here too. Many freedom fighters have given selfless service to make India independent.

Bihar is historically and geographically rich and famous for its cultural heritage and also the abundance of fineness and exquisiteness in its art, culture, and cuisine. Apart from the world-famous *Madhubani* painting, the handicrafts prepared in the villages of Bihar (bamboo articles, leather, wooden toys, cane baskets) are unique. The *Sujini* embroidery, *Sikki* Grass work, *Tikuli* Work, bangle making, stonework,



*Lah* (Lacquerware), pottery works, and printed textile are fascinating. Bihar is also known as a silk house and silk weaving is an age-old tradition. Bhagalpur is famous for its unique *Bhagalpuri silk* fabrics called '*Tussah or Tusser*'.

Bihar's most famous puja is *Chhath puja*. Apart from this other festivals celebrated with grandeur and special foods for the offering are *Makar-Shankrat*, *Sama-Chakeva*, *MadhuShravani*, *Holi*, *Diwali*, *Navratri*, *Dussehra*, *Ramanavami*, *Shivratri*, *Bhai Dooj*, *Teej*, *Jivit-Putrika Vrat (Jitiya)*, *Budh Purnima*, and *Mahavir Jayanti*.

## AGRICULTURE

Bihar is one of the strongest agricultural states in India and one of the largest producers of vegetables and fruits in India. Major cereal crops/annaj grown here are Rice especially basmati rice, wheat, and maize. Traditional crop grown is mandua/ragi/finger millet and kodo millet. Dal /Pulses mainly cultivated are *arhar*, *masoor*, *moong*, *udad*, *channa*, *matar* and *khesari*.

*Sabji*/vegetables grown are *aalu*/potatoes, *pyaaz*/onion, *tamatar*/tomato, *baingan/bhanta*/brinjal, *bhindi*/lady's finger, *sem* (snowpeas), *kumhda/kadima*/pumpkin, *lauki/kaddu*/bottle gourd, varieties of gourd family vegetables (*nemua/gheera*, *satputia*, etc.), *karela*/bitter gourd, *parwal*/pointed gourd, *gobhi*/cauliflower, *patta gobhi*/cabbage, *mooli*/radish, *lehsun*/garlic, *adrak*/ginger etc.

In fruit cultivation, Bihar is the largest producer of litchi, pineapple, *aaam*/Mango, *amrud*/guava, *kela*/banana, *kathal*/jackfruit are the fruits mainly grown here. Non-cereal or major cash crops grown in Bihar are sugarcane, jute, barley, and oilseeds. Oilseeds like sarson/mustard, teesi/linseed, til/sesame, castor, groundnut, niger. Bihar once upon a time was famous for cash crops such as tobacco and sugarcane too.

## FOOD CULTURE OF BIHAR

The culinary culture of Bihar is influenced by its rich history. *The food is rich in flavour and is easy for digestion*. The majority of Biharis are vegetarian because of the influence of Hinduism and Buddhism but Bihar also has a rich nonvegetarian tradition which is an influence of the Mughal and Nawab power.

The food, therefore, is a *sangam* of these varied traditions that throwbacks the time-honored flavours. The style of cooking and techniques used are:-

1. *Bhunjna*/frying the vegetables or nonvegetarian dishes on a slow flame for long before adding the spices gives it a delightful taste.
2. Roasting and smoking of most of the food.
3. Grilling and cooking on *dum* specially mutton.

The cuisine of Bihar comprises of three categories:-

1. Bhojpuri cuisine.
2. Mithila cuisine.
3. Magahi cuisine.

As per the local *Maithili* language poem of Mithilanchal

पग पग पोखरि, माअछ, मखान  
सरस बोल मुस्की, मुख पान  
विद्या वैभव, शान्ति प्रतीक  
ललित नगर दरभंगा थीक ।

Meaning: In every step, we find an abundance of fish and makhana (fox nuts). Speak a sweet language while you chew a *paan* (betel leaf with nuts). The city of Darbhanga symbolizes knowledge, grandeur, elegance and peace.

### SPICES AND MASALA

The use of spices either single or in combination and use of mustard oil or pure ghee makes the difference and brings out the typical authentic and unique taste of Bihari preparation. Spices like mustard (yellow or black), posto/ poppy seeds, jeera/cumin, dhaniya/coriander, golmirch/pepper, haldi/turmeric, garam-masala with onion, garlic, ginger, chillies are mostly used. **Panchphoran** is mix of paanch/five spices. It is used for chaunk/tadka/tempering or in the achar/pickles. *Panchphoran* is a mix of whole jeera/cumin, methi/fenugreek, black sarson, saunf/fennel, mangrail/kalajeera/ kalonji/ nigella seeds.

**Garam masala** is made of *tejpatta/bayleaves*, *badi elaichi/badi cardamom*, *chotti elaichi/green cardamom*, *lavang/cloves*, *javitri/mace*, *jaiphal*, *dalchini/cinnamon*, *shahjeera*, *kababchini*. *Pathhar ke phool/black stone flower*.

### MEAL PATTERNS

Bihar's gastronomy is very seasonal and has a considerable extent of usage of its produce. A typical Bihari food eaten daily is simple and healthy. It consists of *jalpaan/ breakfast*, *khalewa/ lunch* and *sanjhaua/beratiya-dinner*.

#### Jalpaan/Breakfast

1. Roti, puri, or parantha in breakfast with tarkari/sabji
2. Chuda/chivda, dahi/curd and gud/jaggery.
3. Sattu salted or sweet or simply sattu drink.
4. Chilka, papra or chauntha.
5. Paratha with tarkaari or bhujia
6. Kachauri jalebi
7. Channa ghugni with paratha, dhuska, chivda, moodhi
8. Daal peetha

9. Puri Aaloo dum

10. Daal puri and kheer



Photos: Sangita Yadav

**Varieties of roti** are simple *roti*, stuffed *puri*, and *parantha*. **Litti** is the most famous dish from Bihar. Roti is mainly made of wheat flour/*gehun ka aata*, rice flour/*chawal ke aata*, *mandua/ragi ke aata*, *kodo*, *makaii/corn* are also prepared. **Paranthas** have a wide variety of stuffing some varieties of *paranthas* are *aaloo parantha*, *pyaaz parantha*, *gobhi parantha*, *sattu parantha*, *makuni*, *postu parantha*, *methi parantha*, *madua parantha*. **Puri** varieties are simple *puri*, *dohati puri*, *dal puri*, *matar (green peas) puri*, *methi puri*, *masala puri*, etc. **Kachaudi/kachori** served on special occasion has varieties too, such as *aaloo kachaudi*, *pyaaz kachaudi*, *sattu kachaudi*, *green matar kachaudi*, *daal kachaudi*, etc.

### Kalewa/Lunch

Regular lunch items include *roti*, *bhaat/rice*, *dal/pulses*, *tarkari/sabji/vegetable*, *bhunjia/fried vegetable*, *saag*, *chokha/bharta*, *chutney*, *achar/pickles* and *papad* with *dahi/curd*. Nonvegetarians eat various non-vegetarian dishes.



Photos: Sangita Yadav

Saturday lunch is usually **Khichdi** in most of the Bihari Hindu families . The general saying says “*Khichdi Maange Chaar yaar; Dahi, Papad , ghee, Achaar*”.

*Khichadi* is prepared by cooking a combination of rice and dal tempered with ghee and spices. *Khichadi* is generally eaten with *chokha chutney tilori, teeshauri, bachka, papad, pickles* and curd. In some regions the last course is taken with full cream milk. *Masala khichadi* is made in winter when most of the vegetables are available and added to the *khichadi*. Winter vegetables added to *khichadi* are cauliflower, green peas, carrot, potato, tomato. *Khichadi* is tempered with cumin and ghee and other spices are also added. A Special *khichadi* is prepared on the *Makar-sankrati* festival.





Photo: Sangita Yadav

### ***Sanjhaua/beratiya/ dinner***

Dinner consists of roti with sabji/tarkari. Kheer or any other milk based sweet dish. On Saturday evening dinner includes *sattu paratha* with *chokha*. The tradition of eating *dudh*/milk, *dahi*/curd, *mattha*/buttermilk, *makhan*/butter and *lassi* with all meals is prevalent.



Photos: Sangita Yadav

**POPULAR SAVOURY VEGETARIAN DELICACIES OF BIHAR**

1. Litti chokha
2. Channa ghugni
3. Amarpitha/ Dalpeetha
4. Kadhi bari /pareh
5. Sattu paratha / makuni
6. Girwanch/rikwanch/sohena
7. Puri sabji
8. Dal puri
9. Dhuska
10. Kachri/fritters with moodhi (puffed rice)
11. Oal ki sabji
12. Chane ke dal ki sabji
13. Nimona-green peas dal
14. Kathal ki tarkari
15. Mixed tarkari(aaloo , baingan , mooli, sahijan tamatar aur badi ) cooked in mustard oil , methi and sookhi laal mirch ka phoran and sarson-postu masala .
16. Baingan ka Kalaunji
17. Bharwaan karela
18. Bachjka/Taruua/veg fritters
19. Sattu (sweet and salted)
20. *Jaaur rice* cooked with different seeds or vegetables such as *Lauk-jaaur* (lauki/bottlegourd), *tees-jaaur* (teesi/linseed), *dan-jaaur* (postu/poppy seeds), *math-jaaur/ghor-jaaur* (matha/buttermilk) .
21. Phulauri
22. *Badi , teeshauri, adaudi, tilauri, Danauri, bidiya , kumhrauri- a preparation made by sun drying a paste of dal mixed with spices, linseed, til or white pumpkin, Sukhauta-* Sundried vegetables like potato, cauliflower, cabbage, etc.
23. Achaar/pickles made of *aam/mango, oal/suran (aadi/adrak/ginger, oal, khatai, noon/salt, tel/mustard oil and mirchai/chillies), kathal/jackfruit , Parwal/pointed gourd, Karela/bittergourd, mirchi, stuffed laal mirch, amla/gooseberry.*
24. *Saag* such as *laal saag, chaulai, khesari, chana saag, paalak/spinach, sarson saag/mustard, bathua saag, Noni saag/purslane , methi saag, sova ke saag, poii saag, kumhara/kadima/pumpkin saag ,*

*munga/sahijan/sutti/drumstick, kalmi saag.*

25. Edible flowers: Fritters prepared with *kohara/kadima*/pumpkin flowers and *sahijan/drumsticks* are a delicious snack. *Sanaii ke phool* , *kele ka phool* / *banana* used in curry.
26. *Dalsagga* : saag cooked with dal.
27. Dal pithi
28. Chutney: *oal/suran ki Chatni* , *posto ki Chatni*, *teesi ki chutney*, *Kacche Aam ki Chatni* , *tamatar Dhaniya Patta ki Chatni*, *Amla ki chutney* , *Imli ki Chatni* , *Dhaniya Patta ki Chatni* , *Aam aur pudina ki Chatni* , *Aam ka Guramma* , *aamle ka murabba*, *lehsun-mirch ki chutney*. Each chutney has raw mustard oil in it.

### POPULAR MAITHILI DISHES

1. *Tilkaur* (leaves of a bitter item which resembles *kundaru*) *ka tarua* (fried with *atta* and *masala*)
2. *Kutrum ki chutney*
3. *Arikanchan/ arabi patta ka tarkari*
4. *Nerha* (the hardened central part inside the jackfruit) *ka sabzi* and *tarua*
5. *Kathal ke beez ka chokha* and *tarakari*

### NON-VEGETARIAN DELICACIES OF BIHAR

The Bihari nonvegetarian cuisine is a fusion of the native cuisine and the invaders who have ruled Bihar. The *Bihari kebabs*, *kabab rolls*, and *biryani* are the outcome of cultivated culture. In the homes of nonvegetarians, mutton preparation during Holi and Dussehra is a must. Bihar has a rare tradition of eating birds like *fowl*, *teetar*, *bater*, *bageri* more than chicken. Fish and Mutton are two regular delights.

As geographically Mithilanchal, is bound by river Ganges in the south, Mahananda river in the East and Gandhaki river in the west, it has a tradition of fish farming and hence eating too. In a few of the regions and communities in Bihar, people are vegetarians but they eat fish (but not any other meat) in their diet.

Some examples of Bihari non-vegetarian recipes are :-

1. Mutton
2. *Taash* ( a grilled mutton preparation)
3. *Champaran Handi* mutton /ahuna
4. Bihari Kebab
5. Bihari *boti*
6. Bihari *seekh kebab*
7. Bihari *kebab roll*

8. *Bihari handi chicken*
9. *Fish sarson wali Machhali*
10. *Puthiya*
11. *Jhinga/prawn*
12. *Machli ke chokha*
13. *Fish egg's pakoda*
14. *Andaa/egg curry*

#### **Details of these recipes:-**

1. *Litti mutton*- Combination of *litti Chokha* is famous but it tastes awesome when served with mutton. Bihari mutton curry made in mustard oil and ghee is the ultimate.
2. *Mutton Chaap*: The semi gravy *mutton chaap* dish is which people prefer to eat on Holi with *Pua*.
3. *Bihari Chicken*: Hot spicy chicken, *Champan Handi chicken*, and *kebabs* are famous.
4. *Potiya Machli*: Another special dish of Bihar is *potiya* fish which is fried in little oil to make *bhujiya*.
5. *Sarso Masala Machli*: The specialty of Bihar.
6. *Champan mutton* from Bihar- *Champan mutton* is a delicious recipe that has its origin from the Champan district of Bihar. Champan mutton is also famous with various names *Ahuna mutton*, *Handi mutton*, *Matka gosht*, and *Batlohi*. It is traditionally cooked in an earthen pot on dum over a wood fire. Its uniqueness lies in the method of its preparation. Use of mustard oil, desi ghee, whole garlic knobs, freshly ground spices, a generous quantity of onion for marination makes it stand apart from all other mutton preparations. The whole garlic knob used adds to a typical flavor. The cooked soft pulp is squeezed and mixed with the gravy tastes awesome.
7. *Bihari style chicken curry*- traditional Bihari Chicken Curry is rich and spicy. The use of mustard oil and whole garlic knob in the gravy while cooking Bihari style of chicken is very unique and differentiates it from other state's style of cooking. The garlic cloves in the knob become soft and juicy, after getting cooked in the spicy gravy. It is relished while eating. It adds flavour to the gravy and nutrition too.

#### **TYPICAL FISH VARIETIES**

Rohu is a rich delicacy in Bihar. Rohu is a fresh river water fish. It is rich in protein and low in fat. It is relished in fried form or spiced gravy. The pakoras made from its eggs are also very popular. *Bhakur*/Catla is the fresh river water fish rich in protein low in saturated Fat. *Bhakur* /catla, *Pothia*, *Singhi*, *Mangur* (catfish), *Gainchi*, *Jhinga* (prawn), and *pangasius* are few of the varieties of fish cultivated in Bihar.



The cooking process involves the use of *sarson*/mustard especially *peeli sarson*/yellow mustard and roasting the rest spices/masala before grinding and use of mustard oil in cooking the fish is what makes it different in taste from other parts of the country. There are two styles of gravy preparation methods. First, is the *Sarson gravy* where the fish and the masala paste both are fried and combined/ Fish and masala paste are all mixed and cooked over the flame and the second is the onion garam masala gravy.

### **Bihari fish delicacies include**

1. Fish fry .
2. Fish in gravy
3. Handi cooked fish
4. Fish chokha/Bharta
5. Pakora made out of fish egg

### **SWEETS AND FESTIVITIES IN BIHAR**

There are several sweets made in Bihar. There is a large variety of traditional sweet delicacies in Bihar. Each festival has some special sweet dish linked with it . The method of preparation may vary little depending on the Bhojpuri cuisine, Mithila cuisine and Magahi cuisine.

These are *Thekua (Khajoor)*, *Pua/malpua*, *Gujiya/pedakiya*, *Chandrakala*, *Khaja* (Silao is famous), *Lavang-Latika*, *Anarsa*, *Makhane ki kheer*, *Laii*, *Tilkut*, *Balushahi* (Sitamarhi is famous), *Pantua/kala jamun*, *Parwal ki mithai*, *Peda*, *kesar peda*, *Kheer* (rice cooked in milk and sugar), *Tasmaii* (rice cooked in milk and sugar but no water is added).

Other sweets are *Khurma*, *Shakkarpara*, *Lakhto*, *Kasaar*, *Methi ke laddu*, *Teesi ke laddu*, *Besan ke laddu*, *Gehun ke aate ke laddu*, *Motichoor laddu*, *Gud-boondi ke laddu*, *Dhakanesar*, *Gulawra*, *Lapsi*, *Rasbhari* :*safed chenna rasgulla*, *mangochi rasbhari*, *moong dal rasgulla*, *rasbhari boondi*, *Belgrami*, *dahi boondiya*, *rabdi jalebi*, *murki*, *Khurchan*

*Rasiyaw* ( it is kheer but gud/jaggery is added instead of sugar) made during Chhat puja. Halwa such as *postu ka halwa*, *besan ka halwa*, *aate ka halwa*, *suji ka halwa*, *dryfruits Halwa* made with dryfruits, haldi/turmeric, sonth/dry ginger, gud and pure ghee and given to lactating mother.

Many sweets are seasonal and associated with several festivals of Bihar. These are discussed below.

**Makar Sankranti** : The day starts with Dahi/curd , chuda/beaten rice and gud/jaggery and different varieties of laddoos such as *til/sesame laddoo*, *moongphali/peanut laddoo*, *roasted chana dal laddu* *chiwda Laddoo*, *mewa/dryfruits chikki/bars*, *ramadana/rajgira/Amranath laddu/lai*, *tilwa / tilkut* . in mithilanchal doodh bagiya is prepared

**Holi** : The sweet dishes relished are *Pua* , *malpua* , *pidikya/gujiya* , *chandrakala* , *thekua*, *khasta*, *kala jamun* , *imarti*,

**Chhath**: *Thekua* , *kasaar* , *Rasiyaw*

**Teej:** *Thekua* , *pidukiya/gujiya*

**Diwali:** *Gujhiya/pudikiya* , *chandrakala* , *anarsa*, *Khurma*, *kala jamun* , *motichoor laddu* , *besan laddu* , *shakkar-paara* , *Jalebi*.

Other sweets of Bihar are *Doodh pitha*, *bagiya* , *Chandrakala* , *Khaja*, *Kesar Peda* , *Laung-Latika* , *Rasiyaw* , *teesi methi laddu* , *mewa laddoo* , *Pantua/Kala Jamun and Laktho*. *Balushahi*, *Parwal ki Mithai* , *Gur Anarsa* , *Laai*, *Tilkut* (Gaya) , *Pampdi mithai* (Buxar) , *Peda* ( Deoghar) and *Khaja* (*Silao Gaya*) are other famous Bihari sweets.

**Tilkut** is made in **winters**, especially on Makar Sankranti means *kuta hua til* i.e. hammered sesame seeds. It is available all over the state and the Dangra village in Gaya is very famous for tilkut.

Other sweets made from local produce are the *Ramdana laddoo / lai* is made from *Ramdana* or *Rajgira* or Amaranth seeds, *mungphali laddoo*, *Channa dal laddoo*, *Dryfruits Laddoo* have similar method of preparation each one is roasted and mixed with *gud /jaggery* or sugar syrup for binding and rolled into small balls to form laddoos. *Murhi laddu & chiwda laddu khooii laddoo or laayii*. *Murhi/murmura/* puffed rice, *khooii /popped rice* and *chiwda/* flattened rice laddoos, are forms of rice.

*Pua* and *Malpua* are made on all special occasions. It is made at the Holi festival and relished with *Rabdi*. In many non-vegetarian homes, *pua or malpua* is served with mutton during the festival of Holi. In the Bihar style of cooking, while making *Malpua* ripe Banana is used in the recipe. In few regions, *malpua* is also made with ripe jackfruit.

*Thekua* is a deep-fried sweet, popular in Bihar. It is prepared as an offering to the Sun God on **Chhat puja** . It is made of whole wheat flour/aata, *jaggery/gud* , *desi ghee* and dry fruits. *Gari/* dry coconut, fennel seed, and cardamom are also added to the *thekua* to enhance the taste and flavour. *Thekua/thokua* means *thoka hua* (beaten). It is usually made by pressing the stiff dough hard against a wooden mould called *sancha*. *Thekua* is made on other occasions too. It has a long shelf life.

*Khasta/khajura* is the crunchier and crispier variation of *Thekua* and made from maida (refined flour) instead of whole wheat flour (aata) and semolina (sooji) to add the extra crunchiness. Where sugar is used instead of jaggery.

*Anarsa/gud anarsa* is a traditional and lip-smacking sweet dish of Bihar's Mithila cuisine. It is specially prepared on **Holi** and **Diwali** and it can be stuffed with *khoya* or *mawa*. *Kasaar* is a sweet prepared with rice powder and *jaggery/gud* or sugar. It is made as *prasad* for the festival of *chhath puja*. It is offered to the sun god on the 3rd day of *puja*. It is considered to be healthy to eat before winters. *Rasiyaw* is rice kheer, except it has *jaggery* (or *gur*) in place of sugar. It is prepared almost like we make our regular kheer with rice, water and milk. This dessert completes the *chhath puja* meal and is offered to **Surya Devta** before serving it for consumption. *Methi* and *teesi/alsi laddu* with dry fruits are good for health too.

## SHARBETS AND DRINKS

Several Sherbets or cool drinks and hot drinks are prepared according to the season. In the hot weather of summer *Satua/Sattu* drink which is considered a powerhouse of energy, either sweet or

salted and spicy are relished, *Sattu pudina* drink, *Aam Panna/aam jhora* drink made out of raw mango helps in preventing dehydration, *bael sharbat*, *tarbuj* /watermelon juice, *Ganna*/sugarcane juice, spiced or sweet, *mattha/buttermilk and gud* Sharbat are other summer coolants and nutritious too.

*Thandai* is a welcoming summer drink made out of dry fruits (*kaju, kismish almonds, gari, chohara, magaz*), saunf/fennel, poppy seeds, rose petals, *golmirch*. During winters Hot Doodh Haldi or Kadha is frequently consumed during the morning and after dinner.

### HEALTHY DELICACIES OF BIHAR THAT CAN BE PROMOTED FOR THE EAT RIGHT MOVEMENT

Besides the above vegetarian and non-vegetarian items mentioned above, there are many items from Bihari cuisine that needs to be promoted in the entire country.

Most parts of Bihar are bound by rivers and freshwater ponds where fish are abundant. Eating fish is considered to be one of the healthiest food for Non-Vegetarians.

1. Bihar is famous for its healthy ***Litti, chokha and chutney***. Traditionally *litti* was thought to be poor man's food because of its simplicity and easy availability, being filling and healthy food. *Litti* is a traditional dish made up of stuffed whole wheat (atta) dough balls with a spicy tangy stuffing of *sattu* /roasted gram powder.



Photo: Sangita Yadav

2. **Amar pitha** is another healthy traditional Bihari Delicacy. Pithas are stuffed with a spicy filling. This *pitha* is prepared using fresh rice flour and spicy *channa dal/masoor dal/ poppy seeds masala* filling. The specialty of this dish is that it is vegan, gluten-free, and steamed. High in proteins, this is an anytime snack, loved by all age groups. Pithas served along with *hari dhaniya ki chutney and oal/suran ki chutney*. This *pitha* is also made with sweet stuffing made of *teesi/alsi with gud/jiggery*.



Photos: Sangita Yadav

3. Use of underutilized and seasonal fruits and vegetable parts is a good practice. **Girwanch/rickwanch/sohena** made with colacasia/arbi leaves are kept in layers and rolled up by applying spicy and tangy channa dal paste. It is steamed and cut into pieces and fried. These can be eaten as crispy snacks or cooked in gravy. These are rich in vitamins and minerals and a very healthy low calorie steamed snack. Other delicacies from local produce are *girwanch ke curry* (gravy made with *sarson/mustard, jeera/cumin, golmirch/pepper, dhaniya/coriander, posta/poppy seed, garlic and greenchillies*), *arbi ke danthal ki curry* (*colacasia stem curry*).
4. **Pumpkin flowers, pumpkin leaf and pumpkin stem curry**. *Munga/sahijan/drumstick* leaves, flowers and fruits are used in preparing various dishes and considered as storehouse of multivitamin.
5. A special leafy vegetable called **noni (purslane) saag, marwa roti and satputia (taroi) ki sabji**, are prepared during *jivitputrika /jiutiya* festival. Non vegetarians also eat fish on the day of *nahai-khahi* i.e. a day before the fasting. Noni saag or Wild purslane is a common weed . It has a slightly sour taste, thin pink colored stems and tiny fleshy leaves and is high in omega-3-fatty acids, alpha-tocopherol, ascorbic acid, beta-carotene and glutathione and also rich in minerals.
6. **Mandua/ragi ki roti** is a simple, wholesome and nutritious chapatti made of madua flour. a wholesome healthy diet. **Satputia** vegetable is similar to sponge gourd and rich in several vitamins and minerals.

7. **Channa saag** which is full of fibre and iron and micronutrients is only eaten in Bihar. **Bathua** saag filled is cooked during winters in most homes of Bihar.
8. **Sattuan/Sattua sankrat** is a ritual celebrated in Bihar, specially Bhojpur, to mark the beginning of summer season when sun enters *mesh-raashi* during Aries equinox. Natural coolants are offered as *Prasad* namely *sattu*. *Items can be sweet satua (made with jaggery, milk, ghee and dry fruits) and served with raw mango and pudina/ mint chutney or salted sattu*. Sattu is rich in protein and other nutrients.
9. **Kadhi badi** (a sour curd and besan based curry), **nimona** is a fresh green peas dal, jackfruit or *kathal sabji*, **Oal/suran/elephant yam ki chutney**, *Oal* is full of medicinal properties, aids in constipation, lowers cholesterol, lowers diabetics, prevents colon and breast cancer, increases concentration and memory power. *Oal/elephantfoot yam ki chutney* is authentic traditional cuisine of Bihar. Since it is cooked under sunlight, so it takes a long time to get prepared.
10. Iron rich **Teesi ki chutney** powder made with alsi or flax seeds, spices and tamarind or mango powder which can be stored and eaten either with rice, parantha or sprinkled over dal and curries for adding taste and flavour is a very good practice. Teesi is loaded with nutrients and has numerous health benefits.
11. Sherbets of Bihar especially the summer drink **Satua/Sattu drink** (sweet or salted and spicy) can be promoted in the Eat Right Movement as a healthy low cost drink. The use of **bael fruit, Aam Panna/aam jhora** drink, local fresh fruit juices such as *tarbuj* /watermelon juice, **Ganna/sugarcane juice, mattha/buttermilk and gud Sharbat** provide hydration as well as required energy and minerals needed for summer. Several milk based drinks such as *Thandai* can be promoted in the Eat Right Movement.
12. Energy bars of Bihar such as the **Tilkut and Ramdana laddoo, Murhi laddu & chiwda laddu khoii laddoo or laayii, Murhi/murmura/puffed rice, khoii** can be additional item for the school children along with routine lunch box. The jaggery used in these laddus as binder provides additional protein and minerals.
13. Use of **makhana/fox nuts** as snacks or in kheer .it is considered as super food. Rich in protein and fibre low in fat.
14. **Paniphal or pani singhada**/water chestnut eaten either raw, cooked or preparations made out of dried and powdered chestnuts, especially during fastings and festivities. .These chestnuts have numerous health benefits.
15. **Shakkarkand**/sweet potato is another superfood widely used in Bihar. It is usually boiled and taken with milk. A sweet dish **gulab jamun** is also prepared using this superfood.
16. **Kathal**/jackfruit in raw and ripe form adds to health benefits.
17. **Thekua** is patent sweet dish of Bihar. It is prepared with coarsely ground healthy whole wheat *aata* and jaggery. It is a nutritious sweet with long shelf life and can replace biscuits in children's tiffin boxes.

18. Chiwda in any form is very much relished but the no-cook food *dahi chiwda gud* is the healthiest desi breakfast. In Bihar, on the day of makar Sankranti *Dahi chiwda gud* is the 1st dish consumed in the morning along with til /sesame seed preparation

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# UNDERSTANDING THE FOOD CULTURE AND NATIVE FOODS OF TELANGANA STATE - A STEP TOWARDS HEALTHY DIETARY DIVERSITY

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## ABSTRACT

Telangana is a young state which has its characteristic food culture based on millet and hardy grains such as jowar, sorghum, and corn, coupled with the use of whole legumes such as country beans, and hyacinth beans, *lobia*. Whole grain-based items cooked by steaming and puffing such as *gudalu*, *kudumulu* and *pyalalu* should be promoted. Curries made with multiple green leafy vegetables and cooked in combination with nonvegetarian items and a steamed snack such as *kudumu* made with rice/millet flour and fresh legumes can be explored for use across the nation as single meal options. Special snacks made with sesame, dhals, and spices such as *sakinalu*, *appalu*, *pesara muddalu* can be popularised in the category of ready to eat snacks for children as they provide appropriate micronutrients for the calories. Local Corn grain-based food items unique to the region such as *gatka*, *upma*, *garelu* (doughnut) and unique processing techniques of local dishes such as *sakinalu*, *makka garelu*, *appalu*, *pesara muddalu* needs to be promoted for the Eat Right Movement.

## INTRODUCTION

Telangana region has a cherished history of over 2500 years as confirmed by many megalithic stone structures like cairns, cists, dolmens, and menhirs found in several districts of Telangana. It been the link between North and South of India for a long with Hyderabad standing out as a microcosm of the Indian culture and diversity and show tolerance towards other cultures. The Buddhist township of Kondapur in Medak district maybe after the first five disciples of the Buddha, Kondanna which is a typical name from Telangana.

Telangana has been ruled by several dynasties since the Maurayas from 320 BCE, the Satavanas, the Vakatakas, the Chalukyas, the Rashtrakutas, the Kakatiyas, the Musunuri Nayaks, the Delhi Sultanate, the Bahamanis, the Vijayanagar Empire, the Qutb Shahis, the Moghuls and the Asaf Jahi Dynasties also ruled it till 1948 CE. The rule of Kakatiyas was known as its golden age and later by Mohammed Bin Tughlaq in 1323CE, Bahamani Sultanate (Qutub Shahi Dynasty) followed by Aurangzeb (Mughals).

Mir Qamar-ud-din Khan Siddiqi Bayafandi, who was appointed by the reigning Moghul Emperor Farrukhsiyar as the Viceroy of Deccan, got the title of Nizam-ul-Mulk, and the originator of the Asaf Jah lineage ruling the Hyderabad State (princely state) was handed over to the British. The last of the Nizams. Mir Osman Ali Khan lost his power after India's independence and Hyderabad was annexed in September 1948, through operation Polo.

Telangana region of Hyderabad state was merged with Andhra and Rayalaseema regions and the state of Andhra Pradesh was formed on 1<sup>st</sup> November 1956. After years of agitation for a separate Telangana state, the Government of India decided to grant Telangana statehood, with Hyderabad as its capital, becoming the 29<sup>th</sup> state of independent India on 2<sup>nd</sup> June 2014 and is the 12<sup>th</sup> Largest state of India with 114,80 square kms of area in the Deccan plateau.

## **GEOGRAPHY AND CLIMATE OF TELANGANA**

Telangana region is a semi-arid region characterized by a hot and dry climate, with harsh summers and mild winters and annual rainfall varying between 900-1500mm, from the southwest monsoon. It has historically been affected by drought-like conditions, in districts such as Mahbubnagar, Ranga Reddy, and Nalgonda with severe variability of rainfall and lack of irrigation facilities. Often the principal sources of irrigation in the State of Telangana are canals, borewells, and tanks.

Telangana is drained by two major rivers, the Krishna and the Godavari, with several minor rivers such as Maner, Manjira, Musi, Tungabhadra, Pranahita, Dindi, Bima, Kinnerasani. It has an elevation of about 500 meters with higher regions in the west and southwest while tapering down to slopes in the east and northeast, with the land range meeting the discontinuous line of Eastern ghats.

## **VEGETATION**

Telangana region is typically dotted with thorny vegetation spread across the hills of the plateau but along the northeast and near the Godavari and the Krishna rivers, thick jungles are prevalent accounting for nearly 25% of the land area the forests consist of both moist deciduous and dry savannah vegetation with teak, bamboo, rosewood and wild fruit trees distributed plenty. Neem, banyan, mango and papal trees are quite common in the region. The state tree of Telangana is the “*Jammi Chettu*” (*Prosopis Cineraria*), and the state Flower is the “*Tangedu Puvvu*” (*Senna Auriculata*).

## **AGRICULTURE**

Telangana is a primarily agrarian state, However, the state is dependent on rain-fed water sources for agriculture. Water from major rivers was not accessible for several decades post-independence but recently Kaleshwaram project has improved irrigation in the state. Paddy is the principal crop in water fed areas and other crops include maize, groundnut, red gram, soya bean, sugar cane, cotton, sunflower,



turmeric, and tobacco. Mango and guava are extensively grown in Telangana. Millets such as sorghum, pearl millet, foxtail millet, finger millet, kodo millet are also popular in the arid and semi-arid areas making Telangana a “Millet capital of India”.

### **SOCIAL PROFILE OF TELANGANA**

Over 60% of the population reside in rural areas and a substantial population belongs to scheduled castes, scheduled tribes, backward classes, and minorities who depend on agriculture for livelihood. The population comprises Hindu, Islam, Christianity, Jainism, Buddhism, and Parsi communities.

Telangana is the homeland to many *Advasi* Tribal communities such as the *Gond's Kolams*, *Nayak Pods*, *Pradhan*, *Thoti*, *Konda Reddies*, *Koyas*, *Guthikoyas*, *Chenchus*, *Lambadas*, *Valmikis* who have their respective social customs and traditions (Pulapalli Venkata Ramana et al, 2016).

The system of nature worship such as worshipping the soil, water, rivers, trees, forests, hills, and stones is an integral part of Telangana culture.

### **TELANGANA FOOD CULTURE**

The Telangana region being mostly semi-arid and millets such as sorghum/jowar, bajra/pearl millet, and rice are staples based on their location. Telangana food is a little spicy, with, most of the main course dishes seasoned with generous amounts of red chilli, which is largely grown in the region. The local cuisine has also been influenced by its rulers and neighbours (Maharashtra, Karnataka, Chhattisgarh, and Andhra Pradesh).

The Qutab Shahi and Azam Jahi dynasties have influenced local cuisines with Mughlai touch and is popular as Hyderabadi cuisine. Non-vegetarian food, game meat (boar), mutton (sheep/goats), poultry/eggs are also prominent in this cuisine. Seasonal river or tank water fish and prawns are popular.

Use of cereals to make bread or *roti*, from wheat, *Jowar rotte*, *Sahjja rotte*, *Coorn rotte*, *Ragi and Jonna umbali (Porridge)* *Corn*, *Jowar Gatka* (grits made into rice-like consistently, also *Korra buva* (Foxtail millet rice) along with curries or *kura or shakam* (a dry preparation) or *shorwa gravy* wet preparation in curry form with heavily spiced with red chilli powder is common.

*Pulusu* is semi-liquid curry made with tamarind extract and spices with different vegetables and boiled eggs. *Pachi pulusu* is a thin rasam like preparation made with tamarind extract chopped onions, salt, jaggery tempered with mustard seeds, curry leaves, dry red chillies. Usually, roasted green chillies are crushed roughly and used. Sesame powder or peanut powder is used additionally, sometimes milk is used in the seasoning. This dish is said to be a poor man's dish when no dhal or vegetables are available it is used for eating with rice, “*annam or gatka*, also in off seasons when no vegetables are available.

*Thokku* or a quick pickle or chutney is made from red chillies, tamarind, and additional spices like garlic, etc often is used for eating with main courses.

Telangana cuisine also includes use of whole legumes/sprouts, dhals (pulses), vegetables, green leafy vegetables), acidulants such as tamarind, lime, raw mango, raw tamarind, and a wide variety of spices.

Desserts and confections may be grain-based such as *mudda* and *laddu* or milk-based such as *gulab jamun* and *rosogolla* and may use sugar or jaggery as a bulk sweetener. Peanuts (Palli), Sesame seeds (Nuvvulu), Dry coconut (Yeendu Kobbari), Poppy Seeds (Gasa gasalu), Cashewnuts (Kaju), Almonds (Badam) Chironji seeds (Bachnania Lanzan) are commonly used in regular and celebratory cooking.

Beverages may incorporate milk, buttermilk, and/or fruit ingredient and sugar. *Neera: Thati Kallu, Palm Toddy Beverage* is a popular drink in rural Telangana. Atypical palm wine derived from fresh palmyra and date palm is served fresh or after holding for few hours. The drink is nutritious and has been used as popular Telangana festivities.

A variety of snacks having short to long shelf life are made using a variety of ingredients including cereals, legumes, vegetables, spices, and oil. Chicken and mutton tend to be the most consumed meats.

Whole dry maize corn, grits or fresh corn is used to make ethnic dishes such as *gatkha, gudalu, Garelu, Attulu, Thampi Boorulu*. Likewise, the boiled maize, raw stalk red gram, Bengal gram groundnuts are fondly eaten at agricultural fields.

Every festival, important occasions like birth, pregnancy, marriage, death ceremonies are associated with typical special food items Occasional foods include *Chakinalu, Chegodilu or Chegollu, Arisali, Malida muddalu or saddhi mudalu, penelu, Bolappalu, Sarvapindi, Bhasham, Gudalu* etc.

Regular food items include eating boiled rice- *annam, Bhuwa, jowar* or wheat roti *Jonna rotte* with dhal *Pappu or shakam* – vegetable curry for main meals. Besides, *Jonna ghataka, Korrabuvva, Sajja rotte*, are also eaten as regular food. Spicy pickles with mango with ginger garlic, mustard chilli powder are very famous (Sudha Kumar, 2016).

## GREEN LEAFY VEGETABLES AND FRUITS IN TELANGANA CUISINE

Various kinds of Green leafy vegetables are in use. Roselle or Deccan Hemp (Puntikura / gungura / Ambadi/pondi), two types of Spinach (Palakura, Bachaclu), Thummi Akku (Leucas Zeylanica) Amranthus (Thotakura), Pursulane leaves (Ganga bayala kura) Sour Dock or Sorrel (Chukkakura), Soya kura ( Dil leaves), Fenugreek leaves( Mentham kora, Tender Tamarind leaves (Chinta Chiguru), are popular along with Spring onions.

Commonly grown fruits and consumed fruits include guavas, mangoes, bear, grapes sweet lime, chikku, jamun, figs, pomograntes, custard apple, and several forests produce like *marri pandulu, tunika pandlu*, mulberry and wood apple etc are integral part of Telangana diet.

## SPICES

Red chillies (*Mirapakaya*) are the most popular spice for almost every curry, dal, and pulusu. Also turmeric (*Pasupu*), Coriander (*Daniyalu*), Cumin (*Jeelakarra*), Ginger (*Allam*), Garlic (*Yelli gadda*), Green chilli (*Pacchi mirchi*), Curry leaves (*Karevapaku*), Fresh Coriander (*Kothmir*), Fresh Mint (*Pudina*), Cardamom (*Elaichi*), Cloves (*lavangalu*), Cinnamon (*Dalchina Chekka*), pepper (*Miryalu*), Kabab Chinni (*Cubeb* pepper), Carome seeds (*Voma* or Ajwain), Caraway seeds (*Shah Jeera*), Nigella or onion seeds (*Kalonji*), Black stone Flower (*Pather ka phul* or *Dgad Phool*), Bay leaf (*Bagara akku*), Mace (*Javithri*) Nutmeg (*Jajikaya*) and Fenugreek seed (*Menthulu*) are most used spices used in Telangana cuisine (Saraswati, 2016).

## FATS AND OILS

Traditionally Groundnut oil (*Palli nune*) was the most important oil used in Telangana and Hyderabad cooking. Gingelly oil (*Nuvvula nune*) Safflower (*Kusuma nune*) would also be occasionally used. The advent of sunflower oil saw its intrusion even in rustic cooking. Palm oil is used very well due to its distribution in free ration provisions, Ghee, butter, and hydrogenated fat are mostly used in Hyderabad food and local bakeries and for making sweets and crisps.

## TELANGANA COOKING STYLES :

While the cooking style of Telangana is not very distinct from its neighboring states. Cooking is done on wood-based fires (*Kattela pooyi*) and coal-based fires (*Boggula poyi*). The slow cooking which happens when food is cooked on this kind of fires enables the development of flavours and ensures soft textures yet firm and tantalizingly appetizing. They also impart mild smokiness to dishes prepared to add to their unique flavour and appeal.

## Cooking vessels

Traditional cooking vessels were made of brass and copper lined with tin, which later gave way to aluminum vessels. Stainless steel vessels are mostly used in cities and towns but most rural areas still aluminum vessels. Earthenware also is widely used in remote areas where wood and charcoal fires are used for cooking.

*Rolu and Rokali (Mortal Pessele), Rubbu Rayi (Stone grinder) Masala Rayi (Flat grinding Stone with pestle) and Isuru raye (Round grinding stone Mill)* are used for grinding pastes and masalas, *Rottela pitaa and Karra* are used for making roti's and pooris. Cooking implements include *Mookudi (Kanchudu or Kadai or curved skillet), Dosa Penam (Round Griddle) Rotte penka Griddle for Chapati and bagonas (Vessels)* regular cooking vessels.

Unlike the rest of South India, the food is served in dried plates, (*Istaraku*) cups (*Doppa*) made of *Tendu* leaves (*Diospyrus melanoxylon*) and *Marri leaves* (Banyan Tree Leaf, *Ficus Benghalensis*) as the areas do not have Banana plantations. (P. Saraswati, 2006)

**Table: 1 Most Common dishes in Telangana food**

<i>Staple food</i>	<i>Vegetable curries</i>	<i>Green leafy vegetables</i>	<i>Dhals</i>	<i>Liquid Curries</i>	<i>Nonveg</i>	<i>Special dishes</i>	<i>Snacks</i>	<i>Sweets</i>
<i>Annam</i>	<i>Birakhaya alasandalu</i>	<i>Puntikura pappu</i>	<i>Plain dhal red gram-green gram</i>	<i>Tomato shorva</i>	<i>Golinchin na mams</i>	<i>Biryani</i>	<i>Sakinalu</i>	<i>Malida</i>
<i>Ghatka</i>	<i>gokarkaya</i>	<i>Ganga bhayala kura</i>	<i>Paapu charu</i>	<i>Alu gadda shorvva</i>	<i>Kodi kura</i>	<i>Bhagara</i>	<i>Chegodu</i>	<i>Pasham</i>
<i>Godhuma Chapathi-rotTe</i>	<i>Vankaya tomata</i>	<i>Bachali pappu</i>	<i>Mango dhal</i>	<i>Anapa kaya shorwa</i>	<i>Chepala pulusu</i>	<i>Chikudu annam</i>	<i>Muruku</i>	<i>Bhoond hi laddu</i>

<i>Jonna rotte</i>	<i>Pulla kanda fry</i>	<i>Palakura fry</i>	<i>Leom pesarap pau</i>		<i>Egg pulsu</i>	<i>Anapaginjala Annaum</i>	<i>Pappu chakalu</i>	<i>Rava laddu</i>
<i>Makka ghatka</i>		<i>Chuka kura saga pappu</i>	<i>Chanaga pappu chuka kurs</i>		<i>Fish fry</i>		<i>Pusa</i>	
<i>Sajja rote</i>	<i>Gokara kaya</i>	<i>Thotakura pesarapappu</i>			<i>Royyalu akukura</i>	<i>Poni biyam</i>	<i>Kahara Bhoondi</i>	<i>Nuvvula laddu</i>
<i>Korra bhuva</i>	<i>Chikudu kaya</i>	<i>Thumikura pappu</i>				<i>Poni annam</i>	<i>Pusa</i>	<i>Palli laddu</i>
<i>Jonna ghatka</i>	<i>Sora kayya</i>	<i>Menthi pesara pappu</i>					<i>Bhajji</i>	<i>Jilebi</i>
<i>Sangati</i>						<i>Kitchidi</i>	<i>Pakodi</i>	<i>Karijalu</i>
<i>Umbali</i>						<i>Chinta pandu pulihora</i>	<i>Pesara garelu</i>	<i>Pardha pheni</i>
						<i>Namakaya pulihora</i>	<i>Makka garelu</i>	<i>Palla padyam</i>
						<i>Mamidi kaya pulihora</i>	<i>Gudalu</i>	<i>Pesara laddu</i>
							<i>Menthi kura bhadilu</i>	<i>Biyam laddu</i>
						<i>Dadhojana m</i>	<i>Atukula chudw a</i>	<i>Jonna pelala laddu</i>
						<i>Nuvvula sadhi</i>	<i>Palli garelu</i>	<i>Murmur ala laddu</i>
							<i>Anapa garelu</i>	
							<i>Serva pindi</i>	
							<i>Pesara garellu</i>	

### TYPICAL MENU IN TELANGANA CUISINE

**Breakfast:** Commonly known as “*Nastha*” comprises of “*Roti*” made with Jowar or Bajra or wheat with either a *chutney* (strong spicy thick fresh chutney made with groundnuts or Sesame, green chili, garlic) or *Karam* (spicy powder made with flaxseed, red chili, garlic tamarind).

Rotis were also made with corn and rice. Thin crepes made with rice flour mixed with dhal flour, spices and were made on special tawa, called “*Ailu*”. Upma made with rice rawa called “*Uppidi pindi*”. Upma made with fine wheat rawa, *Bombay rawa* is also common along with Poha called *atkula upma*.

Wheat *puri* and moong dhal and hyacinth vada are made on special occasions and eaten with chicken or mutton gravy.

**Dhals:** Usually, red gram dhal, Bengal gram dhal, moong dhal are commonly made in combination with green leafy vegetables such as spinach, *pursulone* (*Gangavaile kura*) *Punti kura*, *Ponnaganti kura*, *chinta chiguru* (*tender tamarind leaves*, *Colocasia leaves* (*Chama kura*)) *Pulacinta kura*, *Bachhali kura*, *Thota kura* and *Methi leaves*. Dhals are also cooked with vegetables such as ridge gourd, bottle gourd, tomato, brinjal, yellow cucumber, and made as a semiliquid or thick form. Raw Mango, Raw tamarind, ripe tamarind, and lemon are used commonly for sourness in dhals.

Liquid dhal commonly made is called *Paapu charu*, is a different version of *sambhar* and served along with rice.

### Chutneys (*Pacchallu*) fresh and preserved pickles

Fresh chutneys are made from all green leafy vegetables such as spinach mint, in combination with spices such as fresh green chillies or Dry red chillies and spices such as jeera, coriander, fenugreek, tamarind, and salt with the use of sesame, groundnut, and or coconut. Vegetables such as ridge gourd, bottle gourd, tomato yellow cucumber, brinjal, coccinea are immensely popular.

### Vegetable curries: *Shakam/Kura*

Vegetables are made as dry vegetables (*Golichina kura*), semiliquid curries (*Kura*). Vegetable gravy made with spice is called *Shorwa*, the thick liquid sour vegetable curries made using tamarind are called as *Pulusu* and thin liquids usually sour in taste are made using tamarind, or tomatoes and sour curds are called *charu*.

Usually, curries are made Tomato, Brinjal, potato, Ladies finger Ridge gourd, bottle gourd, Bitter gourd, pumpkin, yellow cucumber, Coccinea, country beans, cluster beans are commonly used vegetables. Tender cowpea beans, tender red gram, tender Bengal gram fresh seeds are used in curries such as Ridgegourd or bottle gourd, *birakaya alashantala kura* is a very popular curry served in weddings. Raw papaya is also used as curry.

Potato, *Chama gadda* (*Colocasia*), Yam (*Pulla kanda*) are commonly used tubers. Curries are made with onions, fresh onion leaves. Exclusive curries made with garlic pods, onion, and spring onion, are also used.

**Channa dhal flour preparations** as curries are also popular, reflecting the influence of Marathwada cuisine. Also, very useful in lean seasons and summers when vegetable availability was scarce.

1. *Bharadha*: Vegetables commonly used are pumpkin, yellow cucumber curries and spinach, fenugreek, coriander leaves are cooked with Bengal gram flour into a dry curry form.
2. *Attuthunukala Kura*: A curry made with pieces of thick pancake made of Bengal gram flour, onions and sprinkled with *khus, khus*. A must curry to be served in weddings.
3. *Menthikura Badilu*: Dumplings of methi leaves and Bengal gram flour, either fried or steamed are made into a curry.

4. *Pitla*: A gravy curry prepared with chana dhal flour and buttermilk. Usually eaten in combination with puri or chapathi

### **Charu – Sour thin Liquids**

Thin liquids like rasam in South Indian cuisine are made in Telangana. Most popular in this category, is an ancient preparation commonly called is *Pacchi pulusu*, literally means raw preparation, a thick tamarind raw extraction hand blended with chopped raw onions, roasted green chilli paste, salt, jaggery and seasoned with curry leaves, mustard, and jeera. In summers its also prepared from steamed/boiled raw mango.

Horsegram *charu*, *Chinta charu*, *Tomato charu* are all light sour preparations that are thoroughly boiled. *Kattu charu* is made from drained water after cooking moong dhal after overnight fermentation. Thin sour liquids are usually served as an accompaniment to be eaten with Rice, millet rice preparation such as *kora annam*, *Jonna annam (Gatka)*.

**Beverages-** The use of fermented porridges (*umbali*) made of Jowar and ragi is in vogue even now. Unfermented porridge is called *Jawa*. The use of tea is in vogue, compared to coffee. Homemade Lemon juice, buttermilk usage is very common. A few decades back use of Jaggery as sweeter in Tea was in vogue.

**Staples -Rice-based Preparations-** Usage of *jowar* and *sorghum* is less and rice has become the main staple over the last few decades particularly after the introduction of subsidized rice scheme in the public distribution system since 1980 ( Rakesh 2015).

Plain rice cooked in an open pan, in a pressure cooker is very common as the base of the meal. *Bhagara rice* is made with spices such as cloves, cardamom bay leaves, and *shahijeera* usually on festive occasions. *Pulihora*, sour spiced rice preparations are made with tamarind, lemon and mango are also popular dishes, made on festival days and served as Prasad in temples. *Pulagam* rice preparation made with a dhal and turmeric is offered to Goddesses during *Bonalu* festival in season. Rice made with sesame (*nuvu podi annam*, mustard (*ava podi annam*), coconut (*coconut annam*), curd rice (*dadojanam*) are offered during *Bathukama* festival (flower festival).

*Poni annam* or *Golichina annam* or fried rice is made usually with left over rice adding spices such as ginger garlic paste, chilli powder and seasoned, usually served with an omelette is a rustic preparation with a great aroma of crushed raw garlic. *Poni biyam* is a *pulav* made with seasoning rice and cooked with brinjal in a combination of fresh hyacinth seeds/country beans/red gram seeds with spring onion and can be recommended as a healthy single pot meal.

*Buvva* (staples) are boiled and cooked cereal or millets, *sangati* are cooked cereal or millet grits with little flour and *gatka* means cooked *jowar*/corn grits.

### **Snacks or Palaram**

Popular snack items are *garelu (masala vada)* like preparations usually made of moong, cow pea or chana dhal and with fresh corn seeds with copious use of fresh chilli, garlic, coriander, usually eaten with mutton or chicken curry.

1. **Gudalu-** Spicy *sundal* like preparation made with whole grains such as corn, jowar or chana, hyacinth beans, country beans, moong, red gram made singularly or in combination as per availability with red chillies or green chilli paste. *Gudalu* were part of several ritualistic tribal festivities and usually accompanied with palm toddy (P.Saraswathi , 2006 ). This snack with limited oil can be promoted as a high fibre whole grain item for disease management.
2. **Kudumulu Steamed dumplings-** These steamed dumplings are made with freshly ground coarse rice flour usually made in olden days using “*esururawthu*” stone grinding mill at home in combination with seasonal fresh country beans, hyacinth beans, cowpea seeds using fresh green chilli paste onion leaves fenugreek seeds and eaten with a garlic chilli spicy chutney made with raw groundnut oil. This high energy protein and fibre rich traditional snack also deserves promotion across the country.
3. **Serva Pindi-** This is a savoury dry spicy thick hard pan cake made in thick brass vessels or “*kanchudu*” (a mud pot). Fresh rice flour blended with roasted split groundnuts, roasted sesame, curry leaves, soaked chana dhal along with spices is made is made pressing the dough directly in the vessel and making small holes on the dough to place oil. It gets its typical flavour and chewy texture when it is made on fire wood and charcoal.
4. **Bhajji-** These are fried snacks made with Bengal gram flour with chillies, potato, onions, brinjal, sponge gourd, *bachali akku*, malabar spinach, poi saag are popular in sweets shops, hotels, tea stalls.
5. **Palaram, Chekkalu** or *rail palaram* for savouries which have a longer shelf life. Some common names are *appalu, sakinalu, chegodilu, murukulu, chudwa*.

### Sweets of Telangana

Freshly eaten sweets such as *pasham, polelu bhakshalu, Palambharam Palaphadyam* etc are common in Telangana

1. **Pasham** are wheat flour dumplings in the form of small balls and ribbons cooked in jaggery syrup.
2. **Polelu, Bhakshalu, Bhurelu** is a popular sweet paratha with cooked bengal gram dhal/moong dhal/ red gram dhal and sugar or jaggery and cardamom. incorporated into wheat dough and skillfully made in thin layers and baked with oil or ghee. This sweet is made during the Telugu new year *Ugadhi, Gruha pravesh* (house warming ), wedding and other festive occasions.
3. **Palambharam Palaphadyam** is a milk-based porridge made with rice flour and sugar.
4. **Shevalu** is a *payasam* made with vermicelli and sugar.
5. **Malida Muddalu** are *laddus* made with ground bajra roti, jaggery and ghee and are also made with *makka* (corn), rice and wheat roti.
6. **Sajja burelu Biyam appalu-** made with dough of bajra flour or rice flour mixed in thin jaggery syrup, which is rolled into small discs and fried in oil.

7. **Punukulu** are fried sweet dumplings made with moong dhal or bengal gram with jaggery or sugar covered with bengal gram flour/rice flour mix batter.

#### Sweets with a longer shelf life are :-

1. **Patti (chikki)** is made roasted sesame or Roasted spilt ground nuts, roasted Bengal gram and coconut.
2. **Besan chekki** made using ghee, sugar and bengal gram flour.
3. **Saddulu** made with roasted moong dhal, groundnuts, rice flour, puffed corn or puffed jowar is mixed with powdered jaggery offered as prasad during Brathukama festival.
4. **Muddalu** is a roasted whole moong, rice, urad dhal flour which is mixed with finely ground sugar and ghee and made into laddus.
5. **Laddulu** are laddu made with wheat *rawa*, *boondi* is made with bengal gram flour and sugar syrup. *Laddus* are also made with roasted ground nut or roasted sesame, dry coconut in jaggery syrup.
6. **Gavvalu** in this wheat flour dough rolled into shape of snail are fried and dipped in sugar syrup.
7. **Karijelu or Gharizalu** are deep fried sweets where the dough is made with short crust paste and the staffing is made from a mixture of grated coconut, nuts, poppy seeds, roasted same or roasted bengal gram. The edges are sealed with an artistically woven shape resembling a kind of oyster shell adding to its appeal.
8. **Badhusa, Jelebi and shakar para** are other sweets.
9. **Ariselu-** Soaked hand pounded rice flour mixed into hot jaggery syrup and made into small puri's and fried in oil and decorated with *khus khus*. Usually prepared weddings or during festival of Sankranti.

#### Processed cereal products

1. **Pyalallu Popped grains of jowar** and corn. Jaggery based laddus with puffed powdered flour of jowar and corn *sattu pindi laddu* are made as offerings in Brathukama festival. Puffed rice jaggery laddu, upma made with puffed rice are also prepared.
2. **Kapillu:** Millets are exposed to flame slowly and rubbed in gunny bag to remove hull and husk.
3. **Atukulu or flakes-** use of rice flakes or corn flakes to make a spicy snack called *chudwa*.

#### Non vegetarian food items

*Natu Kodi shurva* made with country chicken with spices in gravy; *Golinchina mamsam* which is fried mutton with spices; *mamsam kura*- which is sheep/ goat meat prepared with spices with onion, dry coconut, and poppy seeds. *meka thalakaya kura*- goat head curry; *Botii Kura*, Organ meat of lamb such as intestines are used after cleaning and boiling in turmeric water and fried with several spices; *pathakalu*; *Karjyam fry* - Liver fry (sheep/goat); *Nalli kura / Solai*- made from clotted blood of sheep/goat; *dalcha*- Bones or mutton cooked with vegetables, with or without tamarind in a liquidly consistency are popular. *Chukka kura chicken*- a delicious nutritious preparation adding the good ness of *chukka kura*, green



sorrel, *chuka ammbat* (*Rumex vesicarius*), *Puntikura mutton*, *Punti kura*, *gongura*; *Soya kura mutton*-Soya kura (Dill leaves) and mutton curry ; *Chikudu kura mamas am*- country beans cooked with red mutton curry; *Kheema Muttilu*- Oval shaped minced meat cutlets. The fresh minced meat is blended with spices and soaked Bengal gram, shaped dipped in egg and fried are other common nonvegetarian recipes of Telangana.

**Egg**- Traditional omelettes is called “Ganteappa” in Warangal district. Many vegetables are made with egg combination such Ridge gourd, Tomato, Bottle gourd, onion and also in *Pulusu* form with tamarind and other spices..

**Fish**- Fish is usually consumed as fry or in “*pulusu*” in tangy gravy/liquid form. *Ghanpur Khorramatta Kura* – Live “murrel” fish preparation are famous in Ghanpur village of Warangal district. It is gently cooked in tangy tamarind gravy made with oil roasted onion, roasted fenugreek, jeera paste and made in mud pots.

**Thokulu** (Pickles) are made from mango, raw tamarind, raw red chilli, amla, lemon, goose berry, and wood apple. Use of ginger/garlic in raw mango pickle is common and mustard, sesame along with red chilli powder, salt form the main ingredients. Ber pickle, wood apple pickles are also prepared in their season of availability. Non- vegetarian pickles are made with chicken, mutton, egg are also made.

**Varugulu**- Preservation of vegetables such as yellow cucumber, ladies fingers, brinjal, bitter gourd, green chillies by sun drying is also practiced.

**Vadiyalu**- Dehydrated ready to cook items such as vadi are made from Moong dhal, ash gourd, sago and rice in combination salt spices and green chilli paste. Green chillies are first fermented in buttermilk salt and fenugreek powder for two-three days and later are kept for sun drying. Usually vadi are fried in oil and eaten especially in seasons when vegetables are not available, to add taste and nutrient balance to the meals.

**Podi karam**- dry powders made with red chilli, spices with flax seeds, garlic usually eaten with roti or rice.

Summarised from personal experience and from P.Sraswathi 2006, Jyothi Valllboju, 2013, Sudha Kumar, 2016 & Sudhakar 2019

### Unique Corn Delicacies of Telangana

After Rice, maize is the largest grown crop in Telangana. Many recipes have evolved from fresh kernels and dry kernels. Roasted corn kernels spiced with lime and salt or a special dip made with fresh butter chilli and garlic are common. Fresh kernels are ground and made into *upma*, *dosa* and “*garelu*” (dough nut).

Dried corn is boiled softly and made into *gudalu* in combination with country bean seeds or hyacinth beans and special item served at weddings in Karimnagar and Warangal areas. Dry corn grit *gatka* was once a staple in parts of Telangana. Extruded corn-based snacks and corn flakes and puffed *corn pyalalu* are also popular.

## TRIBAL CULTURE IN TELANGANA INFLUENCE ON FOOD HABITS

The state comprises tribes such as Banjara, Koya, Gond, Yerukala, and Pradhan and the tribal communities play a major role in the food that is consumed in Telangana (Pulla et al 2019). The millets, roti and spicy tangy curries come from the cuisine of Banjara, Koya and Gond tribes. Koya tribe contribute to preserved food and pickles, the Banjara tribe to the fried delicacies, and the Yerukala tribe to rice delicacies.

## WILD EDIBLE PLANTS IN TRADITIONAL FOOD SYSTEMS IN TELANGANA

Wild edible plants add to the micro nutritional security constitute a significant part of the rural food culture as their acceptance has been high (Avik et al 2020). A diverse range of wild uncultivated plants and their parts (e.g., leafy shoots, fruits, seeds, underground organs, and flowers) are still being consumed regularly and complement human adaptability and a variety of human gastronomic choice. Leafy shoots (722 species) followed by fruits (652 species) were the two most-eaten plant parts. They tend to supplement proteins, essential minerals, micronutrients, and vitamins that enrich the dietary quality and thus provide an affordable source of nutrition for rural and semi-urban societies across cultures and continents (Avik et al 2020).

The Local food list includes an extensive variety (329 species/varieties) of cereals, millets, pulses, oilseeds, fruits, vegetables, greens, roots, and tubers. Roots, leaves, flowers, fruits, gums, and bark are consumed seasonally. Various processing methods such as smoking, roasting, boiling, sun drying, shade drying, shallow frying, and deep frying are in vogue. The nutritional contribution of the local food system is amazing as many of the foods are uncultivated and are considered weeds by the scientific community (Buduru & Periyapatna 2009).

Most poor rural people consumed uncultivated crops at least 50 to 80 days in a year.. The most popular and highly appreciated uncultivated greens were *budda kasha*, *sanna payala*, *adavi pulla koora*, *angi bingi*, *jonnachemchali*, *pittakura*, *bankanti kura* and *yennadri*. *Doggali koora*, *gangavayeli*, *sannavayeli* and *pundi*. *Pundi* and *doggali koora* were eaten more than 20 times in a year by some families. Some of the greens (e.g. *gunugu*) were sold as green fodder in nearby towns.

Uncultivated foods such as *chennangi*, *soyikoora*, *adonda* and *adivi kakarakaya* were also sold in towns because they were liked by urban dwellers and were recognized as good for health. Greens such as *talaili* and *kashapandla chettu* were never uprooted, as they were less available, and they were recognized for their high medicinal value.

*Doggali koora* is considered more nutritious than a chicken egg. Locals utilize greens in different forms – curry, leaf extracts, and pressed into tablets (greens are pounded to paste, pressed and shade dried) to cure common ailments such as headaches, swellings, wounds, scabies, improper digestion, and major diseases such as jaundice and diabetes.

*Atteli koora* is fed to post-natal mothers to improve breastmilk availability to infants. *Pundit* is eaten by lactating mothers to maintain good bowel movement of infants. Uncultivated plants, like *kashapandla chettu*, were known as “*Davakhana leni Mandu*” (medicine available without the existence of a hospital).

## HOT AND COLD FOOD CULTURE

Culturally, the locals characterized their foods as cool and hot. Cool foods included sweet lime, lemon, grapes, watermelon, musk melon, cucumber, ice cream, buttermilk, curd, pomegranate, chickpea, pigeon pea, ragi, rabi sorghum porridge, and sago. While, foxtail millet, chicken, egg, fish, papaya, custard apple, Mango, Drumstick, bishop weed, ghee, linseed, sesame, spicy powder, Turmeric, Saffron, jaggery, and tea.

Consumption of certain cold foods such as citrus fruits, watermelon, guava, curds is commonly limited in pregnancy and lactation as locals believe consumption of their consumption will lead to cold for the baby. Generally, they believe consumption of papaya by pregnant leads to abortions. They consider the consumption of garlic, minced meat to be galactagogic in nature (P.Saraswathi, 2006).

## IMPORTANCE OF UNCULTIVATED GREENS AND FRUITS DURING FAMINE

Historically, uncultivated foods were important during famine and stress periods. During a famine in the Zaheerabad region, people survived for four months eating only these uncultivated greens, especially *doggalikoora*, *gangavayeli*, *sannavayeli*, *pundi*, *gunugu koora*, *uttareni* and *kapringa pandlu*. People ate more curries made from these greens. Rotis were made from *jowar* flour mixed with *pundi* (*Ambadi-Gongura*) because there was not enough other flour. Poor people would restore wells for watering fields and collect these greens from nearby sugarcane fields.

The most popular and highly appreciated uncultivated greens were *budda kasha*, *sanna payala*, *adavi pulla koora*, *angi bingi*, *jonnachemchali*, *pittakura*, *bankanti kura* and *yennadri*. These green leafy vegetables and most are rich sources of calcium, iron, carotene, and vitamin C and these should be supported for production and consumption in midday meals and in schools at all levels.

Many underutilized fruit species are nutritionally rich and have therapeutic properties viz. aromatic, cooling, digestive, stimulant, astringent, emollient, useful in seasoning, maturation, and fermentation of culinary, processed food and drinks. In addition to their therapeutical values, these fruits provide nutrition, strength, and vigour to our body and restore loss of minerals and amino acids, thus protecting it against many deficiencies and diseases.

Singh et al 2003 reported that the level of carotenoids varied from 7071 to 1485.00 µg/100g, which was recorded in *Artocarpus integrifolia* followed by *Spondias cythera*, *Spondias pinnata* and *Syzigium claviflorum*. Some of the other minor fruits found in the regions are fairly good sources of ascorbic acid viz. *Artocarpus spp.* Bael, wood apple and aonla were found to be a rich sources of calcium (Shiva et al., 2017;). Some fruits such *Nakkarapandu*, *Kasi pandu* and *Morri pandu* are rich in Vitamin A.

The wild fruit contribution to the food system helps to create a respect for the surrounding environment of the village and nurtures an appreciation for nature in the younger generation.

## Nutritional challenges-Telangana State :

Amarendher reddy, 2010 reported that there existed regional disparities in food habits and nutritional intake in Telangana, coastal, and Rayalaseema of the erstwhile state of Andhra Pradesh, and Consumption of most food items was less than the requirement in the Telangana region. About 30 to 45 percent of the

population was undernourished. Incidence of nutritional deficiency is more prevalent among the landless, scheduled caste, scheduled tribes, and poor and there was no link between production and consumption of different food items at the regional level. It is mostly determined by food habits and income levels.

CNNS report 2016, points out to high malnutrition and micronutrient deficiencies in under-five children and adolescents. It was reported that children 0-5 years had Stunting 29% and wasting 18%. Prevalence of anaemia was between 37-32%, 63 % had folate deficiency, 19% Vit A, 28% Zinc and 29% had B12 deficiency in children and adolescence.

## CONCLUSIONS

It's pertinent that the Telangana region has a robust food system of hundreds of species of herbs, plants, grains, and roots, which were an essential part of life's nourishing the population with necessary vital nutrients to promote health and vitality. Wisdom and knowledge about these natural resources were passed on from generation to generation as part of life and utilized with such sanguinity that they are ever able to survive famines and health challenges. The food culture of Telangana is highly based on local natural resources of native sturdy grains available in all seasons. Use of corn, jowar, Bajra in umpteen ways and as base staple can form the way for preventing lifestyle disorders and micronutrient deficiencies. Tapping the uncultivated indigenous treasure of green leafy vegetables will go a long way in supplying micronutrients such as Vit A, Vit C, Iron, Calcium, and fibre not only to the vulnerable groups, but everyone. Preparations such as *Ghatka*, *Sangati* with corn and Jowar, *Buvva* from minor millets, *Gudalu* -whole grain preparation with corn, jowar grains in combination with whole grain legumes such as country beans, lobia, hyacinth beans, *Kudumulu cereal*, *millet* flour and whole legume steamed preparation are wholesome preparation providing complex carbohydrates, complete protein, micronutrients in a single meal. Preparations of non-vegetarian items in combination with green leafy vegetables such as *puntikura*, mutton lead to enhanced nutrient supply in a meal. Traditional savouries such as *Appalu*, *chekalu* made with rice and legume, sesame combinations can be explored as healthy snack options for children. *Palapadyam* made with soaked rice flour and milk can be an incredibly good option to be utilised in complementary feeding. Use of "podi" made with flax seeds, sesame, or groundnut spices can help in adding dietary diversity. Sweets made with roasted dhals in combination with jaggery and ghee can be encouraged as supplementary nutrition and healthy sweet snack options for children's and all as they contribute limited calories with the right nutrients and sweetness.

While newer and innovative food processing and preservation techniques are emerging, it is necessary to first use the conventional and readily available techniques for traditional foods. There are a lot of lacunae and gaps in the scientific knowledge on traditional foods. The information available is scattered and region-specific. The political leadership as well as social conditioning coupled with robust regulations to ensure safe and nutritious foods is creating a path for the processing and marketing within and beyond the boundaries of the Indian sub-continent. The role of marketing and positioning of many Indian foods in terms of qualities that are sought by the global community such as 'gluten-free', 'low-fat', 'fibre-rich', or 'low GI' need serious attention and focus from the stakeholders. The Indian food industry needs to take up the challenges of manufacturing traditional foods on a large scale which will require scientific inputs in various domains such as machinery design, process development, raw material selection, end

product packaging, and preservation for shelf life extension. Makka garelu (corn doughnuts, Sakinalu (rice- sesame snack and Appalu -rice, legume fried crisps all have great potential for scaling up and commercialization. Corn, jowar grits based gatkha, and gudalu (whole boiled corn jowar and legume snack), Kudumulu (steamed millet flour and legume snack) are all great potential to be used as Low GI meal options and popularisation across the country.

### Suggestions for EAT RIGHT MOVEMENT

Item	Category	Health value
Ghatka (corn, jowar)	staples	LGI, High fibre
Mixed curries	Green leafy and nonveg or vegetable and whole grain	Suitable for diabetes, obesity
Gudalu	One-pot meal, snack	Whole grain (whole corn, Jowar, beans )LGI high fibre
Kudumulu	Snack, meal	Steamed, complete meal. Local legumes, millet flour, vegetables
Palapadyam	Complimentary foods	Milk and rice, in porridge consistency
Appalu,	snack	(Rice, dhal, nuts, green leafs spices)- whole some RTE
Sakinalu	snack	Rice sesame Nutritious RTE snack
Makka Garelu (Doughnut)	Breakfast, snack	Wholegrain, carotenoids rich doughnuts RTE for children

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# FOOD CULTURE OF ANDHRA PRADESH AND ITS IMPLICATIONS ON HEALTH PROFILE OF THE POPULATION

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## ABSTRACT

Andhra Pradesh's food culture has evolved over thousands of years, carrying along with influences by different religions, dynasties, and traders. A total of 156 species that were documented as wild plants were used for food purposes. It has been noticed that the traditional knowledge on wild food plants is on a sharp decline. Unless efforts are made to document, publicize, and disseminate the future generations about their importance, this knowledge will be lost in near future. Traditional Rayala Seema and Uttrandhra foods were mainly millet-based seasonal foods with groundnuts which have now been replaced by rice-based items. This chapter attempts to document the original food habits of the region and their sustenance, in the process of urbanization and modernization.

## INTRODUCTION

Andhra Pradesh a south Indian state is positioned in the coastal area towards the southeastern part of the country and historically is known as the "Rice Bowl of India" has **three prominent regions** as per geographical aspects, and these are Coasta or Coastal Andhra, Rayalaseema and Uttara Andhra have three capital cities namely:- Vishakapatnam as executive capital, Amravati as Legislative capital and Kurnool as the Judicial capital.

Andhra Pradesh was a major Buddhist pilgrimage site, traces of which are seen in the Amravati, Bavikonda, Bojjanakonda, Nagarjunakonda, Pavullarakonda in the form of ruins, chaityas, and stupas. The Kollur mines have gifted the world many diamonds including the Kohinoor diamond.

Andhra Pradesh finds its place since the Vedic period and is mentioned in the Sanskrit epic *Itareya Brahmana*, as Assaka Mahajanapada (700-300 BCE). The Satavahana dynasty builds the city of Amravati, later the Andhra Ikshvukas ruled along the Krishna river, followed by Pallava dynasty, Kakatiya dynasty, Chola dynasty, and later by the Turks Sultans of Delhi, Vijayanagar empire under Shri Krishnadevaraya, and again the Qutub Shahi dynasty and the Mughal.

The colonial Europeans from France and England slowly gained influence and the Britishers achieved supremacy by defeating Maharaja Vijaya Rama Gajapati Raju of Vizianagaram in 1792. The Nizams of Hyderabad who ruled the Hyderabad State gave up their kingdom post-Independence and the Telugu speaking state Andhra Pradesh was formed.

Excavations carried out in Andhra Pradesh at Yerragondapalam, Renigunta, and Vemula show typical choppers, cleavers, and thin pointed ovals. The abundance of microliths was found all over the south. The pattern of tools was similar to those found elsewhere in the world that marks the evolution of humankind. Around 4000BC significant development took place in South India, in the form of *teri* or dune fishing culture of the seacoasts, which used microliths extensively (Acchaya, 1998). Telugu is the local language and 90% of the state's population are Hindus with 8% Muslims. The state also has a sizable population of people belonging to scheduled tribes.

## FOOD AND AGRICULTURE

Andhra Pradesh has Black, Alluvial, Loamy Clay, Sandy, and Laterite soils with temperature ranges between 20<sup>o</sup> C and 41<sup>o</sup> C and an average rainfall of 500 to 1500 mm. The coastal line of the **Coastal Andhra** region is the second-longest in the country, extending up to 974 km. The prosperity of Coastal Andhra can be attributed to its rich agricultural land which includes delta regions of the rivers Godavari, Krishna, and Penna.

Over 70% of the total population depends on farming and it is one of India's main rice-producing states. (Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation Mechanization and Technology division.) The *khari* season crops are paddy, cotton, and groundnut and in *rabi* season the major crops are paddy and sunflower. The other main crops in the state are black gram, sugarcane, and tobacco. Mango, banana, cashew, and coconut are also produced. (Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation Mechanisation and Technology division.)

Andhra Pradesh is a major producer of rice, barley, millet, lentils, bananas, chilies, turmeric, and black pepper.

## FISHING IN ANDHRA PRADESH

The long coastline of 974 km supports a rich fishery constituted by several groups of finfishes, crustaceans, molluscs, and other marine organisms.



The pelagic finfishes comprising clupeids, scombroids, carangids, and ribbonfish contributes to more than fifty percent of the total marine fish landings followed by demersal resources (25.5%), crustaceans (14.5%), and others (3.3%) (Syda Rao et al., 2008). These resources have a great role in states' food and nutrition security.

Of the several pelagic fishes landed, pomfrets, seerfish, and mackerel are commercially important and fetch a good price both in the local as well as other markets outside the state. Others such as tunas esp. yellowfin tuna are the most important local fish. The major revenue grosser for Andhra Pradesh marine fishery were Prawns. however, the catch of pelagic fishes like sardine and mackerel have increased and have great potential from a nutrition point of view.

## **HISTORY OF THE FOOD CULTURE OF ANDHRA PRADESH**

Food culture in Andhra Pradesh is influenced by several rulers and it has a strong influence of South East Asia. Early cultivation evidence was found in Nagarjunakonda (2000 BCE) and charred animal and fish bones (1500 BCE), Cuddapah (1800 BCE), rice in upper Deccan (1600 and 1300 BCE), (Acchaya, 1998). Coconut an integral part of Andhra and South India cuisine was brought to India from New Guinea, while the banana, betel leaf, areca nut, sago palm, and certain yams have reached into south India from Southeast Asia.

Only 16% percent of the state's total population is vegetarian. The three ingredients are essential in Andhra cuisine: Tamarind, red chillies, and *gongura*, the leaf of the roselle plant. Tamarind, considered cooling to the system and digestive aid, and is used in many ways, tamarind flowers, leaves are curried, seeds are ground into flour. Hindu vegetarian cuisine is similar to that eaten in Karnataka and Tamil Nadu with some unique dishes.

Perhaps Andhra Pradesh's is most famous dish is a green mango chutney called *avakkai* which is so hot that it has sent some visitors to the hospital. *Gongura* is added to meat, dal, and vegetable dishes and also made into pickle (Collen Taylor sen, 2004).

## **CHILIES AND TELUGU FOOD HERITAGE**

The food history of Andhra People can be divided into two periods: Period before and after the introduction of chillies into Telugu land. Portuguese Traders are assumed to have introduced the chillies either in the early 16th Century. Telugu cultivators were encouraged and its commerce in the Asian spice trade routes then dominated by Portuguese and Arab traders. In the process, Telugu People have also evolved their recipes using the chillies. Chillies were recognized as superior alternatives to pungent pepper (*miriyam*), long pepper (*pippallu*), ginger (*allamu*), etc. (Poornachandu, 2012)

Andhra cuisine is reputed to be the hottest in India. According to a legend, there was once a severe famine in the area and all that grew were red chillies, which subsequently become a staple of the Andhra diet. More realistically, chillies are protection against stomach infection. The hottest chilli is called *koravikram*, which in Telugu means "the flaming stick" dry chutney is made by pounding these chillies to a fine powder and mixing it with tamarind pulp and salt. It is preserved year-round and eaten with rice and ghee.

## INDIGENOUS FOOD SYSTEMS OF ANDHRA PRADESH

Andhra Pradesh is the homeland of 33 tribes, generally distributed in hilly and interior forest areas. Major primitive tribes include *Chenchu*, *Khond*, *Paroja*, *Kutia Khond*, *Kolam*, etc. *Sugalis* and *Lambadis* are the largest tribe found in Andhra Pradesh and depend on forest resources for their livelihood due to lack of agricultural land and sustain on edible forms of flowers, roots, fruits, tubers, rhizomes, leaves, etc. for food.

Both *podu* (hill) and dry land cultivation are in practice in Andhra Pradesh. The major crops grown are paddy, sorghum, bajra, ragi, and other minor millets. The pulses cultivated are redgram, horsegram, and cowpea. The cash crops include tobacco, turmeric, castor, niger, sesame and groundnut. Their staple food is millet. Some uncommon foods like dukka *chikkudu* [*Mucuna Pruriens*], *rajkeera* seeds (*Amartanthus Paniculatus*), *Judumulu* (*Vigna* sp.) are also grown by them. They grow vegetables, such as gourd vegetables and pumpkin, in their fields and backyards. The collection of forest produce formed a part of the economy with all the tribes.

During the lean period, they survive on wild tubers, *caryota pith*, *mango stone*, *bamboo shoot (tender)*, *mushroom*, (*Agaricus* sp.) which are also stored around the year. Hillstream water forms the major source for drinking.

Tribals of either sex are habituated to smoking and consumption of homemade liquors prepared from *zeelugu* (*caryota* palm) tree and *mohuva* (*bassia longifolia*) flowers. The food and dietary behaviour of the four tribal groups studied were found to be similar.

### Food storage practices

Food grains are stored by Tribals, both for consumption and seed purposes. Earthenware pots of different sizes are commonly used for storage purposes. Sun-drying is the usual practice of storing foods. Tribals store tamarind in three different ways. The common method is storing it as it is without seeds. Other methods include sprinkling saltwater on tamarind pulp and sun-drying or adding salt and turmeric to pulp and sun-drying.

For special occasions, tribals sacrifice cattle and the meat is stored for about a month. The meat is cut into pieces and the pieces are strung on a fibre and tied over the fire-place for drying, or the pieces are inserted between split bamboo and hung inside the house. No salt is added during the process. Pickling, or preservation of vegetables/fruits, is not known to them.

### Food processing practices

Cereal and millets are dehusked and pounded. Bajra and sorghum are dehusked after moistening the grains. Tribals are habituated to parboiling new grains. These are varieties of millets such as *korra* (foxtail millet- *Setaria italica*), *sama* (little millet), *ooda* (eBanyard millet), and paddy (*Oryza sativa*).

Parboiling is done by boiling the grains in just sufficient water for about an hour until the water is completely absorbed by the grains. Later the grains are spread on a flat bamboo woven mat-like structure locally known as *dangari* and dried in shade before sun drying. These parboiled grains are known as *uppulu* and stored for about one to three months. Further, they dehusked in small quantities as and when

required. *This practice is promoted by the Eat Right Movement.*

### **Culinary practices**

Boiling is the common cooking procedure adopted by the tribals and large amounts of water in the ratio of 1:5 are used for cooking millets and consumed in gruel form. Left-over rice preserved in *conjee* is consumed as a morning meal before going for work by all Tribals. Ragi is prepared by fermenting ragi batter for 15 to 18 hours.

A small quantity of *bajra bran* is added to the batter which serves as a starter for initial fermentation. Tribals prefer eating combination product's made of millet and rice. Usually, rice is added to half-cooked millet, and cooking is continued until done. Legumes are cooked as a whole, either alone or in combination with cereals and millets.

This wonderful process of natural production of probiotics from local millets is a forgotten practice and needs promotion in the Eat Right Movement.

### **Meal Pattern**

Tribals eat usually three times a day, however, their diet is generally monotonous with fewer dietary combinations. The usual pattern among a majority of the tribals is found to be stapled with vegetables and staple with or without tamarind *rasam*. Flesh foods are consumed occasionally. Gingelly cake products, purchased from local vendors, are observed to be a regular item in their meals and are consumed in small quantities.

### **Attitude to Food**

They usually consider millets to be better as compared to rice and consume mixed grains. The tribals had deep-rooted beliefs and considered foods as hot (maize, jowar, mangoes), cold (rice beer, mahua alcohol), gas-producing (green leafy vegetables, peanuts), abortive foods (papaya, pumpkin), and causing skin diseases (brinjal, yam, egg) which deterred the tribals from using even the locally available inexpensive foods.

Rice or millet beer is believed to provide health and strength to the body and is said to have a cooling effect on the body if consumed in greater quantities (about eight to ten liters) in the summer.

Though fermented ragi gruel is considered good for health and preferred by the tribals for its sour taste, the product is restricted to those suffering from illness and to lactating women. Among the uncommon foods, *tenkapindi* (made from dried mango stone) and *mucuna pruriens* are considered good for health, whereas *caryota palm* pith is said to cause *vatham* (body pains). Milking the cow is believed to be a sin, but milch cattle are sacrificed for meat.

### **Diet during specific physiological conditions**

Diet of tribals during illness consists of rice and tamarind *rasam* (boiled liquid extract obtained by squeezing tamarind pulp with water and salt).

No food restrictions are followed in pregnancy. However, severe food restrictions are practiced

during the lactation period. Post-delivery the woman is given a paste of asafoetida and jaggery which is believed to be good for health and prevents stomach pain. For lactating women, boiled and cooled water is given. Ingredients such as *karakkai* (myrobalan), *pippallu* (piper longum), black pepper (piper nigrum, mustard seeds (*brassica nigra*), ), *zeera* (*Cuminum cyminum*), and roots like *nallu upperu* (*vitis quadrangularis*) and *chitramulam* (*plumbago zeylanicum*) are added to this detox water known as *pippallu nelu*.

This water is given for drinking for nine days and if *pippallu* water is not tolerated, water boiled with the dried bamboo shoot is given which is believed to cure stomach pain. The residue obtained at the time of preparation of *pippallu* water is made use of in the preparation of *pippallu kayakam*, a paste-like mixture obtained by boiling the residue in combination with jaggery. It is given in small amounts to the woman for the first nine days after delivery.

Post-delivery the woman is given a bath on the third day. Water boiled with some wild leaves, which are believed to eliminate the body odour and relieve body pains is used for bathing. From the third day onwards food consisting of steaming hot rice, *redgram dhal rasam* (supernatant liquid obtained after boiling redgram dhal) and *dhania karam* (a powdered mixture of dried coriander seeds, chilli powder, and salt) are given once a day.

From the ninth day onwards, the same diet is given twice a day. They resume a normal diet after one to three months depending on their economic condition. Before switching on to the normal diet, a native medicine is taken which is believed to guard against ill-effect in general.

Special food restrictions are followed for lactating women for a period of two months to one year, even after resuming a normal diet. A traditional *punasa* variety of Ragi is preferred and given after a period of one to two months after delivery. Unfermented ragi gruel is considered good for health over the fermented one. Consumption of bajra is avoided for three months, as it is believed to make the mother's milk indigestible for the infant.

Black coloured horsegram grown in dryland (*sirikandi*) is preferred to the gram grown in the hills (*podukandi*). Small-sized ridge gourd and bottle gourd are preferred to the big-sized ones as the latter are believed to interfere with the digestion of mother's milk. Brinjal and green leafy vegetables are avoided by the mother for about six months for fear that the child may pass green stools. Pumpkin is believed to cause *vatham* (pains).

Tamarind is avoided for about a month as it is believed to delay the cure of the child's sore navel. Raw onion is avoided as it is considered to be cold producing. All roots and tubers, excepting a wild tuber, *arika tega* (*Dioscorea oppositifolia*), are avoided for one year. *Arika tega* is considered to have medicinal value too.

Among the flesh foods, prawns and cock meat are avoided for a year for fear that the child's neck might be deformed likewise. Except hen's meat, the flesh foods, in general, are avoided for five to six months as they are considered harmful for the health of the mother and the infant. *Mahua flowers*, *mucuna pruriens* and *papaya fruit* are considered galactogogues by the tribal women (Rajyalakshmi and Geervani, 1998).

After delivery, the child is put to the breast on the same day and the colostrum is not discarded by the tribal women. Generally, the child is breast fed up to two or three years and then weaned directly to an adult diet.

Tribals prepare non-vegetarian items during festivals. The strenuous efforts needed for searching, digging, processing these wild foods has to lead to the decline of their inclusion although tribals are familiar with abundant wild food variety. The consumption of fruits was found to be very less among all. With regard to fleshy foods and fish, the deficit was comparatively less than the other food groups, since beef and dry fish were frequently purchased from shandy and used.

A cultural stigma prevents them from consuming milk. Milking the cow is considered a sin (Rajyalakshmi and Geervani, 1998).

### USE OF WILD PLANTS AS FOOD IN ANDHRA PRADESH

A total of 156 species are documented as wild plants and were used as food by the tribals of Andhra Pradesh. Reddy et al (2007) have recorded 156 plant species belonging to 69 families which include Amaranthaceae (11 species), Rubiaceae (9 species), Euphorbiaceae (8 species), and Papilionaceae (7 species). Many herbs (56), trees (55), shrubs (27) and climbers (18), fruits (65 species), leaves (54), tubers (11), and flowers (7). Out of total wild plants, 60 species are used as vegetables.

Usually, green leafy vegetables are either collected from forest areas or found as a weed in moist areas of cultivated and open fields. Women are found to play a major role in the collection and preparation of wild leafy vegetables. *Achyranthes aspera*, *Alternanthera sessilis*, *Amaranthus tricolor*, *Amaranthus spinosus*, *Amaranthus viridis*, *Boerhavia diffusa*, *Colocasia esculenta*, *Cardiospermum halicacabum* and *Cayratia trifolia* are used as leafy vegetables.

Some of the plants are also used as curry. Fruits are eaten as raw as well as in ripen form. Fruits of, *Bridellia montana*, *Phyllanthus emblica*, *Securinega leucopyrus*, *Physalis angulata* *Alangium salvifolium* *Mimusops elengi* are eaten raw. Fruits of, *Diospyros chloroxylon*, *Buchnanian lanzan* *Diospyros melanoxylon*, *Ehretia laevis* *Diospyros perigrina*, *Phoenix acualis* and *Ziziphus mauritiana* are eaten after ripening in different seasons. Fruits of *Capparis zeylanica* and *Solanum xanthocarpum* are used in curry.

- Flowers of *Abutilon indicum* *Cassia auriculata*, *Oroxylum indicum*, *Cassia fistula* and *Pavetta indica* are used as vegetables.
- Tubers of certain species are cooked and eaten as curries.
- There has been a practice of soaking and washing Rhizomes and tubers in turmeric powder (*Curcuma longa*) and water for removing bitterness and harmful contents.
- Tubers are also used to substitute for staples at the time of scarcity and droughts. The roots of *Butea monosperma* is crushed and used as flour.
- Tender root of *Decalepis hamiltonii* is cut into pieces and used to make pickles. Tubers of *Dioscorea bulbifera*, *Dioscorea oppositi- folia*, *Dioscorea pentaphylla*, *Dioscorea tomentosa* and *Tacca lentopetaloides* are having good nutritional value. Fruits of *Madhuca indica* are edible. (Reddy et

al., 2007)

## EATING HABITS OF TELUGU PEOPLE

- The **first course** consists of rice and two vegetables, one fried and gravy, perhaps thick tamarind and jaggery sauce. The famous carry includes curry made with Brinjal with various stuffings with coconut, peanuts and sesame seeds and cooked in a tamarind sauce too.
- The **second course** features thick dhal, and a watery vegetable called *pulusu*. The meal always ends with yogurt mixed with rice. Many pickles accompany the meal. Andhra cuisine is famous for its chutneys made from vegetables, curry leaves garlic, raw curry leaves and mustard seeds. A singular Andhra Pradesh seasoning comprises of various powders made with ground lentils, chilies, coconut and different spices that are sprinkled on idlies, dosa's or rice.
- People do have a light meal often referred to as “**Tiffin**” at 5pm semolina porridge (*Uppuma*), and fried lentil vada or dosa made with whole moong (*pesarattu*).
- **Dinner** eaten around 8.00pm is a smaller version of lunch consisting Rice, a vegetable, rasam, yoghurt. A formal Hindu Non vegetarian meal could include a meat biryani called as puluv, Tamarind rice, or vegetable chicken curry or meat curry, a dal, two-three vegetable dishes and rasam.

## COMMON RECIPES IN COASTA OR COASTAL ANDHRA

(Chandoor, 1974, Kantamani,1980, Rani,1999)

**Breakfast:** *Idli* , *Dosa*, *Upma*, *Pesarattu* ( whole mung dhal chila, with ginger jaggery chutney *Dibbaroti*, (Thick pan cake ), *Aviri Kudumu* (Steamed Urad dhal cake), *Minapaattu* (Thin dosa made with urad dhal flour), *ponganelu* (Pan fried dumplings), *Kobbari rotte*, *Koya rotte* (Thick Rice ,fresh coconut, cakes), *Punugulu* (Mung dhal fried dumplings), *Uppudupindi* (Rice grits Upma), *Kudumulu* (Steamed rice grits, bengal gram butter dumplings), *Siriyali* (sauteed Moong dhal dumplings), *Arati puvu vada* (Banana flower vada with bengal gram dhal and urad dhal), *Alachanda wada* (cow pea wada). Vegetable dosas made with bottle gourd, ridge gourd, tomato, chow chow, Yam with ground urad dhal are extremely popular and they believe these relive acidity.

**Common Staples** are rice, *ragi sankati or Mudd* , *Puluv* with vegetables, coconut milk or country chicken prawns, *Pulihora* (Spicy Tamarind rice, *Dhadhojanam* (tempered curd rice).

**Dhals** used in Andhra cuisine are red gram, moong or chana dhal as plain *mudda pappu* or in combination with vegetables such as tomato, ridge gourd, bottle gourd, cluster beans, green leafy vegetable. Urad is used for preparation of *Idli*, *dosa*, *wada*, *perugu avada* (*dahi vada* ). Horse gram porridge “*Ulava charu*” soup” is world-famous.

**Vegetables:** All seasonal vegetables are used in the form of *mudda kura* (thick curry), *iguru*, *vepudufry* or *Pulusu* with tamarind gravy. Milk is used for the preparation of vegetables in costa and Andhra region with ridge gourd, bottle gourd, brinjal, country beans, drumstick, amaranth etc. *Guti vankaya* with drumstick and cashew is famous dish.

**Pachadi** made with fresh vegetable and spices with fresh coconut, groundnuts is a important for

every major meal. *Rotti pachadi's* are made with all types of vegetables and green leafy vegetables. Bottle gourd, ridge gourd peel chutneys are very popular too. *Perugu pacchadi* (chutneys) are made with yogurt and vegetable such as snakegourd, brinjal, ladies finger etc. Many local green leafy vegetables are used in curry, chutney-*pachadi* and dhals. Chicken, meat, and fresh and dry prawns are made with *ambadi*, tamarind leaves.

**Tubers:** Potato, sweet potato, beetroot, yam, carrot, colocasia are used in curry (*pulusu*) form. *Kanda bachali* (a combination of yam with green sorrel is a very famous preparation). *Kanda Dosa* is a delicacy.

**Banana :** Raw banana curry chutney fry is a popular dish , Banana pith, flower are used to make curry and chutneys.. Always food is served in banana leaves only

**Milk:** Milk is used regularly. Andhra meal is incomplete without curd and butter milk in summers. Homemade butter is used in curries and ghee and pickle or *pachadi* or *podu* with meals is common.

**Nonvegetarian foods:** Chicken, goat, sheep meat, fish, prawns crabs are common. *Gongura mutton*, dry fish, dry prawns and fish and prawn pickles are popular. Common fishes used are used in multiple forms such as fry, Curry or *Pulsulu* form. Dry and fresh prawns are cooked with defatted sesame cake, yam, raw banana and greens. Prawns fried, cooked with vegetables/green leafy vegetables used in *pulav* and *Biryani*. Dry prawns are cooked frequently with green leafy vegetables. Crabs are used in *pulusu* and with vegetables and mud crabs and crab eggs are also used as a special dish and believed to boost immunity. *Vanjaram*, *Gulivindalu*, *Sora cheap*, *Kanaganthallu*, *Sanduva*, *Savidalu*, *Kattachepalu*, *Bocchalu*, *Goraka* fish are common fish used in Andhra cuisine.

**Other items:** The cooking oils commonly used is the groundnut oil or sesame. Fresh coconut is used in fresh or dry forms in chutney for breakfasts to mixed vegetable chutneys and Coconut milk-based *rice puluv* is a delicacy. Jackfruit curry (*panasa puttu kura*), *biryani*, jackfruit ice-cream are also local delicacies. Palm fruit is also relished in season. Common sweeteners are sugar cane, jaggery and palm jaggery while tamarind, lemon, raw mango, *dabba kayi*, *gongura "ambadi"* are used for souring agents. Common pickles are *avakai*, *gongura pachadi*, *Korvi ikaram* and from local produce such as amla, *dabba pandu*, yellow cucumber, bitter gourd, drumstick, and wood apple. A special *Biryani* is made with pies of mango pickle "*Avakai biryani*".

**Podi or karam spicy powders:** Made with various dhals especially with Red gram *Kandi podi* or roasted bengal gram (gun powder ) red chilli garlic Tamarind spices are used as appetiser with hot rice and ghee in the beginning of the meal. Bitter gourd anion *karam* is very famous. So also curry leaves, Coriander, methi *karam*, ground nut, coconut, sesame, Pumpkin, chillie seeds, yellow cucumber seeds, neem, tamarind leaves, moringa leaves and lemon leave powders are also made.

**Charu rasam:** Thin sour liquids is a must in every meal. Tomato, red gram with special rasam spice mix is used to prepare rasam. Its also prepared using Ginger and pepper. Thin buttermilk based *pulusu* is also used occasionally flavoured with fenugreek or mustard powder.

Other meal accompaniments are *Vadiyalu* (sago, rice based in combination with ash gourd, cabbage) and *uraddhal vadiyam*, *ura mirapakayalu* (fermented chilli spiced with mustard, ajwain and chillies).

*Appadalu* (pappad made of moong, urad, nalleru, cabbage, ash gourd etc. and *varugulu* (Dehydrated vegetables such as Cluster beans, Brinjal, Yellow cucumber, Bitter gourd, Ladies finger, coccinea, Dehydrated tender tamarind leaves, coriander leaves, Fenugreek leaves, cabbage).

### SAVORIES OF ANDHRA

*Chekkalu* (flat crisps with rice flour and spices), *murukku* (rice, urad dhal fried snack), *jilledukayalu*, *chegodilu* (fried murukku) and spicy hot snacks such as *mirchi bhajji*, *banana bhajji*, *betel leave bhajji*, *Bachali akku bajji*, *Vamu aku* (ajwain leaf), onion pakodi, urad dhal *garelu*, amaranth leave (*thota kura garelu*) etc are common.

### SWEETS OF ANDHRA

Common sweets are *pala payasam* (milk kheer), *bobbatlu* (pan fried stuffed (bengal gram and jaggery) paratha, *bhurelu* (fried sweet stuffed dumplings made with idli batter), *pala munjalu* (fried rice flour based sweet), *pakam garelu* (Urad dhal wada coated with thick jaggery syrup) and *junnu* (steamed cake made with buffalo, cow milk, colostrum pepper, jaggery).

Sweets with a longer shelf life are *athreyapuram putta rekhulu* (rice paper with jaggery ghee nut filling is an incredibly famous traditional preparation. *Kakinada Tapeshwaram "khaja"* (fried wheat with sugar syrup), *bandaru laddu* (crushed boondi laddu ), *kona seema Nagaram Garajee* ( maida, sugar-based fried strings), *jidi pappu pakam* (kaju-Jaggery chikki), *madhugula halwa* (wheat halwa), *Nellore malai khaja*, *Gurumeeti*, *Minapa sunniundalu*, *Gavvalu*, *Arisalu* , *Pala kova* and *mango tandra* (*aam paapad*).

### ETHNOGRAPHY OF THE RAYALASEEMA REGION OF ANDHRA PRADESH

In this region of Andhra Pradesh, vegetation on most of these hills is either deciduous forest or tropical thorn forest and some other areas are devoid of vegetation. There are no perennial rivers and most of the rivers in this region remain dry in several calendar months. Some of the rivers flowing in this region are Papaghni, Pincha, Penna, Koundinya, Palar, Ponnei, Arani, Bahuda, Kalyani, Swarnamukhi and Thungabhadra. The climate is semi-arid and salubrious with many sunny days during the year and the area has wide spread drought and famine for several decades due to total dependency on rains for agriculture.

The cultivable lands of this region were classified into three categories wet, garden and dry lands. The scanty rainfall and poor quality cultivable land influenced the agriculture and crops grown. Most of the lands were occupied by dry or rainfed crops. The dry crops such as *Cholam* (Ragi) and *Korra* (Fox tail) are still staples of many rural folks. Horse gram, Castor, and Cotton are other dry crops. The high income yielding crops like rice, mangoes, plantains, coconuts, spices and condiments are grown in limited areas.

### INDEGENOUS FOOD SYSTEMS-RAYALASEEMA

The Rayalaseema region consists of about 9.6 million of population wherein 18 scheduled tribes and indigenous people including Yanadi (fisher-hunter-gathers), Chenchu, Yerukula and Boya who are predominantly hunter-gatherers and seasonal fishers, and the other tribes such as Konda Reddi, Koya,



Khond, Bhagata, Valmiki who are cultivars, hunters and all have expert knowledge of the habitats and habits of the fauna and of the uses of wild plants.

The dietary behaviour of Paleolithic and Mesolithic ages was cited by Raju (2003) and to overcome food scarcity, people of Rayalaseema in the beginning of summer harvest millets (which give yields even with limited water supply) to overcome hunger.

Most consumed millets in Rayalaseema from pre-historic period are *Foxtail millet* (Telugu name-*Korralu*, scientific name – *Setaria italica*), *Finger millet* (Telugu name-*Raghulu*, Scientific name- *Eleusine coracana*), *Sorghum/Jowar* (Telugu name-*Jonnalu*, Scientific name-*Sorghum bicolor*), *Pearl millet/Bajra* (Telugu name-*Sajjalu*, scientific name-*Pennisetum glaucum*), *Little millet* (telugu name-*Samulu*, Scientific name-*Panicum sumatrense*), *Kodo millet* (Telugu name-*Arikelu*, Scientific name-*Paspalum scrobiculatum*) are the common habitat of this region.

Ethnographic studies of this region envisage the most commonly cooked recipes which were spelled locally as *Ragi sangati*-a recipe made like cooking the broken or powdered millet in lots of water to a stage of gelatinization of starch. This recipe is also made with *Jonna*, *Bajra*, *Korralu* and *Samulu*. In some parts, *Korralu* and *Samulu* were cooked like rice and eaten with curries. The other forms of eating millets is in the form of a *Roti/Chappathi*- the flour is mixed with water and made into dough. After some time, it was rolled or pressed with hand into round shape and roasted on hot surfaces like tawa. All the main millets like *Raghulu* (Ragi), *Sajjalu* (Bajra), *Jonnalu* (Jowar) were eaten in this form.

Porridges were also prepared with all the millets which were called as *Java/Kanji* which were consumed all through the day. Hot porridges were taken in winter regularly and during summer they were prepared and fermented overnight and taken in the morning. This type of food was thought to cool the body and provide slow and continuous energy during hot summer working days. Consuming *Kooti neellu* (Raagi ball soaked in water for overnight), which is a common practice in several parts of Rayalaseema region especially in Chittoor District.

Rural people believe that consuming *kooti neelu* -a fermented product in the morning provides B complex vitamins and a lot of gut bacteria which keeps the stomach and body healthy and also helps the body to withstand the severe hot summers of Rayalaseema region.

Tribals consume and carry this dish along with them especially in a pot tightened with cloth as midday meals emphasizing that it provides instant energy during the day while they do hard laborious work. Buttermilk consumption is very high in rural Rayalaseema region. A traditional Telugu meal is not completed unless served with curd/buttermilk. Local people believe (EMIC VIEWS) that buttermilk contains some elements (Science labels probiotics as good gut bacteria, ETIC VIEWS) to keep a healthy digestive system.

Further, traditionally consumption of fish is seasonal and is common during the rainy season. People collect fish from flowing waters during the rainy season, with a belief that fish (*pakkilu*, *ulsalu*, *koradalu*) mainly survive by consuming *pachi* (*Spirulina*) from perennial waters, and consumption of the fish loads the body with antioxidants. All these cited cultural foods have enormous health benefits, but consumption depends on their availability in a particular season hence are eaten as seasonal foods.

Feeding young children especially in winter with fresh goat milk is a cultural practice witnessed in Rayalaseema region.

Native people claim that goat milk contains rich nutrients and enhances immunity. Feeding goat milk particularly in the winter season preserves immunity to overcome seasonal infections. A boiled semi-solid paste made of Pearl millet is consumed several times a day during rainy and winter seasons and as medication for fevers. Feeding unhealthy cattle with boiled pearl millet is a common practice in rural pockets of Rayalaseema region as a medication. It can be noticed that millets and goat milk consumption among tribals and poor people is to overcome hunger while in other groups, their consumption is for attaining good health.

Beyond this rural people of Rayalaseema people prefer to consume fresh foods rather than preserved foods. The traditional myth among the rural people is that fresh foods have health benefits while nutritional properties will be lost upon preservation. Consumption of seasonal fruits is plenty in the Rayalaseema region like Banana, Papaya, Guava, Custard apple, Jambulina, etc.

## FOOD FOR FESTIVALS

Women offer *Nivedyam* (food offered during prayers and rituals) to the god. The most common recipes prepared for all the festivals are Pulihora- rice made with tamarind juice,” *Bellam annam*” – Made with rice, green gram and jaggery -cooked together until soft and finally ghee is added, “*Vaddalu*”- Fried Bengal gram/ Black gram dumplings made by soaked ground dhals mixed with Fresh onion green chillies and lots of curry and coriander leaves and finally fried in oil in small round shapes. “*Sundalu*” is also offered on weekdays and also on festivals.

Special delicacies like “*Bobbathu*” made on “Ugadi” ( Telugu new year)– Sweet preparation similar to stuffed paratha with Bengal gram dhal and Jaggery stuffing roasted with fresh ghee. “*Kudumulu*” is prepared in different varieties with rice flour and stuffing of coconut and jaggery or black sesame and jaggery and steamed. During Dussera all nine days nine different varieties of rice preparations are offered. *Arisalu*-particularly made during Deepavali, *Arisalu* is made of rice flour and jaggery.

On the fifth day of Deepavali, the festival called Nagula chavithi (festival of snakes) is celebrated day particularly black Sesame seeds and Jaggery, germinated Bajra are offered to the Gods. Simultaneous consumption of meat foods is high during major festivities and rituals called Jatara(local festival in which Shakti in the form of “Gangaamma” is worshiped.). The animals like sheep, goat, cattle, and poultry, which survived in the natural environments, will be sacrificed and consumed.

Mostly nonvegetarian is eaten on these days along with *Ragi sangati* (Rice ragi flour cooked with rice). Chicken and mutton are compulsory on Bhogi (day before Sankranti- Festival of new harvest) and Naraka Chaturdasi (a day before Deepavali). Apart from these, seasonal fruits are compulsory on everyday offerings to the god. The cultural food patterns when analyzed reveals certain interesting conclusions: Jaggery was used in most of the sweet preparations visioned that it purifies the blood and increases the metabolic rate. Millets are given importance on special days, carbohydrate and protein along with oil seeds proportionately used.

Local indigenous lentils like cowpea, chickpea, beans, seasonal vegetables like Brinjal (Vankaya),

Raddish (Mullangi), Drumstick (Munakkaya), Broad Beans (chikudu kaya), Plantain (Arati kayalu), Ridge gourd (beera kayalu), Kovai (*Coccinia grandis* donda kaya) and green leafy vegetables like SIRRaku, thotakura, avisaaku, munagaku, molakaaku, paalaku, ponaganti aaku., green leafy vegetables are used very commonly which have varied medicinal properties. Spices like pepper, cinnamon, elachi, cloves, asafoetida, coriander seeds, fenugreek seeds, red chillies, mint are commonly used in all the recipes. Water with elachi, cinnamon and tulsi is the sacred water offered in temples which has antimicrobial and immune boosting properties. Few traditional recipes and cultural practices are enlisted which enlighten our thought process of present generation food culture.

### FOOD CULTURE OF NORTH COASTAL ANDHRA PRADESH REGION

In the black loamy soil of Uttar Andhra (North Andhra) valuable food crops such as paddy, sugarcane, ragi, bajra, and other cereals are cultivated. In the black clay, jowar and redgram are grown. In the mud loam, gingelly, ragi, bajra, jowar, horsegram and green gram are grown extensively, and paddy and sugarcane to some extent. Pulses, groundnut, sweet potatoes, and chillies are grown in sandy soils.

This region is home to many co-operative sugar factories, jute mills, cashew processing industries. Due to the vast coastal area, seafood is a good source of the diets of the locals both in the fresh and dry form contributing to food security, nutrition, and health.

Due to the scarcity of rice in this region, all types of millets were the staples that also determined the socio-economic status of the household. The joint family system was existent in the olden days, the families were large with a fertility rate of about 8-9 per woman and not less than ten members per family. Foods were purchased by barter with broken rice or millets. Kitchen gardens supplied green leafy vegetables, curry leaves, and green chillies. Preservation of *vorugulu* (dried vegetables), dry fish, *vadiyaalu*, *appadalu* (papads), pickles were practiced as per the family need. Fruits were all seasonal and freely gathered from the trees grown in the surroundings. Meat, poultry and milk and milk products were precious commodities. Poultry was common in every household. Goat's milk was used in some parts of the region.

The cuisine of this area still has its distinctive flavours and unique taste, while it shares many similarities with the Andhra region cuisine. Each region (Visakhapatnam, Vizianagaram, and Srikakulam) have a different taste wherein the latter food is sweet as compared to the rest of Andhra.

While most of the cuisine is very spicy, they often cook lentils in jaggery (*bellam pappu*) enjoyed with butter and steamed rice. They cook vegetables in gravies of *Menthipettina Kura* (fenugreek seed paste), *avapettina Kura* (mustard seed paste), *Nuvvugunda Kura* (sesame seed paste), etc. *Ullikaram* is another popular dish where vegetables or corn seeds are flavored in shallots or onion paste.

*Patoli* is a favorite breakfast time or festive time dish in Srikakulam. *Patoli* has soaked up split black chickpeas (*Senagapappu* or Chana Dal) ground to a coarse paste and seasoned in coriander seeds, onions and at times with cluster beans (*Goruchikkudukayi*). *Inguva charu* is a stew popular among adults and kids, is a sour and sweet stew made with Tamarind and Asafoetida (*Inguva*) It can be had with rice or *uppupindi*. *Bellam pulusu* is another highly flavored thick sweet stew made out of rice flour, Jaggery. "*Madugula Halwa*" is a very unique and famous variety of Halwa from the Visakha region.

## Cooking practices

Firewood was used for cooking. The daily food consumption was based on minimal cooking which involved sautéing, boiling or steaming, stewing, dry air in mud ovens and shallow frying. The snacks for regular usage and festive occasions, were prepared in large quantities by groups of women of related households. The daily menu included solids like rice, porridge, roti, and curries.

Brinjal was the most common vegetable used for making curries. The curries were made with just vegetables or in combination with dals with simple seasoning in little oil. The liquid form of curry is called *pulusu*, soup like recipe which is thick and sour. *Vadiyaalu* (traditional wafers), *Podulu* (Powders) and *pachhadi* (chutneys) were used along with curries or even their substitutes.

Special foods of the Uttarandhra region:

- Nalleru (Veldt grape- *Cissus quadrangularis*)- is a special plant used to make pulusu. It's no longer used.
- Panasa pottu - chopped, jackfruit raw- used for curry.
- Jack fruit seeds- used as an addition in meat, prawn, brinjal curries.
- Amla widely used as pickles mostly and in curries.
- Wood apple
- Kale kayalu or Vakkaya or Karonda (small red wild berries)- *Carissa Carandas* rich in Vitamin C and has medicinal benefits.
- Vorugulu (mango) is dried mango preserved for off season. Used in curries.
- Horse gram is widely used to make pulusu.
- Bobbarlu (Cow pea) also has importance during festivals. It is used to make snacks, curry and rotis. Pournam boorelu or bobbari borelu is famous

## SPECIAL RECIPES OF UTTRANDHRA REGION

**Sangati:** It is a savoury dish prepared with millets and broken rice. The consistency is very sticky and eaten with pulusu as side dish. It is very heavy and eaten for lunch.

**Ambali:** It is a porridge form of sangati, by adding buttermilk or ganji (the water drained from the cooked rice). This is commonly consumed in the mornings. Buttermilk and tarvani are the source of nutrients and probiotics. Buttermilk is a source of lactic acid bacilli, the tarvani is rich in yeast.

**Topa:** This is a sweet porridge made with millets and jaggery.

**Pulusu:** is very popular in this region and in fact, all over Andhra Pradesh because it blends well with the starchy rice and millets. It reduces the stickiness of starch, adds sourness to the bland cereals and helps in chewing. Moreover the liquid dishes meet food needs of the whole family, because the families were large (Personal communication). Tamarind is one of the thickening agent for soups; others being taravani and curd. The ingredients used for pulusu are combination of seasonal vegetables such as

brinjal, ladies finger, pumpkin etc., dried vegetables, Pulses such as horsegram, dried or fresh fish, egg and other non-vegetarian foods.

**Taravani:** (Sour or fermented ganji) is an infusion prepared by storing ganji (water drained from cooked rice) in mud pots and allowing it to ferment. It is rich in B-vitamins and other nutrients and acts as a probiotic. It is renewed by adding fresh ganji every day. The pot is periodically replaced with a new pot, usually on an auspicious day during festival times. This custom helps in maintaining the culture of yeast in good condition and to prevent spoilage. The pot is considered sacred by adorning with turmeric and red vermilion on the outside depicting a deity's face and adding sanctity. Some restrictions in handling it were also in place. Taravani has several applications in cooking. It is used to prepare fermented rice, pulusu (Sujatha, 2016), etc.,

**Telaga pindi:** Gingelly oil meal (cake rich in protein) powder pressed and made into small balls and dried to be consumed as side dish in any meal. Some of the recipes with Telaga pindi are documented (Aruna, 2019). Some of the practices are still prevalent among the natives of the area and enjoyed by the younger generations too.

**Vadiyaalu:** (traditional wafers) are very popular, all through Andhra Pradesh and even to this day, they are a delicacy. They are made in large quantities during summers. The process is very laborious and is a common activity in all households. The wafers are made with rice, pulses, green chillies, pumpkin, mango, regu fruit, etc. Regi vadiyaalu is unique to this region. Most of these foods are seasonal and hence preserving them, helped in their consumption throughout the year. They are very nutritious, supplying part of the day's requirement of nutrients.

**Powders:** were made with different pulses and spices and are delicious.

**Roti Pachhadi (Chutneys):** It is prepared with raw vegetables or pulses, either raw or slightly roasted, pound or ground in the stone and seasoned. The vegetables used are wood apple, brinjal, cucumber, ridge gourd, Indian spinach and yam (kanda bachhali), mango ginger etc. They are very nutritious and healthy. They are similar to the salads of North Indian and western cuisines, in nutritive value.

**Dappalam:** It is a delicacy. It is a Pulusu with lots of vegetables cooked in tamarind syrup and jaggery.

**Charu:** is another popular recipe. It goes well with rice. It is less nutritious, but very relishing, because of the tangy flavor. It is a diluted soup made with either plain tamarind, tarvani, buttermilk, little dal etc. with ground spices and seasoning. It is common practice to eat crunchy vadiyaalu with this dish.

**Aviri kudum:** It is a steamed recipe with millets.

**Aardhi:** It is a festive sweet recipe made with rice flour.

**Boorelu:** Deep fried round balls made with Green gram, Bengal gram etc.

**Teepi avakaya** (Sweet mango pickle): The pickle avakaya is famous in Andhra Pradesh. However in this region, it is made with jaggery and is unique.

## SWEETMEATS

**Gulabi puvvulu** (Gulabi - rose, puvvulu - flower): Very unique sweet snack made with maida, rice flour

and sugar mixture. Egg is optional. A mould is used. It is dipped in the mixture and let into oil. The product takes the shape of the mould which is in the shape of rose, hence the name.

**Madugula Halwa:** is the popular sweet unique to the region, which is more than a decade old and prepared with wheat. This is the only wheat recipe known to be used from the olden days (Gayatri, VKL,2017).

**Rice based:** Ariselu (deep fried flat shaped sweet made with a fudge prepared from rice flour and thick jaggery syrup), sunnipaka undalu (deep fried round shaped sweet made with a fudge prepared from rice flour and thin jaggery syrup), ravva laddu.

**TABLE 1 : SAMPLE DAILY MENU UTTARANDHRA REGION**

Meals	Menu
<b>Morning</b>	Chaldi Annam, Ragi ambali / thopa (Sai Leela,1992, Ray et al,2016)
<b>Lunch</b>	Millet cooked, curry, pickles, pachhadi, wafers, powders, buttermilk.
<b>Evening Snacks</b>	Bobbarlu with Jaggery, sesame with jaggery, boiled groundnuts , Buragunja and Taegalu ( Palmyra products), Sweet Potatoes mixed with raw bajra, boiled sweet potatoes.
<b>Dinner</b>	Rice, Taravani charu, roti or meal

## CURRENT DIETARY TRENDS

The population growth over the decades and the developmental changes such as education, infrastructure, economy boost, cash availability, transport, green revolution, white revolution, etc., have all influenced the food culture of the region (Rakesh,2015). The millet consumption has fallen in the intervening developmental period but is regaining the same charm due to the rise in lifestyle diseases (Deccan Chronicle, 2018). The spicy foods of Andhra (Telugu cuisine, Wikipedia), several bloggers of traditional recipes (Aruna,2019) indicate the patronage for the traditional foods. The culture of eating out is a popular habit among all classes of people. North Indian foods like pav bhaji, paani puri, etc., and Chinese dish noodles are relished by many (Sai Leela et al,2008). The common habit seen among low-income groups is the purchase of morning tea, breakfast for children and head of the family, etc. Women and old people still follow the traditional habit of consuming fermented rice, in the morning (Sai Leela, 1992).

## FOOD CONSUMPTION PATTERNS

Reddy (2010) reported the consumption patterns in three different regions of Andhra and reported that consumption of most food items was less than the requirement. The diet was based mainly on cereals and nutritional deficiency is more prevalent among the landless, scheduled caste, scheduled tribes, and poor. Further, In the Coastal region, disparities between landless and large landholders in

nutrition status are much higher than Rayalaseema regions, which may be due to the large proportion of agricultural labour in the Coastal region.

The study identified that there is no link between the production and consumption of different food items at the regional level. It is mostly determined by food habits and income levels.

The comprehensive nutrition survey report of Andhra Pradesh (CNSS, 2019) reveals that stunting (33%), wasting (17%) and underweight (33%) were prevalent in under-five year children along with anemia and other micronutrient deficiencies. For Andhra Pradesh, the self-reported morbidity increased significantly between three rounds of the National Sample Survey (1995, 2004, and 2014): (i) for cardiovascular diseases (CVDs), self-reporting went up from 2 to 38 cases per 1000 population; and (ii) for all non-communicable disease (NCDs) combined, self-reporting went up from 9 to 40 cases per 1000 population (Sreelatha & Vijaya 2018).

## CONCLUSIONS

The state of Andhra Pradesh is bestowed with abundant vegetation, optimal climate, and natural resources, leading to the production of food grains, fruits, nuts, and umpteen sources of traditional uncultivated food sources. Abundant knowledge and ancient skills exist in the form of local traditional season-specific cuisine.

In the recent past, a significant change is observed in the food chart including preparation and preservation. In the era of modernization and urbanization, lack of time especially from women's side (housewife turned to earner) fresh foods replaced with preserved foods otherwise known as calorie-rich foods in the presence of reduced energy expenditure, claimed to be the significant causative factor for the increased prevalence of non-communicable diseases.

The present chapter narrates the information gathered from the Septuagenarians of the region, who could recount the data from their childhood memories. The regional cuisine has abundant promising recipes with varied cooking methods and a combination of food groups helpful for **Eat right movement**. These cooking methods have to be preserved and promoted to nutritional security of not only Andhra region but in the entire country.

## TRADITIONAL RECIPES OF THE REGION FOR THE EAT RIGHT MOVEMENT

Food name	Effect
Aviri Kudumu (Urad dhal steamed cake)	High protein high fibre steamed product- Fantastic option for Breakfast or main meals
Pessarattu moong dhal dosa	High protein high fibre meal option ...
Siriyali (Moong dhal dumplings)	Steamed high protein high fibre recipe, to be popularised for diabetics, pregnant women
Putta rekhulu	Low calorie sweet with rice paper and dry fruit jaggery stuffing
Berakaya pallu	Ridgegourd with milk (milk based vegetable curries)

Bottle gourd peel chutney	High fibre, low carbohydrate option and enhance utility of outer peel
Gongura mutton	Fantastic combination of goodness of greens (Follic acid, Vit A, potassium with High biological value Protein Haeme from meat)
Thotakurra + prawns	Fantastic combination of goodness of greens (Follic acid, Vit A, potassium with High biological value Protein Haeme from meat)
Sesame cake+ drumstick leave curry	Super rich in all vitamins, minerals with Protein fibre lactating mother
Tarvani	Probiotic
Koti Neelu	Fermented liquid of Ragi ball (Probiotic)
Bhenda kayi chutney	Lowfat, high soluble fibre recipe ( Diabetics)
Thati kudumulu (Manga kudumulu)	Carotene rich complex carbohydrate anti-inflammatory
Nalleru	Medicinal value
Sweet potatoes	VitA -Energy Rich in energy for children
Food items with Cow pea	Rich in Protein, fibre, minerals, prevents malnutrition in children
Telaga pindi -defatted sesame made into vadiyalu	Tasty meal accompaniment. Rich in protein fibre-Prevents malnutrition in children
Podi with lentil., greens and spices (tamarind leaf, lemon leaves etc)	Convenient option with green leafs, spices, lentils, oil seeds, to enhance dietary diversity.
Perugu pacchadi	Low oil curd based vegetable preparations ideal for weight and diabetes management.

Food and nutrition science behind the ancient food practices has well followed the dietary principles. Locally grown pulses and lentils and meat foods are the sources of proteins. Sesame seeds and groundnuts are oil seeds good sources of good fat. Seasonal fruits like Amla, Regu, Jamun, green leafy vegetables like Moringa, Amaranthus, Gogu, and other vegetables provide protective nutrients minerals, and vitamins. The spices and herbs provide anti-microbial and immune-boosting effects.

Tribals discovered the process of parboiling as an effective method for improving taste cooking quality, dehusking, and shelf life of the freshly harvested millets and paddy. In fact, parboiling the grains before dehusking helps in the retention of vitamins. We should encourage the habit of consuming combination products made from millets and/or rice/legumes for their complementary nutritional value. Regular consumption of gingelly seed-cake product should be encouraged as it provides the limiting amino acids, lysine, and methionine in a cereal-based diet. The nutritional, macrobiotic profile of home-made liquors has to be studied and quantified. Research has to be focussed on traditional galactagogue's



and foods of medicinal value. The practice of feeding the newborn with colostrum is good and should be popularised universally

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## DIET AND CULTURE OF ASSAM

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### ABSTRACT

Assam is a mix of various cultures and races. A confluence of the Indo-Aryan, Austro-Asiatic, and Tibeto-Burman origin has been there in the state. People of Indo-Tibetan origin like *Bodo*, *Chutia*, *Deuris*, *Dimasha*, *Karbi*, *Koch*, *Mishings*, *Rabhas*, and *Sonowals* settled in this valley for ages before known history. Assamese cuisine is a confluence of cooking habits of the hills that favour fermentation and drying as forms of preservation and those from the plains that provide fresh vegetables and an abundance of fish and meat. There are several indigenous foods of Assam which can be promoted in the Eat Right Movement and discussed in this chapter.

### INTRODUCTION

Assam is known as one of the biodiversity hotspots in North-East of India with a total recorded forest area of 28,748 sq. km. out of which 359 sq. km. come under water bodies and covers 32% of the total geographical area.

*Vedic* and *Tantric* literature, *Buddhist* literature, and Assamese folklore cite that the state of Assam has a rich ancient history. A confluence of the Indo-Aryan, Austro-Asiatic and Tibeto-Burman origin in the state has been there. Epics like ‘The *Mahabharata*’ and other such legends and medieval texts like ‘The *Kalika Purana*’ and ‘*Yogini Tantra*’ have mentioned this area. Assam was called Pragjyotishpur or Kamrupa. ‘Prag’ means former or eastern and ‘*Jyotisha*’ means a star, astrology, or shining. It can also be called a city of East or Eastern Astrology.

By the beginning of the 13th century, the regimes of *Aryan* affiliation ended as soon as the *Shansalso* is known as the *Ahoms*, overrun and conquered Assam and ruled for over 600 years. Assam attained a new height in terms of the cultural, economic, and medical fields during their long rule. Buhagohain and Borgohain were the two ministers of *Tsu-kapha*, *Ahom* Kingdom who have written the history (*Buranji*) of Assam (Nath L, 2017).

Assam is a mix of various cultures and races. People of Indo-Tibetan origin like *Bodo*, *Chutia*,

*Deuris, Dimasha, Karbi, Koch, Mishings, Rabhas, and Sonowals* settled in this valley for ages before known history (Patiri B et al, 2007). The Dravidian group was the earliest settlers represented by *Kaibartas* and *Banikyas* is seen in names of places such as Gauhati, Goalpara, Barpeta, Sarupeta, and Jamuguri. The *Monkmer Australoid* group, *Khasis*, and *Jayantias* were another aboriginal group of early settlers. The *Khasis* still start many words and sentences with *ka*, the place names like Kamakhya, Kamrup, Kachar, Kazironga, Kachaikhaiti, and Kamta are of Australoid origin. Assamese word, *katari* is of *Khasi* origin, consumption of betel nut and leaf, carrying satchel are influences of the *Khasis*.

*Buddhist* influence existed in this state till the 15<sup>th</sup> century as reflected by the great verses of *Charyapadas*, the *Karbi* version of *Ramayana*, *Sabin Alun*, and the *Khamti* version of *Ramayana*. First *Ramayana* in regional language was written in Assamese by Madhav Kandali. From the Gupta period, Hindu influence was seen as by 16<sup>th</sup> century most of the Kings of Assam converted to Hinduism. There was no caste system in Assam in any case. During the early 19<sup>th</sup> century, after plundering the state by Myanmarese, the British occupied Assam in 1826, and tea was discovered in 1831. Many labourers mainly *Adivashi, Oraong, and Oriya* from the mainland, even from Afghanistan and China were brought to Assam in the name of tea plantation and construction of roads and railways.

These migrants and the British introduced many new species and new food habits. People started to consume roots and tubers, like potato, sweet potato, and various pulses, cabbages, etc. (Patiri B et al, 2007).

## ASSAM'S HORTICULTURE

Horticultural crops like fruits, vegetables, potatoes, spices, other tropical tuber crops, mushrooms, cashews, plantation crops, ornamental, medicinal, and aromatic plants, and betel vine are grown in Assam as it has a wide variety of climate and soils.

The horticulture sector of Assam deals with the crops like fruits, vegetables, spices, floriculture, potato, onion, medicinal and aromatic plants, and activities of preserving and processing fruits and vegetables.

Besides it deals with Apiculture, Food processing, Micro-irrigation, and post-harvest management that includes Cold-chain development. The major fruit crops of Assam are banana, pineapple, papaya, Assam lemon, orange, guava, litchi, jackfruit and mango. Major tuber crops grown are potato, sweet potato and tapioca, among Spices- chilli, turmeric, ginger, onion, coriander, garlic, black pepper with different types of *Rabi* and *Kharif* vegetables are grown in Assam.

Various flowers like Marigold, Gerbera, Anthurium, Lilium, Tube rose etc. are also grown. High value crops such as Strawberry, Passion fruit, *Ber* and Apple are gradually becoming popular for cultivation because of higher return. Mushroom production is being considered as a profitable farming activity for the unemployed youth. (<https://dirhorti.assam.gov.in/portlets/horticulture-in-assam>).

## FOOD CULTURE OF ASSAM

Assam is a land of rivers and countless water bodies. There were plenty of fishes and anyone with a

little effort could obtain fishes for the pot. Amongst all sections of people, fishes are favourites which are the main source of protein for them (Baruah D et al, 2014).

People of Assam relish non-spicy food. Rice is consumed with other supplementary food which includes lentils, fish curry, meat curry along with herbs, and vegetables. Different kinds of delicious sweets and snack items are also relished. The tribal people of Assam prepare traditional rice beer by applying their indigenous knowledge.

Assamese cuisine is a confluence of cooking habits of the hills that favour fermentation and drying as forms of preservation and those from the plains that provide fresh vegetables and an abundance of fish and meat. In Assam, a traditional meal begins with a *khar*, a class of dishes named after the main ingredient, and ends with a *tenga*, a sour dish.

Bell metal utensils are usually used to serve food which is believed to be good for health and boosts immunity. The traditional way of cooking and the cuisine of Assam is very similar to other South-East Asian countries like Thailand, Myanmar, etc.

#### **THE PRIMARY CRITERIA OF ASSAMESE FOOD HABITS ARE:-**

1. Less use of oil or use of mustard oil.
2. Use of boiled food.
3. More of roasting or roasting by wrapping with banana leaf, *alpina* leaf, or *maranta* leaf.
4. Few spices are used or restricted to the minimum.
5. Use of small fishes in various curries.
6. Use of fermented foods like fermented rice (*Poita Bhat*), fermented rice with a lot of herbs as country liquor, like (*Horlang, Apong, Laopani*, etc.), fermented bamboo shoots (*Kharisa*), dried or semi-fermented & dried fishes (*Namshing or Napham or Hukati*), fermented mustard seed (*Panitenga*), even fermented vegetables used mostly by Nepalese-the *gundruk* and *narzi* by *Bodos* are worth mentioning and fermented betel nut.
7. Use of various types of wild vegetables. During festivals of *Bohag Bihu*, up to 101 types of wild vegetables are eaten, 7 types of vegetables are considered customary. In Bengal also such traditions like *Soudha Sagi* i.e. eating 14 types of vegetables is common.
8. Extensive use of black gram. Which is a popular pulse, also among the tribals eating pounded rice as curry, or broken rice into curry is popular.
9. Eating lots of acidic food, most of the popular Assamese dishes are acidic (Commonly known as *Tenga*).
10. An important criterion among all is the use of alkaline substances. There is a popular saying '*khar khowa Axomiya*' because of the extensive use of Alkali in foods (*Axomiya* means Assamese). *Khar*

is prepared from *Bhimkol* (*Musa bulbosiana*). It is from the fact that salt was very expensive in Assam, the *Nagas* and *Mishimis* generally brought rock salt from the hills, sometimes intermittent disturbed such supplies. That is why '*lonexone xomaan*' which means salt is as precious as gold. Only influential people could afford to possess salt. The commoners had to be satisfied with homemade crude alkaline substances instead of salt and it still persists as a food habit.

11. Use of bitter ingredients, bitter alternatives like *phlogocenthus*, *chirata* and *momordica* used as bitter substances from time to time. Among the *Bodos*, it is considered that the use of bitter substances reduces the occurrence of fever and is considered as anti-helminthic (Patiri B et al, 2007).

## **THERE ARE VARIOUS CATEGORIES IN THE ASSAMESE TRADITIONAL FOODS**

### **Light foods (*Jalpan*)**

The Assamese people consume various kinds of light food items for breakfast, besides the main meals i.e. lunch and dinner. Usually, these breakfast items are taken along with *gur* (molasses/ jaggery), milk, or curd. These are known as *Jalpan* in Assamese.

Some of the *Jalpan* items are mentioned below:

*Pithaguri, Sandahguri, Komal chaul, Cira, Muri, Akhoi, Hurum and Sunga Chaul*

### **Sweet items (*Laru-pitha*)**

Two significant sweets that have been prevailing in Assamese society since ages among the sweet items are the *pitha* (Assamese traditional cake) and *laru* (balls of confection).

#### **Pitha**

*Pitha* is an integral part of Assamese culture and a mandatory item in *Bihu* festivals. *Ghila pitha, Narikal pitha, Tilar pitha, Tekeli mukhat diya pitha, etc.* are common and popular *pitha* prepared in Assam. Some special and unique kinds of *pitha* are prepared from place to place (Kataki K.K, 2010).

***Laru*** (balls of confection): *Laru* is a popular sweet item in Assam. It can be prepared with various kinds of ingredients such as rice flour, sesame seeds, and coconut.

### **Vegetable preparations (*Xaak Pasoli*)**

People from Assam consume both planted and wild vegetables. Some are planted in their kitchen gardens and grow on their own. Herbs, roots, leaves, creepers, etc. which are collected from the courtyard and nearby jungles mostly grow on their own. The tribal population usually prefers wild vegetables and prepares pork curry by adding wild vegetables. Traditionally, oil isn't used in their vegetable preparations. Nowadays, these vegetables are sold in daily markets in both rural and urban areas. There are a lot of such vegetables in Assam (Kataki K.K, 2010).

**Table 1: A list of some of the locally available vegetables in Assam**

Assamese name	English name	Scientific name
<i>Bondha-Kobi, Bondhakobi</i>	Cabbage	<i>Brassica oleracea Capitata Group</i>
<i>Ful-Kobi, Phulkobi</i>	Cauliflower	<i>Brassica oleracea Botrytis Group</i>
<i>Ul-Kobi, Oolkobi</i>	Knolkhol or Kohlrabi	<i>Brassica oleracea Gongylodes Group</i>
<i>Alu</i>	Potato	<i>Solanum tuberosum</i>
<i>Kath-Alu, Thaa in Bodo</i>	Yam	<i>Dioscorea alata</i>
<i>Mitha-Alu, Ronga aloo</i>	Sweet potato	<i>Ipomoea batatas</i>
<i>Bit, Beet</i>	Beet	<i>Beta vulgaris</i>
<i>Kosu, Thaso</i>	Taro	<i>Colocasia esculenta</i>
<i>Koldil, Kolful</i>	Banana flower	
<i>Kaskol, Purakol</i>	Curry banana	<i>Musa splendida</i>
<i>Posola</i>	Banana Stem	
<i>Kothalor Musi, Musi Kothal</i>	Jackfruit (Young), Unripe Jackfruit	<i>Artocarpus heterophyllus</i>
<i>Potol</i>	Pointed gourd	<i>Trichosanthes dioica</i>
<i>Bhul</i>	Sponge gourd or Luffa	<i>Luffa aegyptiaca</i>
<i>Zika, Jika</i>	Ridge gourd or Ridged Luffa	<i>Luffa acutangula</i>
<i>Dhunduli</i>	Snake gourd	<i>Trichosanthes cucumerina</i>
<i>Toroi</i>		
<i>Zati-Lau, Jati Lao</i>	Bottle gourd	<i>Lagenaria siceraria</i>
<i>Kumura</i>	White gourd or White Melon	<i>Benincasa hispida</i>
<i>Ronga-Lau, Ronga Lao Jwgwnar</i>	Pumpkin	<i>Cucurbita moschata</i>
<i>Teeta-Kerela</i>	Bitter gourd	<i>Momordica charantia</i>
<i>Bhaat-Kerela</i>	Teasle Gourd	<i>Momordica dioica</i>
<i>Kunduli</i>	Ivy gourd	<i>Coccinia grandis</i>
<i>Siral</i>	Mouse melon	<i>Melothria scabra</i>
<i>Bangi</i>	Santa claus melon	
<i>Bhendi</i>	Okra, Lady's fingers	<i>Abelmoschus esculentus</i>
<i>Tioh/ Tihu/ Thaibeng</i>	Cucumber	<i>Cucumis sativus</i>
<i>Mula</i>	Radish	<i>Raphanus sativus</i>
<i>Gaazor, Gajor</i>	Carrot	<i>Daucus carota</i>

<i>Bilahi</i>	Tomato	<i>Solanum lycopersicum</i>
<i>Kon-Bilahi</i>	Cherry Tomato	<i>Solanum pimpinellifolium</i>
<i>Salgum</i>	Turnip	<i>Brassica rapa rapa</i>
<i>Bengena</i>	Eggplant	<i>Solanum melongena</i>
<i>Bhekuri</i>	Indian Nightshade	<i>Solanum anguivi</i>
<i>Omita, Mudumful</i>	Papaya	<i>Carica papaya</i>
<i>Iskos (borrowed from English: Squash)</i>	Chayote	<i>Sechium edule</i>
<i>Sozina</i>	Drumstick	<i>Moringa oleifera</i>
<i>Ou-Tenga, Thaigir</i>	Elephant apple	<i>Dillenia indica</i>
<i>Thekera-Tenga</i>	Thekera tenga	<i>Garcinia pedunculata</i>
<i>Bet-Gaaz</i>	Rattan shoot	
<i>Bah-Gaaz</i>	Bamboo shoot	
<i>Kath-Ful, Kathphula</i>	Mushroom	<i>Agaricus bisporus</i>
<i>Jolokia</i>	Chili pepper	<i>Capsicum frutescens</i>

([https://en.wikipedia.org/wiki/List\\_of\\_vegetables\\_used\\_in\\_Assamese\\_cuisine](https://en.wikipedia.org/wiki/List_of_vegetables_used_in_Assamese_cuisine))

**Table 2: Locally available green leafy vegetables of Assam**

<i>Assamese name</i>	<b>English name</b>	<b><i>Scientific name</i></b>
		<i>Hydrocotyle javanica</i>
	<u>Arrowleaf Sida</u>	<i>Sida rhombifolia</i>
<i>Alu Xaak</i>	<u>Potato greens</u>	
<i>Babori (Calendula)</i>	Crown Daisy	
<i>Bhedai-Lota</i>	<u>Stinkvine</u>	<i>Paederia foetida</i>
<i>Bhringraj</i>	<u>False Daisy</u>	<i>Eclipta alba</i>
<i>Bor-Maanimuni</i>	<u>Asiatic pennywort</u>	<i>Centella asiatica</i>
<i>Brahmi</i>	<u>Brahmi</u>	<i>Bacopa monnieri</i>
<i>Dhekia Xaak</i>	<u>Fiddle head fern</u>	<i>Diplazium esculentum</i>
<i>Dhonia, Doondia</i>	<u>Coriander</u>	<i>Coriandrum sativum</i>
<i>Doroon</i>	Long-Leaf Laucas	<i>Leucas plukenetii (Roth.) Spr.</i>



<i>Hati Khutura/ Kata Khutura</i>	<u>Spiny amaranth</u>	<i>Amaranthus spinosus</i>
<i>Khutura Xaak</i>	<u>Green amaranth</u>	<i>Amaranthus viridis</i>
<i>Kola Kosu</i>	<u>Elephant Ear</u>	<i>colocasia</i>
<i>Kolmou</i>	<u>Water spinach</u>	<i>Ipomoea aquatica</i>
<i>Kona-Ximolu</i>	<u>Tropical spiderwort</u>	<i>Commelina benghalensis</i>
<i>Kukura Jara</i>		<i>Celosia argentea</i>
<i>Lai Xaak</i>	<u>Vegetable Mustard</u>	<i>Brassica juncea</i>
<i>Lofa Xaak</i>	<u>Chinese Mellow</u>	<i>Malva verticillata</i>
<i>Maan-Dhonia</i>	<u>Thai coriander</u>	<i>Eryngium foetidum</i>
<i>Malbhog Khutura</i>	<u>Pusley</u>	<i>Portulaca oleracea</i>
<i>Mati-Kaduri</i>	<u>Sessile joyweed</u>	<i>Alternanthera sessilis</i>
<i>Meteka Xaak</i>	<u>Arrowhead</u>	<i>Sagittaria sagittifolia</i>
<i>Methi Xaak</i>	<u>Fenugreek greens</u>	<i>Trigonella foenum-graecum</i>
<i>Modhu-Xuleng</i>		<i>Polygonum microcephalum</i>
<i>Mohanim</i>	<u>Margosa leaves</u>	<i>Azadirachta indica</i>
<i>Morisa Xaak/Datha</i>	<u>Amaranth</u>	<i>Amaranthus caudatus</i>
<i>Mosundori</i>	<u>Fish Mint</u>	<i>Houttuynia cordata</i>
<i>Mosur Xaak</i>	<u>Lentil greens</u>	<i>Lens culinaris</i>
<i>Motor Xaak</i>	<u>Pea greens</u>	
<i>Mula Xaak</i>	<u>Radish</u>	<i>Raphanus sativus</i>
<i>Nohoru Xaak</i>	<u>Garlic greens</u>	<i>Allium sativum</i>
<i>Nol-Tenga</i>	<u>Indian Chestnut Vine</u>	<i>Tetrastigma leucostaphylum</i>
<i>Noro-Xingho</i>	<u>Curry leaf</u>	<i>Murraya koenigii</i>
<i>Paleng</i>	<u>Spinach</u>	<i>Spinacia oleracea</i>

<i>Piaz Xaak</i>		<i>Tree onion</i>
<i>Podina</i>	<u>Mint</u>	<i>Mentha arvensis</i>
<i>Pokmou</i>	<u>Tomatillo</u>	<i>Physalis philadelphica</i>
<i>Pui Xaak</i>	<u>Red vine spinach</u>	<i>Basella rubra</i>
<i>Purno-Nobha</i>	<u>Tar vine</u>	<i>Boerhavia diffusa</i>
<i>Purno-Nobha Xaak</i>	<u>Dichondra</u>	<i>Dichondra</i>
<i>Ronga Laur Xaak</i>	<u>(Pumpkin Greens</u>	<i>Cucurbita pepo</i>
<i>Suka Xaak</i>	<u>Spinach dock</u>	<i>Rumex acetosa</i>
<i>Tenga-Mora</i>	<u>Roselle</u>	<i>Hibiscus sabdariffa</i>
<i>Tita-Mora</i>	<u>Jute plant</u>	<i>Corchorus olitorius</i>
<i>Ul Kosu</i>	<u>Stink lily</u>	<i>Amorphophallus paeoniifolius</i>
<i>Xeuali Ful</i>	<u>Night-flowering Jasmine</u>	<i>Nyctanthes arbor-tristis</i>
<i>Xorloh Xaak</i>	<u>Mustard plant</u>	<i>Brassica juncea</i>
<i>Xoru-Maanimumi</i>	<u>lawn marshpennywort</u>	<i>Hydrocotyle sibthorpioides</i>
<i>Xoru-Pokmou</i>	<u>Hound's Berry</u>	<i>Solanum nigrum</i>
<i>Xukloti</i>	<u>Patchouli</u>	<i>Pogostemon cablin</i>
<i>Xukloti</i>	<u>Bengal Patchouli</u>	<i>Pogostemon Bengalensis</i>
<i>Xukloti</i>	<u>Indian Patchouli</u>	<i>Pogostemon Heyneanus</i>
<i>Zilmil Xaak</i>	<u>White Goosefoot</u>	<i>Chenopodium album</i>

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### Alkali preparation (*Khar*)

Traditionally *khar* is prepared by roasting dried banana peels or selected herbs. These are dried, burned and ashes are collected. Water is added to the ashes and passed through them. The filtered substance is called *kala-khar* and becomes ready for consumption. It is also prepared by various raw materials like barks and body of Banana, root, entire body of the *mati-mah* (black gram, *Cicer arietinum*). One of the most significant traditional food items of Assamese people irrespective of tribes and castes is

the consumption of alkali. The strength and taste are more prominent in *kala khar*. It is also known to have some medicinal properties. It neutralizes acidity problems in the stomach. It is also used in the treatment of some skin diseases particularly fungal infection. Traditionally, *khar* can also be prepared from other raw materials like leaves and stem of papaya, roots and other parts of black gram *dal* grass, barks of *outenga* (elephant apple), etc. but *kala khar* is more popular among the people of Assam (Kataki K.K, 2010).

### **SOME POPULAR *KHAR* IN ASSAMESE DISHES ARE GIVEN BELOW:**

- (1) *Mati-mah* + *kala-khar*
  - (2) *Amita* (papaya) + *kala-khar*
  - (3) Fish + *kala-khar*
  - (4) *Tita-phool* + *kala-khar*
  - (5) *Mati mah* + *khar* + pork or chicken
  - (6) *Komora*
- (Kataki K.K, 2010).

### **Sour preparation (*Tenga*)**

Another popular preparation of Assamese dishes is *tenga*. It is prepared with sour vegetables and fruits in Assam. The Assamese women folk prepare them by applying indigenous methods. Sour preparation can be prepared in various ways. Some of the preparations are mentioned below:

1. *Mati mah* + *Outenga*, known as Elephant apple in English (Botanical name: *Dillenia indica*)
2. Curry of *Tenga mora*, (Botanical name: *Hibiscus sabdariffa*)
3. *Changoi tenga/Tengechi sak* (Indian sarrel, Botanical names: *Oxalis cornicalata*)
4. Fish + tomato curry
5. *Madhusoleng* (Botanical name: *Polygenum microcephelum*)
6. *Nemutenga* (Lemon, Botanical name: *Citrus medico*)
7. *Thekera* (English name: Gamboze fruit, Botanical name: *Gracinia pedunculata*) (Kataki K.K, 2010).

### **Meat curry**

In Assam, different types of meats are relished. Pork is popular among the tribal people of Assam. Nowadays, it has become popular among the nontribal people although social obligation is there. The Hindu people take duck, pigeon, and mutton. Chicken is still prohibited among the Hindu villages.

1. *Paara* (Pigeon)+ *Kaldil* (the spadix: of a banana tree)
2. *Paara* (Pigeon) + *Amita* (papaya)
3. Duck + *mati dal*

4. Duck + *Komora*
5. Mutton curry
6. Pork + *Lai Sak*
7. Pork + *Outenga*
8. Pork + Bamboo shoots
9. Pork *pitika*
10. Pork in Bamboo Tube

(Kataki K.K, 2010).

### **Fish curry**

The Assamese people mostly prepare the fish curries with sour ingredients. A few peculiar fish items are mentioned below:

1. *Kath maas* (mud water fishes) + *Bhedailata*
2. *Manimuni* + *Kath maas*
3. *Barali fish* (the cat fish: *Wallaga attu*) + *Dhekia sak* (a species of fern) + *Outenga*
4. *Pora mach* (roasted fish)
5. *Paatot diya mach* (leaf wrapped steamed fish)

The different varieties of fishes are added to most of the sour preparations that have been mentioned above. Some fishes, their local names and scientific names are given below. These are *Kawoi*: A kind of small fish (*Anabas scandens*), *Magur*: a mud water fish (*Clarius assamensis*), *Goroi* (*Channa punctatus*) and *Sengeli*: a small fish (*Ophiocephalus stewartii*), etc. These are known as *kath-mach* in upper Assam (Kataki K.K, 2010).

### **Pickle like items**

There are a lot of pickles like items in Assamese dishes. It is a mixture of several ingredients that are kept in mustard oil. Some of them are mango, *embolic myrobalan* (*Phyllanthus emblica*), olive (*Eleaocarpus serratus*), hogplum, bamboo shoots, jackfruit, star fruit, *amla*, lemon, etc.

### **Traditional rice beer**

It is a refreshing alcoholic drink for the tribal people of this region. Traditional alcoholic beverages for household consumption are prepared by the tribal people of this region which is a part and parcel item of their socio-religious life. It is offered to the guests with honor and deities during rituals. There are two kinds of traditional alcoholic beverages available among the various tribal groups of Assam (Kataki K.K, 2010).

- (a) Fermented variety
- (b) Distilled variety

Fermented variety is indigenous and regarded as prestigious liquor of the communities. It's prepared by applying traditional knowledge of the community. British introduced the Distilled variety in India which was well accepted by the tribal people as their own beverages. Only the tribal people and very few other communities of Assam used to consume it traditionally (Kataki K.K, 2010).

Preparation of the traditional rice beer of two ethnic groups namely the *Mishings* and *Bodos* of Assam are being mentioned here. *Apong* and *Jow* are the traditional rice beer of the *Mishing* and *Bodos*. The *Mishings* prepare two varieties of *Apong* namely *Poro-apon* and *Nagin-apon*. The preparation of *Nagin-apon* and *Jow* is almost similar except the process of the preparation of the fermenting agents. *Emao* and *Epop* are the fermenting agents for the *Bodos* and the *Mishings*. '*Sulai/Serep*' is the distilled variety that has become more popular among the tribal people of Assam. Traditionally, it was prepared to fulfill household requirements but due to increased market demand, it is produced for sale in the market.

### **Preparation of *Epop* / *Emao***

It is a fermenting agent that is made of rice flour and herbs. According to an informant (A *Mishing* lady named Mrs. Reboti Pegu, 60years old) earlier there were 101 different varieties of herbs collected to prepare the fermenting agent. In due course of time, it has been decreased to 10 to 20 varieties (Kataki K.K, 2010). Some of them are mentioned below:

Matured leaves of jackfruit, *manimuni* (the Asiatic pennywort, *Hydrocotyle asiatica*), leaves of pineapple (*Ananas sativa*), *Bihlangali* (poison fern), *mitha lata* (a kind of creeper), leaves of *Bhedailata* (*Paderia scandens*), leaves of sugarcane etc. All the herbs are pounded together in *pedal/ ural* (a mortar) and rice flour is added to make them small balls or cakes. These are dried under sunlight and then preserved for several months. These cakes are currently available in the markets. The *Mishings* call it *Epop* and the *Bodos* call it *Emao* (Kataki K.K, 2010).

### **Preparation**

The cake of fermenting agents is crushed into powder and mixed with boiled rice. For fermentation of 2-3 kg of rice, 2-3 cakes are sufficient. The entire mixture is kept in a pot for about 3 days in summer and 5 days in winter to prepare the rice beer. A pale yellow coloured juice comes out, after that water is added to the pot and the filtration process starts. The filtered liquid is the rice beer which is known as *Jow* by the *Bodos* and *Nagin Apong* by the *Mishings*.

*Poro-apon* preparation is slightly different from *Jow* and *Nagin-apon* preparation. It has a great demand in market and has sound potential for marketing in a large scale. The *Mishings* are seeking Government patronize for bottling this variety. In this variety, ashes prepared from straw or rice stuff are mixed with the mixture prepared from rice and fermenting agent and is kept for 3-4 days for fermenting. The filtration process is also different from the filtration process of *Jow* and *Nagin-apon*. A funnel shaped bamboo cage is used where the entire fermented mixture is kept. Slowly, water is added to this mixture. The *Poro-apon* is collected in vessel which is placed under the cage. The *Mishings* believe that it cures any stomach and urinary problems (Kataki K.K, 2010).

A study on biochemical properties of five different rice varieties of North East India and a starter culture cake (ASC1) collected from Arunachal Pradesh used in the process of rice beer preparation indicated that the rice beer produced in North East India is nutritionally rich and have high therapeutic values. The presence of antiradical activity and other earlier evidence also suggests the possible medicinal properties of this traditional drink. The scientific study of raw material, as well as processed products, will provide a database that could throw light to address the various problems associated with rice beer fermentation (Bhuyan D et al, 2014).

### **Fermented foods**

Some of the ingredients that are used as fermented foods are mustard seed paste, bamboo shoots, dry fish, etc. These are difficult to preserve for a long duration. Some of them are mentioned below:

1. *Kharali*
2. *Pani-tenga*
3. *Kharisa*

(Kataki K.K, 2010).

### ***Poita bhat* (Fermented rice)**

*Poita bhat* is fermented rice that is obtained after fermenting the cooked rice overnight. Usually, leftover cooked rice is soaked in water and allowed to ferment overnight and consumed the next morning as a breakfast along with salt, chilly and lemon. It is slightly sour and has a soft texture. It is considered to be a coolant during summer and is regarded well for its nutritional and therapeutic value. *Poita bhat* is also prepared to prevent the spoilage and wastage of leftover rice. It is also prepared by the rural population of several Indian states and known as *Panta bhath* in Bengal, *Paaniwala chawal* in Hindi, *Pazhankanji* or *Vellachoru* in Malayalam, *Pokhalo* in Orissa, *Pazhaya saadam* in Tamil and is also popular in nearby country, Bangladesh where it is known as '*Pakhal*'.

A research study aimed to evaluate the nutritional properties of *Poita bhat* in terms of anti-nutrient content and mineral availability reported that for the people of Assam, rice is a major source of dietary energy and nutrients. Many nutrients present in the grain, even after cooking is not readily bio-available for absorption by humans due to the presence of anti-nutritional components like phytic acid. They investigated phytate and mineral contents of *Poita bhat* at a different time interval of fermentation. There was a change in pH during fermentation and was found to decrease with an increase in time. The pH was observed to be dropped from 6.80 to 5.39 within 12 hours. The initial phytic acid content in the cooked rice (1.255 mg/g) decreased to 0.353 mg/g within the same period. Minerals availability like Iron, Magnesium, Calcium, and Zinc increased with the passage of fermentation time. They also reported that Magnesium content in *Poita bhat* was found to be highest followed by Calcium and then Zinc content was found to be the least among all analyzed minerals. They also revealed that the traditional fermented rice is not only low in anti-nutritional factor but also a good source of minerals (Goswami G et al., 2016).

## Medicinal plants

North East India is tremendously rich in medicinal plant resources. The natural environment favours the growth of ample species of valuable plants. On the other hand, folk practices of this region are also highly countable and the flora of this area is among the richest in the country. The majority of valuable medicinal plants are gradually facing danger for its survival and many of which have already been destroyed even without recording their scientific uses (Baruah D et al, 2014).

Almost 80% of the people in developing countries of the world rely on traditional medicine for their primary health care needs as estimated by World Health Organization. In India, the North Eastern part has the richest reservoir of plant diversity and is one of the biodiversity hotspots of the world supporting about 50% of India's biodiversity. This region is a good reservoir of medicinal plants and traditional health practices. Various medicinal plants and plant products based on traditional knowledge are included in the food habits of the people of North-East India (Baruah D et al, 2014).

Products from the wild can support household subsistence and also income can be generated from their sale, either in raw or processed forms (Mahapatra AK et al., 2012). Wild edible fruits are the chief sources of vitamins, minerals, sugars, fibers, and water and also a source of income. Consumption of wild fruits also reduces the risk of several diseases like diabetes, cancer, coronary heart disease, neurodegenerative ailment, etc. (Brahma et al., 2013).

**Table 3: Foods recommended for promotion in the Eat Right Movement**

Name of the Food/Recipe	Benefits
Bhimkol (musa balbisiana colla) with milk	An excellent source of weaning food for infants. It's rich in potassium and has antiperoxidative and antioxidant properties.
Soaked moong dal with chopped coconut, pomegranates, chopped ginger, and any other fruits of choice chopped with a pinch of salt.	A very good mid-morning snack is rich in micronutrients and antioxidants.
<i>Bhedailata/ Skunk vine curry</i> with fish (optional)	It helps to stimulate the nervous system, beneficial in gout, diarrhea, dysentery, colic, abscesses, arthritis, rheumatism, infertility, etc.
<i>Mosondori (heart leaves)</i> with cherry tomatoes/tomatoes and colocasia leaves and stem.  <i>Mosondori (heart leaves)</i> is also relished raw in the form of a salad with cherry tomatoes, onions, chillies, other preferred green leafy vegetables, etc.	This can be eaten boiled or with just a teaspoon of oil in lunch or dinner. It is beneficial in the treatment of infectious diseases, diabetes management, anti-poison properties, weight management, pneumonia treatment, etc.
<i>Posotia (Nirgundi)</i> leaves curry with fish (optional)	It stimulates circulation, relieves pain and inflammation of muscles and joints, hepatoprotective, anti-asthmatic, removes excess mucus from the body, appetizer, etc.

<i>Koldil (Banana flower)</i> with meat (optional)	Banana flower is packed with essential minerals such as phosphorous, calcium, potassium, copper, magnesium, and iron, vital for several bodily functions. It controls diabetes, boosts mood and reduces anxiety, averts cancer and heart disease, improves lactation, boosts iron level, promotes kidney function etc.
Any kinds of locally available green leafy vegetables can be added in dal or eaten in the form of a sabji.	This will add dietary fiber and several other vitamins and essential micronutrients etc.
Black <i>til</i> (Black sesame) chutney or meat or fish cooked with til paste	It's a rich source of calcium, magnesium, manganese, copper, phosphorous, iron, zinc, etc.
Black til with jaggery laddoos	
Puffed rice with curd, jaggery and banana.	It is a healthy breakfast choice packed with high fiber, protein, complex carbohydrates, probiotics, and micronutrients and is also pocket friendly.
Rice flour batter with or without eggs, chopped vegetables such as carrots, onions, tomatoes, cauliflowers, and coriander leaves to make pancakes.	This could be another healthy breakfast option at home or to go.
Plaintain stem sabji with or without meat.	An excellent source of dietary fiber, iron, B6, and potassium.
Juice of <i>Doopor tenga</i> (Bryophyllum pinnatum) leaf	Consumption of this juice benefits in Jaundice and kidney stones.
<i>Tita bhekuri</i> (Wild Indian Brinjal/ Poison berry) fried/ boiled/ steamed.	Consumption of tita bhekuri benefits liver function and skin diseases used as a vermicide and acts as a blood purifier.

## CONCLUSION

A significant shift from traditional to modern food habits is seen across the world, including a shift from traditional eating patterns from their original culture to new adopted cultures. It is also seen that modern foods have taken a significant place in every household kitchen. A study mentioned that some of these changes have been described as a nutrition transition. A shift from diets high in complex carbohydrates and fiber towards more varied diets with a higher proportion of fats, saturated fats, and sugar is found. These changes partially resulted from the globalization and modernization of food and eating concepts, such as access to modern supermarkets, new technologies, and food marketing. The decrease in many food costs and availability of a much wider variety of foods to people in almost all parts of the World is another factor for this shift (Sproesser G et al., 2019).

However, an increase in wealth has promoted eating away from home and thereby an increase in obesity or other non-communicable diseases. At some point in time in the next few decades, the latter will probably affect more people than food insecurity. Obesity already co-exists together with food



insecurity. With the increasing incidence of obesity and chronic diseases, the negative consequences of these changes, that is the shift from traditional to modern eating, have become more salient in the scholarly literature. Words like 'Coca-Colonization' have been used to describe the changes and diets have been seen to be homogenized. An important step towards sustainable rural development is traditional regional food consumption. Traditional foods are environmentally friendly because they are integrated into the local biosystem (Sproesser G et al, 2019).

Therefore, it is always a wiser choice to stick to our roots or traditional eating habits to stay healthy and not contribute to the burden of non-communicable diseases. It is always a healthier option, sustainable, and pocket friendly. A balanced diet always wins in the long run against any fancy diets.

Several researchers have reported that the nutrient compositions of some of the regional recipes of Assam are promising. Assamese diets include many recipes and each has some variations as per different regions of Assam. More extensive research work needs to be carried out which has further applications in various health and nutritional issues to have a complete database (Das P et al., 2009, Bhuyan D et al., 2014, Goswami G et al., 2016).

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# FOOD AND CULTURAL ANTHROPOLOGY OF ASSAM

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## INTRODUCTION

Assam is a state situated in the extreme north-eastern region of India. Some Scholars have interpreted the term Assam as a derivation from Sanskrit meaning unparallel. The term is most widely thought to be derived from the word Ahom. Ahom were the people who migrated in the early 13<sup>th</sup> century to the Brahmaputra valley. The river Brahmaputra flows almost in the middle of the state with 42 major tributaries. The Brahmaputra valley with abundant rain and humid climate is gifted with some of the most productive soils and thus makes the foundation for the great Brahmaputra biodiversity. The rich traditional and cultural heritage of the people of the northeastern region is reflected in the food habits of the diverse ethnic group of this state. Throughout history, people of different stocks have been migrating into this land, the principal migrants have been the Austro-Asiatics, the Dravidians, the Tibeto Burmans, the Mongoloids, and the Aryans. With the emergence of different ethnic groups, there has been a gradual change in the food habits of Assamese people across the years.

## FOOD HISTORY

Literature gives incidental references to Assamese dishes. Among the Assamese Hindus, rice was the staple food. In a story found in Bhagavat and Vishnu Puran, King Ban of Sonitpur (Tezpur) had a very beautiful daughter named Usha. The grandson of Lord Krishna, Anirudha was brought to Usha's castle by her friend Chitrlekha for marriage with Usha and served him with different dishes (Gait, 1905). The story was elaborately described in *Kumarr- Harana*. The *Kumarr- Harana* refers to the varieties of Assamese food prepared with a different vegetable like banana stem, radish, brinjal, spinach, *lofa*, meat dishes with mutton, pigeon, tortoise, deer, pork and fish *borali*, *kos*, *sol*, *dorik*, *ari*, *elish* and pulses like moong, lentils with use of spices like ginger, cumin, pepper, camphor, mustard, etc. Food combinations are also described in the book. It also refers to the preparation of different varieties of

'*pistak*' (pitha, rice cake) and *payas* (rice kheer) (Sharma, 1968).

Fish consumption is a pre-Aryan tradition and in Assam, it was probably borrowed from Mongolian people (Barua, 1986). Assam, being a frontier state formed a mosaic of the Aryan and the Mongoloid culture. With passing time the numbers of food items have been increased in Assamese cuisines as a result of changes with the emergence to several tribes and communities of Assam.

Food items such as *miri aloo*, *sina aloo*, *maan kochu*, *bhot jalakia*, *ahom bogori*, *garo mah*, *duphla mah* and *miri mah* were gradually accepted as a popular Assamese food item. Records of different fruit trees such as *Kantaphala* (jack fruit), *Amra* (mango), *Jambu* (*Eugenia jambol* lana), *Dumbari* (Fig), *Badari* (jujube), *Amalaka* (a kind of breadfruit tree), orange, limes, pineapple, *Ou tenga* (*dillenia indica*) are found in the literature (Choudhury, 1959).

In Assamese tradition, the use of salt was very limited due to a lack of ease in the availability of sea-salt and brine salt. Therefore alkali was used instead of salt. A considerable amount of salt was also procured from the brine springs. Six thousand paiks were employed in the brine springs of Barhat, Jaipur, and Mohong (Bargohain, 1992). Salt obtained from brine spring was very less often used as a daily ingredient by common dwellers. It was popularly said that gift of salt is equal to the gift of gold (*Lon dane son dane saman*). In past decades, the inclination of people was more for curd than milk (Robinson, 1975).

## FOOD PRACTICES BY THE TRIBES AND COMMUNITIES

Assam, a state rich in its diversity of natural resources is inhabited by numerous tribes and communities including Ahom, Chutia, Bodo, Mishing, Sonowal Kachari, Moran, Motok, Karbi, etc. These tribes and communities possess knowledge on traditional food systems and are the repository of indigenous knowledge of local crops, wild plants, vegetables for flavouring, seasoning, coloring, and treatment of varied ailments.

### Food habit and practices of Karbi people

The Karbi community is the principal indigenous community residing in the Karbi Anglooid and West Karbi Aglooid districts and belonged to the Tibeto-Burman group. These hill tribes were practicing *Jhum* cultivation and have a unique culture and food habit.

A Karbi cuisine is primarily divided into **three broad categories** as *Kang-moi* or alkali preparations, *Ka-lang-dand* or boiled foods, and *Han-thor* or acidic preparations.

- In *Kang-moi*, the method of cooking involves preparation using water and alkali solution. The Karbis cook yams, papaya, brinjal, pumpkin along with other food grains in alkali. Black gram and pork cooked in alkali is an favourite dish of karbis.
- The preparation of *Ka-lang-dang* involves boiling of fish, meat and vegetables with ginger, garlic, sprinkling of salt, freshly ground raw turmeric and also with addition of sour bamboo shoots.
- Sour dishes or acidic preparations predominates Assamese cuisines. *Upthor*, *han-tari*, *han-che*, *plim-plam*, *pranpri* and *han* are some of the sour foods consumed by Karbis (Gogoi and Kalita, 2018).

Alcoholic beverage called *Hor* is an integral part of the socio-cultural life of the Karbis. *Hor Alank* is the rice beer consumed as a refreshing drink is produced by fermentation of cooked rice with locally prepared yeast culture called *Thap*. *Horalk* is traditionally used during *Adam Asar* (traditional marriage) and *She Karkli* (Worship). *Arak* is used on all social occasions and is offered to the guest as a mark of respect (Teron, 2006).

### Food habit and practices of Tai-Ahom community

Tai Ahom is a major community inhabited particularly in the eastern part of Assam. The present Tai Ahoms of Asom belong to the Indomongoloids racial group, who penetrated in its present habitat through the upper courses of river Irrawady of Myanmar in 12th century AD under the leadership of Tai Prince Sukapha of Great Tai Family of Southeast Asia, and established Ahom Kingdom in present Asom in 1228 AD at Kamjang and ruled till 1826 AD (Deepak and Nayak, 2004). This community holds rich tradition and have unique food practices compared to the other inhabitants of Assam. Traditionally, Tai food habit is quite simple, cooked without spices and used little oil, which is beneficial for both physical and mental health.

- Apart from using **rice** as a staple food, being the main food of this community, rice is cooked varieties of ways like cooking in the banana cylinder (*sunga*) and special earthen pot for steam cooking.
- **Hurum and kumal chaul** are unique to *ahom* community They prepare and eat various traditional recipes of vegetables and meats of different animals like pig, hen, duck, fish, birds, ants etc from time to time.
- **Pork**, a special delicacy of Tai-Ahom community is cooked as dry fry, roasted meat, boiled and *chunga* cooked, etc.
- **Duck** is usually cooked with white gourd by them. Apart from these varieties of **fish-based** cuisines are prepared, of them *Puthi*, *Botia*, *Borali*, *Magur*, *Singi*, *Sal*, *Chengali*, *Goroi*, *Kawai*, *Tora*, etc being the notable ones.
- **Kola khar** is prepared by them from the ashes of the sun-dried skin of a few particular varieties of banana and *Khar* dishes are prepared with raw papaya, mustard leaves, etc.
- During Bohag Bihu, the community people hunt for **Amroli Tuup (red ant larvae)**, and well cleaned fried larvae are eaten for their medicinal value.
- Rice-based beverages are also prepared through the fermentation process using yeast and various plant materials having medicinal value are used in the starter culture (yeast) collected from the forest wilderness. Rice beer is the most important beverage which is used frequently in religious rites and rituals practiced among Ahom caste (Saikia et al. 2007).

### Food habit and practices of Mising tribe

The Mising community is Indo- Mongoloid tribe by origin, residing between the segments of the river Brahmaputra. Originally they were in hill areas and lived along with the Adis in Arunachal Pradesh.

After coming to the plain areas of Assam they are inhabitants in the Sonitpur, Jorhat, Dhemaji, Lakhimpur, Golaghat, Sivsagar, Dibrugarh, and Tinsukia district of Assam. Misings were migrated from the Eastern Himalayan region of Tibet but still, a few Misings are there in Arunachal Pradesh. After migrating to Assam, this tribe has adopted a different food habit besides their boiled food preferences.

Mising food is **eco-friendly** and comprises pork, dried fish (*namshing*), bamboo shoot (*ikhu*), rice beer (*apong*), various green leafy vegetables, herbs, etc. Since Assam is prone to floods, the Mising tribe has developed their **system of resilience** and preserving food such as dry bamboo shoot, *Namshing* (dried fish), etc., which can be used for over a year is common. They prepare food with less oil and less spicy also. *Namshing*, a semi-dried, semi-smoked paste-like product prepared by mixing fish, petioles of arum, and spices by people of this region (Muzaddadi et al., 2012) and form an integral part of the Mising cuisines. *Apong*, a traditional beverage of the Mising community has also been an integral part of the social, cultural, and religious life of the Mising people (Sarma 2004; Sarma and Pegu 2011). It is prepared by fermenting cooked rice with locally prepared starter cakes called *E'Pob* which in turn is prepared from a mixture of rice flour and plant ingredients. This unique product is prepared in social and day to day life, the most preferred occasion after a hard days work. Besides, *Apong* is used in all cultural and religious occasions like Midang (traditional marriage), Ui (rituals), Tani siko (death ceremony), and festivals (Po:rag, Ali a:ye li'gang, Dobur, etc). *Apong* is considered as a symbol of honor and receiving guests with a glass of *Apong* is a matter of pride for the host family. But there is a difference in the food habits among the Misings communities who are living in rural, town, and city areas. The impact of globalization has a tremendous effect on the new economy and culture in their world.

### Food habits of Sonowal Kachari tribe

The Sonowal Kachari, an ethnic tribe from Assam, has been dwelling in this area of Ancient Kamrupa, since the Danava and Asura rule. They have always remained one of the larger tribes in Assam. They possess distinctive food habits and mostly rely on natural foods that have several therapeutic potentials. These foods helped the tribe to survive in **adverse environmental conditions**.

The habitual foods of this community comprise of a wide variety of rice savory and a varied range of traditional vegetarian dishes. They prefer few spices like *jaluk* (black pepper), *bondhonia* (Kind of aromatic herb), *ada* (ginger), *Konjolokia* (grain pepper) *bhootjolokia* (Star hot pepper), *nohoru* ([garlic), *pippol* (long pepper), *halodhi* (turmeric), *gaj tenga* or khorisha (bamboo shoot), *bet tita* (cane shoot), *kon bilahi* (cherry tomato), *nemu* (lemon), etc. on daily basis.

*Gahori* (Pork), *kukura* (chicken), *hahh* (duck), *Xamukh* (water snail), *amloi* (red ant eggs) *poluleta* (silk cocoon), varieties of fish are savory as the non-veg dishes-*KomolChaul*, '*Chira*', '*Pitha*', '*Chewa Diya Bora Bhat*', '*Chungat Diya Bhat*' etc. Some drink such as drink prepared of rice and herbs, known as *ghutang Pani*. *Tamulpaan-shali-dhopat-choon* (betelnut, betelnut leaf, lime, camphor bark /root, tobacco leaf) is an integral part of their life (Saikia and Sarma, 2018).

*Xukoti*, is a special dish prepared from Fish and herbs. During the rainy season, fish is in abundance and sunny days are not common. Therefore the fish caught, in abundance, are washed and leftover the fireplace to dry in smoke. These smoked and dried fish are mixed with *Kachu* (yum leaves), long pepper

(*pippoli*) herbs like jute leaves (sometimes), Mandhania( a kind of aromatic herb). This mixture is kept in bamboo containers, to be used later in winter days. This special mix dish is very beneficial for health.

It is believed to prevent malaria, cholera, typhoid, dengue, chicken gunia, etc. Helps to arrest muscle pain, joint pain, etc. Rice beer is considered as pure Prasad or sacred water in Baitho Puja, Bohag Bihu, and other auspicious occasions. Pork(*Gahorimangkho*) with Ambepaat is savory and cooked on special occasions. Pork is cut into small pieces and boiled with green chilli, Ambe leaves (a sour-tasting herb found in the wilderness), and salt. When tender and boiled black pepper is added and served with steamed rice. Pork is an easily available protein in rural areas. Ambe leaves have great medicinal properties, hence if any fear of tap worm, it is destroyed while cooking with Ambe leaves. Pork is cooked with *laixaak* (a leafy vegetable common in villages of Assam), *kon Jolokia*( chilly as small as a paddy ) *bon dhania* ( an aromatic leaf) if one is suffering from constipation or stomach problems. Black gram is considered a very sacred dish and must-have for any auspicious occasion, community feasts, Baitho Puja, Bohag Bihu, Magh Bihu bhuj, etc. It is cooked without oil or any spice. Boiled with elephant apple, *outenga*, salt, green pepper, ginger. Sometimes *khar* or alkali prepared from the banana plantation is added, in that case, elephant apple is discarded because it's believed that alkali and acid (*khar-tenga*) is not supposed to be taken at the same time.

During Bohag Bihu, the Sonowal kachari people invariably hunt for *amloi tuup* (red ant larvae) and eat it. Cleaned larvae are fried with duck egg or baby tomato. The taste is tangy and looks like white lentils. Belief is that these particular dishes have the benefits of 108 herbs in it and very nutritious. *Bet Gaaz* (shoots of cane) is cut, peeled from the thorny cane and cut small pieces are steamed or fried and eaten with rice. The worm inside the cocoon of the silk larvae is favorite delicacy among the Sonowal Kachari population and must in many villages during Bihu festival, mostly eaten with rice beer. Tastes like roasted chicken eggs (Saikia and Sarma, 2018).

### **Food habits of Bodo Kachari tribe**

The Boro tribe is the largest tribe not only of Assam but also of Northeast India. They are mainly concentrated in the districts of Kokrajhar, Bongaigaon, Baska, Chirang, Udalguri, Darrang, Sonitpur, Kamrup, and Goalpara. Besides these, they are also scattered over in some parts of Karbi Anglong, Marigaon, Golaghat, and Dhemaji district of Assam. Racially and ethnically, they belong to Indo-Mongoloid racial stock and speak the language of the Tibeto-Burman linguistic group. A large percent of the people are engaged in agriculture for their source of livelihood and practiced all kinds of cultivation and farming. Besides paddy cultivation, they also cultivate pulses, vegetables, banana, pineapple, ginger, areca nut, etc. for both consumption and business purposes. Pig and poultry farming, silkworm rearing are also not rare among the tribe.

In addition to normal Assamese cuisine, they have some special preparation. *Napham* is a fermented fish-based product prepared mostly by Bodo tribe and is one the very popular delicacies. The raw material used in the preparation of Napham is dried fish, tender shoots of Arum, hollow cylinder of matured bambusa stem. *Mula gundru* is a vegetable-based semi-fermented food prepared by Bodo tribe. It is prepared from radish root. Radish root are first cut into small pieces and then sun dried till they become smaller in size. The dried root are then stored in container and kept in bamboo racks in kitchen.

This product is used with black gram, potato curries etc to add up to flavor and aroma of food (Gogoi, 2019).

## FOODS DURING FUNCTIONS AND RITUALS

Assam is a land of festivities and rituals having numerous races celebrating different festivals all across the years. Among many of the festivals celebrated in the land of Assam, Bihu is among the most important ones. The tradition for the celebration of Bihu by Assamese people deals with the practice relating to cultivating the land and raising livestock (Barua 1966). The festival is associated with the beginnings of both the New Year and the crop-planting season which is held in the first month of Bohag, mid-April (Bohag bihu).

The two other Bihus, Kati bihu and Magh bihu complete the annual cycle of Bihu festivals (Gogoi 1994; Goswami 1995). Kati Bihu, is held in October at a time when crops are growing and are of little festive significance and the Magh or winter Bihu is linked with the end of the planting season. During these occasions, friends and relatives are visited and entertained with a wide variety of rice based snacks (pitha) and breakfast cereals. Besides the day-to-day and festive food of the Assamese, there is a ritual of offering *prasad* termed as *maah-prasad*. The maah Prasad consists mainly of ingredients such as green gram, black chickpea, coconut, ginger, sugarcane, *chenikol* (banana), salt, and a small amount of rice. Along with these ingredients, some other fruits like orange, pineapple, apple, cucumber, etc are also served. This Prasad is mainly served in banana leaves. Along with these offerings, *Payas* (a dessert prepared from rice and milk) is also prepared during several festivals and rituals.

## THERAPEUTIC POTENTIAL OF ASSAMESE FOOD

Since time immemorial foods are being used to serve several other purposes apart from their culinary usage in day-to-day life. Varieties of foods are consumed by people across India for the specific medicinal properties posed by them in improving the overall health of the community. Food in different forms as medicine has been used since Vedic age. Several food preparations comprising of edible plants & herbs, plant parts, and other plant by-products are used by people of Assam due to their therapeutic potential in preventing and curing several diseases and disorders for a healthy life. In Assamese tradition, several banana-based cuisines are prepared by the local tribes and communities. Banana peels and other parts of it are a great source of antioxidant, polyphenol, flavonoids, catecholines, and many other important phytochemicals. Studies have also reported the presence of phytosterols in bananas (Mathew and Negi 2017).

Among Assamese people, banana is given to a patient with head and neck cancer who are kept under palliative care. Banana is often used to treat various deficiencies in many developing countries (Amah et al. 2019). Banana stem is commonly used in the preparation of meat like duck or pigeon meat which is seen to affect high cholesterol and may modulate hypocholesterolemic and hypoglycaemic response.

Cooked young banana pseudostem (*Posola*) is prepared by locals of Assam which is a rich source of iron and fibers. In a certain region of Assam, pureed banana is fed to infants as the first solid food. Banana peel and pulp have also been documented as a potent source of raw materials for the development of phytomedicine and even allopathic medicine (Jaiswal et al 2014).



The North-East Region of India including Assam is endowed with a rich flora of highly valued medicinal plants. The soil and phonological variation of Assam has led to the natural occurrence of a great variety of non-conventional leafy vegetables grown either wildly or as weeds in association with cultivated crops, many of which are also accredited with medicinal properties. Many herbs are used in Assamese dietaries for therapeutic purposes.

A few non-conventional green leafy vegetables having ample functional properties are grown extensively in Assam are Bormanimuni (*Centella asiatica*, Umbelleferae), Sarumanimuni (*Hydrocotyle sibthorpioides*), Mochundari (*Houttuynia cordata* Piprraceae), Jilmil (*Chenopodium album*, Chonopodiaceae), Posotia (*Vitex negundo* L.), Nephapu (*Clerodendrum colebrokiam*), etc. which are used in culinary preparation and found to have tremendous therapeutic values.

Assamese people have their custom and tradition of different types of festivals and dance which reflects their way of life. It is an agriculture-based festival celebrated with much prompt and satiety. There is a very popular tradition among Assamese people which is followed during *Goru Bihu* (1<sup>st</sup> day of Bohag Bihu) is that on that particular day 101 plant species locally known as *Akhoh eta sak* is consumed (Begum and Gogoi 2007). This special recipe is believed to have health ameliorating potential. The table below shows the list of herbs used in the preparation of the recipe along with their scientific name.

**Table 1. List of plant species used for the preparation of hundred and one green leafy vegetables during Bohag Bihu**

Sl. No	Vernacular name	Scientific Names
1	<i>Titabahak</i>	<i>Adhatoda vasica</i> Nees.
2	<i>Tora</i>	<i>Alpinia nigra</i> (Gaertn.) Burtt.
3	<i>Matikanduri</i>	<i>Altemanthera sessilis</i> L.
4	<i>Khutura</i>	<i>Amaranthus viridis</i> L.
5	<i>Moricha sak</i>	<i>Amaranthus hybridus</i> L.
6	<i>Matikhutura</i>	<i>Amaranthus spinosus</i> L.
7	<i>Ol kochu</i>	<i>Amorphophallus paeoniifolius</i> (Dennst.)Nicolson
8	<i>Satmul</i>	<i>Asparagus recemous</i> Wild.
9	<i>Kal megh</i>	<i>Andrographis paniculata</i> (Burm. f.) Wall. ex Nees
10	<i>Neem</i>	<i>Azadirachta indica</i> L.
11	<i>Brahmi sak</i>	<i>Bacopa moneirra</i> L.
12	<i>Bholukabah</i>	<i>Bambusa balcooa</i> Roxb.
13	<i>Puroi sak</i>	<i>Basella alba</i> L. var. alba
14	<i>Ronga Puroi sak</i>	<i>Basella alba</i> L. var. Rubra (L.) Stewart.
15	<i>Pirali paleng</i>	<i>Beta vulgaris</i> L.
16	<i>Laisak</i>	<i>Brassica juncea</i> L.

17	<i>Sariah</i>	<i>Brassica nigra</i> (L.) Koch.
18	<i>Letaguti</i>	<i>Caesalpinia bonduc</i> (L.) Roxb.
19	<i>Betgaj</i>	<i>Calamus erectus</i> Roxb.
20	<i>Medeliwa</i>	<i>Cassia sophera</i> L.
21	<i>Jilmil sak</i>	<i>Chenopodium album</i> L.
22	<i>Jarmani bon</i>	<i>Chromolina odorata</i> (L.) King et Robin.
23	<i>Tubuki lota</i>	<i>Cissampelos Pareira</i> L.
24	<i>Nephaphu</i>	<i>Clerodendron Colebrookianum</i> Walp.
25	<i>Akalbih</i>	<i>Clerodendrum indicum</i> (L.) O. Kuntze
26	<i>Nangalbhanga</i>	<i>Clerodendron serratum</i> (L.) Moon
27	<i>Dhopat tita</i>	<i>Clerodendron viscosum</i> Vent.
28	<i>Kunduli</i>	<i>Coccinia grandis</i> (L.) Voigt.
29	<i>Morapat</i>	<i>Corchorus capsularis</i> L.
30	<i>Mithamora</i>	<i>Corchorus olitorius</i>
31	<i>Barun</i>	<i>Crateva magna</i> (Lour.) DC
32	<i>Rongalao</i>	<i>Cucurbita maxima</i> Duch.
33	<i>Tioh</i>	<i>Curcumis sativa</i>
34	<i>Duboribon</i>	<i>Cynodon dactylon</i> (L.) Pers.
35	<i>Lorbaruah</i>	<i>Desmodium gyrans</i>
36	<i>Outenga</i>	<i>Dillenia indica</i> L.
37	<i>Kath Alu</i>	<i>Dioscorea alata</i> L.
38	<i>Dhekia</i>	<i>Diplazium esculentum</i> (Retz.)
39	<i>Laijabori</i>	<i>Drymaria cordata</i> L.
40	<i>Kehrajbon</i>	<i>Eclipta alba</i> (L.) Hassk
41	<i>Heloshi</i>	<i>Enhydra fluctuans</i> Lour.
42	<i>Man dhania</i>	<i>Eryngium foetidum</i> L.
43	<i>Madar</i>	<i>Erythrina stricta</i> Roxb.
44	<i>Tongloti</i>	<i>Eupatorium cannabinum</i>
45	<i>Makhioti</i>	<i>Flemingia strobilifera</i> L.
46	<i>Dimoru</i>	<i>Ficus racemosa</i> L.
47	<i>Tenga mora</i>	<i>Hibiscus subdarifa</i> L.
48	<i>Madhoilota</i>	<i>Hiptage-benghalensis</i> L.
49	<i>Mosondori</i>	<i>Houttuynia cordata</i> Thunb.
50	<i>Soru manimuni</i>	<i>Hydrocotyl rotundifolia</i> Lamk.
51	<i>Mitha Alu</i>	<i>Ipomoea batatas</i>
52	<i>PaniKolmou</i>	<i>Ipomoea aquatica</i> Forsk.
53	<i>Dupar tenga</i>	<i>Kalanchoe pinnata</i> (Roxb.) Pers.
54	<i>Jatilao</i>	<i>Lagenaria siceraria</i> (Molina) Standl.
55	<i>Chengmora</i>	<i>Lasia spinosa</i> (L.) Thw.
56	<i>Durun</i>	<i>Leucas plukenetii</i> (Roth) Spreng.
57	<i>Simolualu</i>	<i>Manihot esculenta</i> Crantz
58	<i>Phutkala</i>	<i>Melastoma malabathricum</i> L.
59	<i>Mamoi</i>	<i>Meliosma pinnata</i> Roxb.
60	<i>Podina</i>	<i>Mentha spicata</i> L.

61	<i>Titakerela</i>	<i>Momordica charantia</i> L.
62	<i>Bhat meteka</i>	<i>Monochoria hastata</i> (L.) Sloms.
63	<i>Sojina</i>	<i>Moringa pterygosperma</i> Lam.
64	<i>Narasingha</i>	<i>Murraya koenigii</i> L.
65	<i>Oupat</i>	<i>Natsiatum herpeticum</i> Buch.-Ham.
66	<i>Sewali phul</i>	<i>Nyctanthes arbortristis</i> L.
67	<i>Bontuloshi</i>	<i>Oscinum basilicum</i> L.
68	<i>Bor tengeshi</i>	<i>Oxalis corymbosa</i> L.
69	<i>Bhedailota</i>	<i>Paederia scandens</i> (Lour.)
70	<i>Pononuwa</i>	<i>Peperomia pellucida</i> Ruiz
71	<i>Tita phool</i>	<i>Phlogacanthus thyrsiformis</i> (Hardw.)Mabb.
72	<i>Bon amlokhi</i>	<i>Phylanthus nirruri</i> Hook. f.
73	<i>Pipoli</i>	<i>Piper longum</i> L.
74	<i>Zaluk</i>	<i>Piper nigrum</i> L.
75	<i>Singapat</i>	<i>Plantago erosa</i> Wall.
76	<i>Shooklati</i>	<i>Pogostemon benghalensis</i> (B) O.Ktz.
77	<i>Noltenga</i>	<i>Polygonum bractiate</i>
78	<i>Madhu soling</i>	<i>Polygonum chinense</i> L.
79	<i>Malbhog saki</i>	<i>Portulaca oleracea</i> L.
80	<i>Bihlongoni</i>	<i>Pteridum aquilinum</i> Kuhn.
81	<i>Mula</i>	<i>Raphanus sativus</i> L.
82	<i>Suka</i>	<i>Rumex acetosa</i>
83	<i>Bokphul</i>	<i>Sesbania grandiflora</i> (L.)Pers.
84	<i>Sonbarial</i>	<i>Sida rhombifolia</i> L.
85	<i>Tikoniboriyal</i>	<i>Smilax macrophylla</i> Roxb.
86	<i>Bagh Achura lota</i>	<i>Smilax ovalifolia</i> Roxb.
87	<i>Tita bhekuri</i>	<i>Solanum indicum</i> L.
88	<i>Bengena</i>	<i>Solanum melongena</i> L.
89	<i>Los kochi</i>	<i>Solanum nigrum</i> L.
90	<i>Konbilahi</i>	<i>Solanum pimpinellifolium</i>
91	<i>Titakuchi</i>	<i>Solanum spirale</i> Roxb.
92	<i>Suhuni bon</i>	<i>Spilanthus paniculata</i> Wall. ex D.C.
93	<i>Paleng</i>	<i>Spinach oleracea</i>
94	<i>Morolia</i>	<i>Stellaria media</i> L.
95	<i>Tupurilota</i>	<i>Stephania hernandifolia</i>
96	<i>Borhomothuri</i>	<i>Talauma hodgsonii</i> Hook.f. et Thomson
97	<i>Methi</i>	<i>Trigonella foenumgraecum</i> L.
98	<i>Pirali kuwori</i>	<i>Catharanthus roseus</i> L.
99	<i>Ogara</i>	<i>Xanthium strumarium</i> L.
100	<i>Tezmui</i>	<i>Zanthoxylum nitidum</i> (Roxb.)
101	<i>Ada</i>	<i>Zingiber officinale</i> Rosc.

(Source: Begum and Gogoi 2007)

Apart from the herbs used in food preparations during Bihu, they are also used in several other preparations due to their medicinal properties. Modhusoleng (*Polygenum microcephelum*) is a herb which has a sour taste and is a potential ingredient of certain dal and fish preparations. *Machandari* (*Houttyunia cordata*) herb is believed to have medicinal properties against dysentery problems, *Matikaduri* (*Allernanthera sessilis*) is a rich iron source used in fish preparations, *Manimuni* (*Centella asiatica*) is given to pregnant women before and after childbirth, *Podina* (*Mentha arvensis*) is used for treating indigestion and vomiting.

### DIETARY PATTERNS OF ASSAMESE

Most of the Assamese people are nonvegetarian but subsist mainly on vegetarian food with the inclusion of nonvegetarian items twice or thrice a week. People follow three meals pattern with light snacks in the morning and evening. Now-a days, traditional rice-based breakfast (*jalpan*) is replaced by wheat-based products such as *roti*, *paratha*, bread along with vegetables, milk, butter, egg, etc.

*Luthuri* ( rice flour cooked with milk and sugar) is prepared for the elderly and small children. Timing of meal intake varies according to working patterns of the parents and school timing of the children.

Lunch invariably consists of (*bhat*) rice, (*dail*) pulses, and (*bhaji*) green leafy and other vegetable preparations, nonvegetarian items, pickles, and chutney. The type of vegetable consumed depends upon seasonal availability, which includes cabbage, cauliflower, kholkhol, tomato, beans, bottle gourd, bitter gourd, ash gourd, brinjal, tender banana stem, drumstick, green papaya, plantain, pumpkin, tender colocasia leaves, or stem, ferns, amaranthus, mint, coriander, spinach, mustard leaves, radish leaves, potato, onion, sweet potato, etc.

Fruits are consumed occasionally depending upon seasonal availability which includes pineapple, orange, mango, amla, jackfruit, pummelo guava, *leteku* (*Baccaureasapida*), *poniol* (*Flacourtia jangomas*), *kordoi* (*Averrhoa carambola L.*) etc. Evening tea includes steamed rice cake, suji, luci, bhaji ( puri made of refined flour with dry fried vegetables), *pithas* (rice cakes), coconut laddoo etc.

Dinner is almost similar to lunch with less addition of nonvegetarian items and noninclusion of *tita* (bitter) dishes. Some menu options of Assamese dishes are presented below:

**Table 2. Typical Menu option from Assamese diets**

Time	Meals	Name of the Food items
Between 5-7am	Morning Tea	<i>Sah</i> (Tea) with milk and sugar or black tea and jaggery with <i>pitha</i> ( rice cakes)/ <i>Mithoi</i> ( Rice flour laddoo), biscuit
8-9am	Breakfast	<i>Cira</i> (Rice flakes)/ <i>pithaguri</i> (rice flour) / <i>sandah guri/ muri</i> (puffed rice)/ steamed bora rice/ <i>Kumol chaul/ bhoja chaul</i> with ripe banana, sugar and milk/curd and jiggery. or <i>Poita bhat</i> ( fermented rice)/ <i>korkora bhat</i> ( cold rice of previous day) with salt, mustard oil, green chillies and <i>pitika</i>

		(mashed fish or vegetable)/ fried egg. or Rice with dal and boiled egg and potato. Or Roti with fried vegetable
12-2pm	Lunch	<i>Bhat</i> (rice), dal with green leafy vegetables/ other vegetables like bottle gourd, tomato, <i>dhekia xak bhaji</i> (Fiddlehead ferns), <i>Khar</i> (alkaline preparation of black gram and papaya) <i>xoru mas patot diyal bhapot diya</i> ( small fish cooked by steaming or roasting wrapped in banana leaves), / chicken with banana stem or banana flour, mint chutney/ fermented bamboo shoot/ pickle
5-6 pm	Evening Tea	Tea with , <i>luci</i> , <i>bhaji</i> ( puri made of refined flour with dry fried vegetables), <i>pithas</i> (rice cakes), <i>narikol laru</i> ( coconut ladoo), <i>luthuri</i> ( rice flour gruel) suji /rice flour pancake
9-10 pm	Dinner	<i>Bhat</i> ( rice), dal with vegetables like raw papaya, mixed vegetable curry, <i>masor tenga</i> ( sour fish curry)/ fish cooked with mustard seed paste, <i>pitika</i> ( baked brinjal and potato), <i>Kharoli</i> , salad/chutney

## CONCLUSION

Traditional foods play an important role in ensuring food security and hold tremendous potential in combating nutritional imbalance to a significant extent. There is substantial evidence to demonstrate the health-giving attributes of Assamese traditional foods. Recent up charge on research in the field of nutrigenomics might prove what food type may be in harmony with the genetic makeup of people of this region.

The typical rice products of the state have, more or less, a longer shelf life which adds to the higher economic value of the product. Assamese food is simple. Common methods of cooking are boiling, steaming, frying, grilling, and baking with minimal use of spices. Many foods are cooked/roasted by wrapping in banana leaves or *tora* leaves (a type of scented plant). Use of oil is minimum and mustard oil is common in Assamese preparations. *poita bhat* (fermented rice), *Kharisa* ( fermented bamboo shoot), *panitenga* and *kharoli* ( fermented mustard seed), *Namshing or Napham or Hukati* (fermented and dried fishes), etc are fermented foods of Assamese dishes. Small fishes variously eaten with bones is a very good source of protein and calcium (Tiwari *et al.*, 2020). Most of the popular Assamese curries are made sour by the addition of lemon/lime juice, *thekera*, *khorisha*, amla, *amora* etc known as *Tenga*. Alkaline dishes are prepared by adding *Khar* or alkali is processed from Bhimkol (*Musa bulbosiana*) peel or root to different mature vegetables, black gram dal etc. Occasionally bitter dishes are also consumed prepared from neem leaves, *Chirota*, etc.

Green leafy vegetables were extensively used and eating 101 plants on *bohag bihu*, seven green leafy vegetables on the seventh day of *bihu* and fourteen green leafy vegetables on *mahalaya* are customary in Assamese food culture. Country liquor (rice beer) made with a starter of lots of herbal plants and rice, is nutritious and refreshing. These traditional foods prepared locally in Assam can be consumed globally

as a healthy food option due to their abundant nutrient content.

A list of foods prepared locally with their preparation techniques and health-promoting potentialities are mentioned below.

**Table 3: Indigenous food preparations of Assamese people which can be promoted in the Eat Right Movement**

SI No.	Name	Ingredients and Method	Advantages
1.	Kol/ Kothal pitha (Rice cake with banana or jackfruit)	Rice snacks prepared with mashed sweet fruits like jackfruit or banana is named after the fruits used. A batter is made with rice flour and fruit puree and cooked by wrapping in banana leaves on a hot griddle or steamed. Sometimes deep-fried by dropping a spoonful in hot oil.	They have a distinct flavor and taste. This food item is mostly prepared by Assamese communities consumed for breakfast or as snacks during festivities. They have the potential to serve as high energy food for children suffering from malnutrition, a major concern for developing countries. The addition of banana/ jackfruit also makes them a rich source of micronutrients.
2.	Sutuli pitha ( Stuffed rice cake)	A delicious recipe prepared by mixing rice flour, jaggery and warm water, kneaded to the dough. A small ball from dough is pressed gently with a thumb to form an oval cup which is filled up with a mixture of sesame seed and jaggery. The edges are brought together to cover the stuffing and fried in oil.	A traditional item prepared mainly during bihu by Assamese communities. It can be consumed as a healthy snack option. The inclusion of sesame and jaggery makes it nutritious by improving the nutrient content in terms of iron, magnesium, calcium etc.
3.	Nangol dhua pitha ( Steamed rice cake)	Rice flour is mixed with water, milk, jaggery. Balls are made from it and wrapped in verdant banana leaves. Boiled in water for 20-30 minutes and served with tea or milk.	High energy content with no added fat.

4.	Sandoh guri (Rice based breakfast cereals)	Roasted parboiled rice flour served with milk and jaggery/sugar	Fast and easy to prepare nutritious breakfast cereal.
5.	Kumol Chaul and Bhoja Chaul (Rice based breakfast cereal)	A unique traditional breakfast cereal of Assam that needs no cooking, Processed by parboiling low amylase or intermediate amylase paddy variety with	Ready to eat convenient breakfast cereals served with curd/milk, jaggery. Also eaten with salt, ginger baked potato and other vegetables.
6.	Khorisa ( Fermented bamboo shoot)	Young bamboo shoots are stripped off their outer fibrous layers and the inner white core is either crushed or grated and tightly packed inside sterilized jars and left to ferment for 5 to 10 days. Once it is fermented, pulp is taken out and excess water is squeezed out.	Lactobacillus strains found in khorisa have antimicrobial activity against four harmful bacterial strains found in the mouth and stomach that cause digestive disorders. Used against bee sting attack and other inflammation caused by insects.
7.	Kharoli /Panitenga ( Fermented mustard seeds used as food adjunct)	Black mustard seeds are grinded and tamarind pulp/ thekera pulp, salt and sugar is added and mixed well. Kneaded to dough and wrapped in a banana leaf to mature for 3-4 days.	Because of its strong flavour it is good for sneezing and runny nose. Ethno-medically, it is beneficial for gastro-intestinal problems.
8.	Poita bhaat (fermented rice)	Cooked rice soaked overnight and garnished with onions, mustard oil, salt, chilli.	Fermentation allows the breakdown of nutritional inhibitors by the lactic acid bacteria and increases the mineral content manifold.
9.	Kol posola (tender banana stem curry)	Tender inner part of the banana stem is cut into small fine pieces, cooked and seasoned with onion, spices, and made into vegetable dishes.	Rich source of fibre and helps in weight loss, ease constipation. Rich in Potassium and Vit B6, helps in the production of haemoglobin and insulin. It is a diuretic and helps detoxify the body.
10	Fish/meat cooked in bamboo cylinder	Cooking in the bamboo cylinder is an old food preparation technique of this region which involves filling	Due to the unique preparation technique they have a characteristic aroma and taste.

		of hollow bamboo with food to be cooked, plugged with banana leaves followed by putting bamboo in the fire until done.	
11	Masor tenga ( Sour fish curry)	Fish curry cooked with green leafy vegetables or other vegetables like gourd, ridge gourd, and lemon juice is added before removing it from fire.	Rich in protein and other nutrients with better iron bioavailability.
12	Dhekia xaak (Green fern)	Fiddlehead ferns are cooked as a simple stir-fried, sour curry with fish or made into green dal	Ferns have natural poly-phenolic flavonoid constituents such as B-carotenes, rich in protein and loaded with antioxidants like Vitamin A, Vitamin C, etc.
13	Haah-kumura ( Duck ash gourd curry)	Duck curry prepared with white gourd	The white gourd is the choice ingredient because its natural aroma complements the duck. In addition to other nutrients, white gourds are a good source of flavonoids, carotenes, and antioxidants.
14	Koldil with meat	Banana flower is finely cut and made into a curry with Duck/pigeon/chicken and spices.	A combination of meat and banana flower is full of fibres and rich in antioxidants, high protein dish.
15	Fish cooked in banana leaf	Fishes wrapped and steamed in banana leaf with onion, chilli, mustard seed paste coriander and salt.	Nutritious no oil recipe, rich in protein and goodness of spices.
16	Local fruits	Some locally available foods of the region are Amora ( <i>Spondius pinnata</i> ), Robab tenga ( <i>Citrus grandis</i> ), Poniol ( <i>Flacourtia jangomas</i> ), Noga tenga ( <i>Myrica esculenta Buch.-Ham.</i> ), Mirika tenga ( <i>Elaeagnus latifolia Linn.</i> ), Kordoi ( <i>Averrhoa carambola L.</i> )	These fruits are very cheaper and are a good source of fiber, ascorbic acid, sugar, water, micronutrients, antioxidants, and phytochemicals. They are also low in calories therefore vital in weight management.



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# MEGHALAYA FOOD CULTURE

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## INTRODUCTION

Known as the abode of the clouds, Meghalaya is one of the seven sisters of North-East India and was formed from 2 districts of Assam the United Khasi and Jaintia Hills, and the Garo Hills on 21<sup>st</sup> January 1972 post India's Independence. The state of Meghalaya is mountainous, with stretches of valley and highland plateaus, and it is geologically rich with Archean rock formations which contain rich deposits of coal, limestone, uranium, and sillimanite.

Due to its natural beauty and weather, it was known as the **Scotland of the East** during British rule. It is an ancient land where Neolithic sites have been discovered in the high elevation of Garo and Khasi hills where Neolithic style *jhum* or shifting cultivation is practiced even today. The highland plateaus fed by abundant rains provided safety from floods and rich soil.

Over 70% of Meghalaya is covered with forests which are considered to be among the richest botanical habitats of Asia. Some parts of the forests are known as the sacred groves which are preserved by the communities for hundreds of years due to religious and cultural beliefs. These forests are reserved for religious rituals and generally remain protected from any exploitation. These sacred groves harbour many rare plant and animal species.

The forests of Meghalaya support a vast diversity of plants and animals and two commercial trees Sal (*Shorea robusta*) and Teak (*Tectona grandis*) are grown here. Over 325 varieties of orchids are grown in Meghalaya and it is home to a large variety of fruits, vegetables, spices, and medicinal plants.

Meghalaya has many rainfed and seasonal rivers in the Central and Eastern regions while the South Khasi Hills have many deep gorges and waterfalls which are created by these rivers.

## CULTURE

The importance of Meghalaya is its possible role in human history via the domestication of rice. One of the competing theories for the origin of rice comes from Ian Glover, who states, India is the

center of the greatest diversity of domesticated rice with over 20,000 identified species and Northeast India is the most favorable single area of the origin of domesticated rice (Glover, 1985). The limited archaeology done in the hills of Meghalaya suggests human settlement since ancient times (Roy, 1981).

In 1304, Shah Arifin Rafiuddin, conquered, migrated, and settled in these hills and preached Islam to the local people. His Sarping/Lauregarh is on the Bangladeshi border but the part containing his Mazar is in Meghalaya on top of Laur Hill (Roy 2012). The Khasi, Garo, and Jaintia tribes had their kingdoms until they came under British administration in the 19th century. After the British discovered the tea plant in these hills, they started renting the land from 1939 onwards.

Meghalaya has followed a matrilineage system and the inheritance and lineage is through women where the youngest daughter inherits all the wealth and takes care of her parents. Major ethnic groups of Meghalaya are Khasi, Garo, Jaintia, Bengali, Baite, Koch, Tiwa/Lalung, Rabha, Kuki, Shaikh, etc. The former three are known as the hill tribes. The major languages are Khasi, Garo, Pnar, Bengali, Nepali, Hindi, Assamese, etc. based on the tribe they belong to.

Conversions of indigenous to Christianity started in the 19<sup>th</sup> century by the British with the American Baptist Foreign Missionary Society and thus today the over 75% of the population of Meghalaya (converted Garo and Khasi tribes) follow Christianity (Presbyterians and Catholics), the Rabha tribes are Hindus (Census, 2011) and the West Garo population follow Islam religion.

English is spoken as a common language across diverse ethnic and demographic groups. In urban centers most of the people can speak English; rural residents vary in their ability. There are many festivals and dances of various tribes of Meghalaya which signify their culture and maintain balance and solidarity among its people.

- Local festivals such as Ka Shad Suk Mynsiem, Ka Pom-Blang Nongkrem, Ka-Shad Shyngwiang-Thangiap, Ka-Shad-Kynjoh Khaskain, Ka Bam Khana Shnong, Umsan Nongkharai, Shad Beh Sier are celebrated by the Khasis.
- Behdienkhlam, Laho Dance, Sowing Ritual Ceremony celebrated by the Jaintias.
- The main festivals of Garos are Den Bilsia, Wangala, Rongchu gala, Mi Amua, Mangona, Grengdik BaA, Jamang Sia, Ja Megapa, Sa Sat Ra Chaka, Ajeaor Ahaoea, Dore Rata Dance, Chambil Mesara, Do'KruSua, Saram Cha'A, A Se Mania.
- The Hajongs celebrate both traditional festivals and Hindu festivals such as Pusne, Biswe, Kati Gasa, Bastu Puje, and Chor Maga.
- The Biates have many kinds of festivals such as the Nûlding Kût, Pamchar Kût, Lebang Kût, Favang Kût, etc, many of which are no longer practice.
- The Nûlding Kût ("renewal of life") festival is observed in January and includes dances and games once prayers are offered to Chung Pathian by the Priest (*Thiampu*).

Being a matrilineal society, the knowledge and legacy of food growing and gathering are passed down from mother to daughter. Women work in the field and preserve local and traditional seeds and crops.

## AGRICULTURE

Long before conservation became a catchword, the Khasis had already devised **several layers of protection of forests**. Through customary laws, the Khasis manage the forest wealth by **categorizing forests** and using them for various needs. These categories include forests kept aside for religious needs, private forests owned and managed by families, forests for villages and clan groups, and community forests. The forests are also a rich source of food. The food and culture of the Khasis cannot be delinked from the biodiverse wealth of the hills (Tiwari et al, 2010).

*Jhum* cultivation, which is still practiced in the rural areas, is a form of agriculture where patches of forests are cleared for a few seasons to plant crops and then left fallow, allowing the patches to regenerate. A host of leafy vegetables, tubers, fruits, and other forest produce like honey are harvested directly from the forests. Forests and fields blend in effortlessly together.

*Jhum* cultivation, traditionally known as shifting agriculture which is culturally engrained through folklores. In modern times, shift cultivation is a significant threat to the biodiversity of Meghalaya (Roy, 2015). They grow local varieties of ginger and chillies usually for self-consumption. Varieties of rice are part of the staple diet here, cultivated with other crops like maize, local beans called *rymbaija*, and a host of other vegetables.

Other crops are wheat, pulses, and potatoes. Spices and condiments such as ginger, turmeric, black pepper, areca nut, bay leaves, betel, short-staple cotton, jute, *mesta*, mustard, rapeseed, are some of the important cash crops. Major horticultural crops are orange, lemon, pineapple, guava, litchi, banana, jack fruits, and fruits are plum, pear, mushrooms and peach. Large varieties of ornamental flowers, cauliflower, cabbages, and radishes are also grown in the state. <http://www.megagriculture.gov.in>.

British have propagated **Tea plantations** in Meghalaya to a great extent. Coffee and cashew plantations have also been introduced recently. The Department of Agriculture was created in 1882 as the Department of Agriculture, Assam and as Meghalaya attained statehood it was bifurcated and renamed as the Department of Agriculture, Meghalaya. It is an integrated entity comprising the various spheres of development in Agriculture, Horticulture, and Minor Irrigation. The mandate of the department is to bring about increased crop production and productivity.

## FOOD CULTURE

**Meghalayan cuisine** is influenced by the **three Mongoloid tribes** which inhabit the State. The traditional meat products prepared by the natives of the region reflect their social, cultural, spiritual, and ecological life. The process and techniques used for such preparations have been followed from time immemorial, which not only demonstrate their skill and creativity but also exhibit their capability to sustain the dynamics of life and ecosystem.

The method of preparation varies based on the availability of materials, climate, culture, and overall knowledge of process and methods. The three main tribes of Meghalaya, i.e., Khasis, Garos, and Jaintias, prepare similar types of food. However, there is a slight variation in the style of cooking. Garos use lots of indigenous soda in their cooking, Jaintias use more mushrooms, and Khasis have a liking for fermented

fish and pork dishes. It is worthy to mention that the commercialization and popularization of traditional meat products will ensure the quality and safety of the products to the consumers of the Northeast and other parts of India.

The indigenous variety of red rice grown here is called *Khawkhasi*. One of the ingredients used for fertilizing the soil is powdered cattle bone. **Rice** is the staple food along with **spicy meat** of domestic goats, pigs, fowl, ducks, and cows and fish preparations (Umdor et al, 2016).

### **Khasi Cuisine**

Khasi people have got different preferences of food in comparison to the Garo tribe. Khasi delicacies are largely dependent on rice. Rice is prepared either plain or mixed with ginger, turmeric and onion which is called 'jastem'. The fermented soyabean in this region is 'Tungrymbai'. It has a strong odour and is very popular especially during the winter season as an integral part of Khasi food. Different types of rice 'pancakes' are also popular. 'Pumaloi' is powdered rice which is steamed in earthen pots called 'Khiew Ranei'. 'Pukhleim' is powdered rice mixed with jaggery which is then deep fried. 'Pudoh' is plain powdered rice stuffed with small pieces of pork and steamed. 'Putharo' is again plain powdered rice steamed.

### **Some special cuisines of Khasi people**

**Jadoh:** It is red hill rice cooked with pork and is something similar to biryani, 'Jastem' is plain hill rice cooked with pork gravy, onions, ginger, and turmeric thus giving it a characteristic yellow colour.

**Myllem chicken:** It is famous in these parts and gets its name from the village where it was first prepared. The chicken is cooked with different condiments, most notably, the small round Khasi peppers which give distinctive taste and flavour.

### **Garo Cuisine**

The Garo cuisine is simple to cook with small variations that bring in a rich flavor. One of the important ingredients in preparing 'Nakham Bitchi' (a hot spicy soup) is the special dry fish (Nakham). Preserved fish or meat is widely used in a variety of cooking methods. Fish or meat is preserved either by drying in the sun or smoked over the fire. A typical Garo meal would consist of rice, one or two meat/fish dishes, and of course the relishing dry fish soup. The Khasi taste buds are different from the traditional Garo way of cooking. To begin with, there are different varieties of rice to choose from.

### **Some special cuisines of Garo people**

**Khapa:** a chicken preparation.

**Nakham Bitchi:** a hot spicy soup made using dry fish (Nakham)

**Na'kam Baring belati Chutney:** Dry Fish Chutney with Roasted Tomatoes

**Gal'da Na'kam:** Dry Fish with a tangy green vegetable

**Wak Jo.krapa:** Pork Fried with Tomatoes

Jaintia Cuisine

The cuisine of Jaintia people consists comprises of tasty mushroom dishes. The Jaintia people make lots of indigenous and unique dishes prepared from various mushrooms available. Mushrooms are commonly known as Tit Tung in this part of the country. The locals prepare mushrooms mixed with pork and add black sesame seeds in the dish to give the preparation a distinct touch and flavor. (<https://www.meghalayaonline.in/about/profile/culture>)

### COMMON TRADITIONAL FOODS ARE:

- ***Pumaloi*** means powdered rice, which has been steamed in a unique pot called *Khiew Ranei* is used to cook the rice is commonly served during public celebrations and festivals and is a unique part of Meghalaya culture.
- ***Red rice cooked in bamboo*** with a chutney made from thirty varieties of wild edibles is another delicacy where the rice is wrapped in a banana leaf and placed inside bamboo shoots and cooked. Rice is also cooked in a dried gourd shell or bamboo.
- ***Pudoh*** is also a dish made from boiled, powdered rice and pork pieces which are steamed together to infuse the flavor. A rich curry sauce is prepared to enhance the flavour. *Podoh* is served during special occasions like weddings and carnivals.
- ***Minil Songa*** is a sticky rice preparation. *Minil* is sticky rice that has a rich nutty flavour and delicate texture and a popular dish among the Garo tribe of Meghalaya. It has a high amount of starch, making it sticky. To make *Minil Songa*, *Minil* rice is boiled in fresh bamboo and eaten as snacks. It helps in constipation and improves digestion.
- ***Nakhmam Bitchi*** is a popular soup consumed before meals and made from dry fish (sun-dried or fire-dried) which is fried and boiled in water as a thick rich soup and flavoured with chillies and pepper.

The inhabitants have a strong preference for foods of **animal origin** and have no prejudice to the consumption of meat of any kind on any day but their most favorite meat is pork.

- **Meat** from goat, pig, fowl, duck, deer, and bison are also consumed.
- They consume fish, prawns, crabs, eels, and dry fish.
- Traditional cooking styles are practiced in Meghalaya households where a variety of meats are hung over the firewood cookstove and slowly cooked above it for months before it acquires the perfect smoked flavour and consumed.
- Some common dishes are ***Jadoh, Ki Kpu, Tung-rymbai***, and pickled bamboo shoots.
- ***Jadoh*** is red rice cooked with generous amounts of pork meat/chicken or fish with a mix of green chillies, turmeric, onions, ginger, turmeric, black pepper and bay leaves is made, then pieces of pork are added and fried off, after which the red rice is added and cooked off. *Jadoh* can also be cooked in **pork blood**.
- The Garos consume most non-domesticated animals and their everyday staples are simple foods such as rice with *kapa*, cooked with a special ingredient called ***purambhi*** masala.

- Govindasamy et al, 2018 have documented many ethnic meal delicacies of the Khasi, Jaintia, and Garo communities of Meghalaya. Some of these are the *doh jem*, *doh khlieh*, *achar Doh Sniang*, *tungrymbai*, *dohSnam*, and *jadoh*.
- *Doh Khlieh* is a delicious salad made out of minced pork, onions, and chillies. Newer versions of this dish include the addition of beans, tomatoes, carrots, and lemons. *Doh Khlieh* is sometimes cooked as a **curry of pig brains** and eaten with bread.
- *Doh-neiiong* is a fried pork curry dish with a rich, thick gravy flavoured with green chillies, pepper, red onions, local spices, and black sesame.
- Locally available vegetables, herbs, and spices such as soybean, bamboo shoot, leafy mustard, sesame seeds, rai, etc. are added to the meat products (Sohaliya et al, 2009).
- Fermented products form an intrinsic part of the diet of the tribal peoples in northeastern India.
- Agrahar (2006), studied the preparation methods and the nutritive value of fermented soybean (*tungrymbai*), bamboo (*lungsiej*), and fish (*tungtap*) consumed by the Khasi tribes, and results showed that *tungtap* was a good source of protein (40.6 g/100g), calcium (5040 mg/100g), phosphorus (1930 mg/100 g), sodium (6.26 mg/100g), and potassium (53.18 mg/100g).
- *Tungrymbai* contained high amounts of protein (45.9 g/100g), fat (30.2 g/100g), fiber (12.8 g/100g), carotene (212.7 ìg/100g), and folic acid (200 ìg/100g). *Tungrymbai* is a popular preparation of the Jaintias peasant community of Meghalaya. It is made from fermented soya beans, boiled and chopped pork, black sesame, ginger, onion, and other spices. All these are fried and sauteed together, and the delicious mixture is left simmering for some time to deepen the flavor and taste.
- *Lungsiej* was found to be of better nutritive value than its unfermented counterpart in terms of protein (8.5 g/100g) and iron (1 mg/100g on a fresh weight basis).
- *Insects* such as the **eri silk worms** have been an essential part of the traditional Khasi food and are mainly fried and eaten as snacks.
- *Three* varieties of honey from East Khasi Hills are available. Traditionally, honey is stored in bamboo shoots or earthen pots. The inside of the bamboo or the pot is layered with honeycomb to maintain the optimum temperature.
- *Pukhleim*- is powdered rice, sweetened with jaggery. The jaggery and rice mixture is fried together in the pan, to form a deep, thick paste. The golden brown crispy rice is best served with a wide variety of meat items.
- *Sakin Gata* is a sticky white rice cake, a sweet delicacy where the sticky rice is soaked in water overnight and mixed with sugar. Alternate layers of the rice mixture and roasted sesame seeds are arranged in banana leaves, placed in a special cooking pot, and steamed. They are served piping hot and relished as a simple, wholesome home-made delicacy.
- *Sophrang*, is a tuber used for a common snack, and red potato called *phan-saw* is generally boiled and eaten.



- *Rice beer Kyat* is a common welcome drink and also consumed daily post-work to retrieve energy and boost the spirits and served in a special bamboo ladle shaped container.
- *Leafy vegetables such as jamyr doh* have medicinal value; this particular vegetable cures blood pressure related problems.
- *Sohlang*, a berry, is often used as bait for fishing.

### CHANGES IN FOOD CONSUMPTION PATTERNS

There is large scale consumption of polished white rice, especially when locally grown rice is not adequate. There is an association between the decline in the consumption of traditional food including local rice, wild edibles, and snacks, and the increasing consumption of modern food and ready-to-eat snacks which can be attributed to the globalization processes at play. The need is therefore to highlight the importance of consuming traditional food among the indigenous people and its implications to health (Nongrum and Dohtdong, 2018). The consumption of wild edibles, which was an integral part of traditional food, is decreasing.

Poor health of children and women (Nongrum and Kharkongor, 2015), is seen as modern snacks that have replaced the traditional ones. Globalization has impacted the dietary habits at micro and macro levels from availability to production systems in the name of global food culture. The need, therefore, is to educate mothers, youth, and children of the nutritional benefits of traditional food and snacks. Consumption of traditional food and snacks need to be introduced through the nutrition programs such as ICDS and Mid-Day Meal so that the knowledge about one's traditional food is enhanced and continuity of knowledge will be maintained. This in effect will enhance the consumption of traditional food and snacks despite globalization processes at play (Passah et al, 2014). Some rice-based snacks are Putharo, Pumaloi, Pukhlien, and Pusla. The diameter and calorie contribution of these recipes were found to be in the range of 9-9.5cm, 5-5.5cm, 5-5.5cm, 13-13.5cm, and 408kcal/g, 407kcal/g, 494kcal/g, and 402kcal/g respectively.

Blah and Joshi (2013) have reported that the Khasi tribe food comprised of main lunch or dinner dishes and side dishes consumed with meals and some food items taken as snacks. Their team has standardized 80 items eaten by Khasi tribes which included vegetarian and non-vegetarian items including berries, nuts, roots and spices, edible green leaves including salad and chutney consumed by the ethnic tribe as a part of the whole meal. They concluded that the whole meal taken together makes a balanced diet in the tribal food habits.

Evaluation of the nutritional potential of wild and edible plants traditionally used by the tribal people of Meghalaya State in India was done by Seal (2012). Many wild local edible fruits such as *Morus indica* Linn (*Moraceae*), *Myrica nagi* Thumb (*Myricaceae*), *Myrica esculenta* Buch-Ham ex D. Don, *Begonia hatacoa*, *Embelia floribunda*, *Artemisia vulgaris*, *Cardamine hirsuta*, and *Plantago major*, etc were analyzed and he concluded that the wild fruits and berries of Meghalaya were richer in their nutritive value as compared to commercially available fruits and thus need further propagation.

## SUMMARY

Several types of meat, local rice, wild plants, and fermented foods of Meghalaya such as fermented soybean (*tungrymbai*), bamboo (*lungsiej*), and fish (*tungtap*) mentioned above exhibit unique flavors and textures and enhances the nutritional quality of the product by increasing amounts of vitamins and protein solubility, and by improving amino acid patterns and needs further promotion in the **Eat Right Movement**.

May traditional rice-based snacks and associated dynamics are passed on from generation to generation can be promoted by empowering entrepreneurship among local rural women by the formation of self-help groups.

Shifts from traditional to global diets have led undernutrition among the population and efforts have to be made to strengthen agriculture as well social security nets for the population of Meghalaya.

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# ANTHROPOLOGY OF FOOD AND DIETARY CULTURE OF MIZORAM

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## ETHNOGRAPHY OF MIZORAM

Mizoram is an Indian state lying in the North-Eastern region, is one of the sisters amongst the seven sisters states of our country. It is located between 21-58° to 24° 29' north latitude and 92° 29' to 93° 22' east longitude. The state of Mizoram is located in the foothills of the Himalayas, south of the Tibetan autonomous region. Mizoram borders three states of India - Assam, Manipur, and Tripura. Aizawl is the largest city as well as the capital of the state of Mizoram in India.

The term Mizoram is derived from two *Mizo* words - *Mizo* and *ram*. 'Mizo' is the name used to call the native inhabitants and 'Ram' means 'land'. The term Mizo means 'the men who live in the hills' (Mi-men; Zo-hills) or the Highlanders. The flood plains of Bangladesh are situated to the south of Mizoram.

The state is divided into 11 districts and has a majority of the Christian population whose culture is reflected in the Mizo cuisine. Mizoram is surrounded by lakes, rivers, valleys, and hills and the climate is very pleasing with plenty of rainfall (100 inches/ 2,500 mm). The hills of Mizoram run in ridges from north to south. More than three fourth of the land is of the state is covered with forests.

*Mizo* art and craft items are worth treasuring. *Mizo* women are born weavers and the intricate designs created by them are a treat to the eyes. The choice of bright colours in everything is a unique feature of Mizo art and crafts. The exclusive cane and bamboo furniture of Mizoram is marked by innovative designs. The most popular of the dances is the *Cheraw* Dance, performed on bamboo checks and requires a very smooth rhythm between the dancers and the instrumentalists. The popular instrument of Mizoram is the guitar. The *Mizos* enjoy singing with clapping hands without any instruments.

There are three main festivals in a year. All three festivals are connected with agricultural activities. The festivals are celebrated with feasts and dances. The modern people of the state celebrate Christian festivals like Easter, Christmas, etc. The attire of the people here is unique. In the case of women, the upper portion of their body is covered with fine woven cloth in the form of a shirt or blouse and the lower portion is covered by a finely woven and intricately designed sarong. The men generally wear a colorful shirt and a wraparound piece of cloth around their waist.

*Mizos* are of Mongoloid origin, speaking a dialect of *Tibeto-Burman* origin. The literacy rate is the second-highest in the country. The *Mizos* are a close-knit society with no class distinction and discrimination on grounds of sex, status, or religion. They are hospitable, sociable, and love music, singing, and dancing.

### **AGRICULTURE, CROPS, LOCAL FOODS OF MIZORAM**

Between 55% to 60% of the working population of the state is annually deployed on agriculture and rice remains the largest crop grown in Mizoram by gross value of output. Shifting cultivation is the major occupation and the main source of income of the marginal farmers in Mizoram. Fruits have grown to become the second-largest category, followed by condiments and spices (BK Singh (2014).

The major fruits and vegetable crops are grown in Mizoram are mandarin orange, banana, mango, strawberry, grape, pineapple, dragon fruit, cabbage, tomato, capsicum, broccoli, ginger, turmeric, and birds eye chili are the major spice crops of Mizoram. Arecanut is one of the major plantation crops cultivated in the State.

### **MIZO FOOD CULTURE**

The food of Mizoram is quite different from the rest of India. Mizo food is healthy and simple, using very little oil to prepare dishes. Mizoram's cuisine defines its varied and unique culture from the rest of India as well as the world. It is interesting to note that the people of Mizoram have two main meals-A late breakfast and an early dinner before sundown.

Traditional *Mizo* food is cooked simply, typically boiled, stewed, smoked, steamed, or fermented. The only cooking oil available was when a pig was slaughtered and its fat preserved in the form of lard, which was then re-heated for frying purposes. Preservation of meat as well as certain vegetables was done through the method of smoking.

*Mizo* is traditionally rice eaters and loves to add non-vegetarian ingredients to every dish. In the olden days, food was served in banana leaves which always give the food a better and tastier aroma. Curry is an alien concept here. They prefer dry gravies and majorly use the local harvest. They use very fewer spices, which is the culinary link with the rest of India.

### **THE MIZO CUISINE**

*Mizo* food comprises non-vegetarian ingredients such as chicken, pork, shrimp, and fish which are usually cooked in any vegetable oil. Meat cooked and served traditionally is blander, with less oil and

spices. Most *Mizos* love eating boiled vegetables along with rice but the younger generation tends to like fried and spicy food. They also use a lot of bamboo in the preparations, which is a culinary link from the Chinese.

Some common foods of Mizoram

### ***Bai* (Mix Vegetable Stew)**

*Bai* is a soupy stew kind of dish served with rice and veggies. The non-vegetarian version is cooked with pork, whereas the vegetarian version has cauliflower stalks, florets, potatoes, beans, chillies, and cooked rice. Fermented soybeans or fermented pig fat are added to the dish. It can be eaten hot or cold.

### ***Vawksa Rep* (Smoked Pork)**

*Vawksa Rep* is a traditional pork dish flavoured with herbs. The pork is smoked and stir-fried. The pork is cut into intricate cubes, cooked soft, and just right for the taste buds. It has a bland taste and is a widely loved dish by meat lovers.

### ***Chhum Han* (Vegetables boiled)**

The basic ingredient of *Chhum Han* is vegetables. The vegetables are steamed and tossed with a little bit of ginger. It is highly nutritious with vegetables like broccoli, cabbage, carrots, tomatoes, and ginger. This dish, when cooked, special care is taken not to overcook the vegetables.

### **Bamboo Shoot Fry**

Bamboo Shoot Fry is one of the famous foods of Mizoram made out of bamboo stalks. This dish is fried bamboo tossed with herbs like ginger, garlic, pepper, and chilies. In some cases, Shitake mushrooms and other vegetables are added to this amazing delicacy.

### ***Arsa Buhchiar* or *Sanpiau* (Chicken Porridge)**

*Arsa Buhchiar* or *Sanpiau* is made either with pork or chicken and served with sticky rice. It is a simple rice porridge dish. All major spices such as ginger, garlic, onion, and chilies are used. *Sanpiau* is the *pescetarian* version which constitutes powdered rice and spices topped with fish sauce, whereas *Arsa Buhchiar* is always served with chicken.

### ***Hmarcha Rawt* (Green chilli chutney)**

*Hmarcha Rawt* is the *Mizo* version of the North Indian green chilli chutney. The chillies are finely roasted for making this delicious chutney. It is a thick, coarse, and chunky chutney which, when paired with rice, makes it lip-smackingly good. It pairs great with parathas.

### **Fruits and Traditional Beverages**

Orchard of lemon, passion fruit, pineapple, and papaya can be seen throughout Mizoram. The traditional chai and beer of Mizoram are called with the same name, 'Zu'. The beer 'Zu' is made with

fermented rice, millet, or maize. An interesting fact is that this beer is always enjoyed with an aspect of dance.

### **TRADITIONS/ FOOD HABITS/ CUISINES RELATIONSHIP ON MIYCN AND FOOD AND NUTRITION SECURITY OF VARIOUS POPULATION GROUPS**

Here are some studies that have shown traditions, food habits, cuisines relationship on MIYCN and food and nutrition security of various population groups.

A comparative study on the dietary pattern of urban and rural women in Mizoram concluded that urban women consume more meat and its product and therefore have a high intake of protein and fats. However, rural sample energy intake was much higher. The frequency of consumption of various foods is higher among urban women than rural women (Lalremruati et al 2020).

The study of socio-economic challenges and nutrition of children in Khawzawl, Mizoram results has shown that there are no gender differences in nutritional intake and feeding pattern in Low Development Community and High Development Community. Almost all nutritious food is not regular or available maybe because of its rural background in both the community (Lalrinngheti, 2012).

A case study of Nutritional status and infant mortality rate in Saiha district, Mizoram, reveals that IMR is directly affected by nutrition/calorie intake. Higher the nutrition/calorie intake, lower is the IMR and vice-versa. The overall condition of pregnant mothers is unhealthy. Intake of vitamins, iron, and calcium by pregnant mothers is poor (Vishwambhar Prasad Sati et al 2016).

A study was conducted on 300 mothers of infants and young children (0-24 months) visiting Aizawl district, Mizoram indicated that 72.3 % of infants received breastfeeding within 1 hour of birth and 79% were exclusively breastfed. Demand feeding was being practiced by 83.3% of mothers. This study shows that the practice of exclusive breastfeeding is prevalent among mothers in Aizawl who visited the hospital (Pradhan et al 2017). The number of maternal deaths in Mizoram has reduced from 26 in the financial year 2018-19 to 13 in the financial year 2019-20 (*National Health Mission Mizoram, 2020*).

### **CONCLUSION**

There is a need to bring about behavioural changes among mothers in the adoption of healthy diets and fitness habits throughout life. Mothers should be made aware of the harmful effects of pre-lacteal feeds and the timely introduction of complementary food to the child will improve the nutritional status of the child. Mothers who knew about the child's nutrition had resulted in positive nutritional status on children. Training on improving nutritional status should be imparted to the mothers. To improve the health of pregnant mothers, better education facilities should be provided at the village level. Awareness programs on health and healthcare, the better quality of food, and education should be launched. A proper implementation will reduce IMR and increase the nutritional status of pregnant mothers.



Table 1: Foods that can be promoted from the region

<u>Foods</u>	<u>Suggested for</u>	<u>Comments</u>
<u>Fruits like bananas and other fresh fruits, white meat like chicken and fish</u>	<u>Diarrhea</u>	<u>Mizoram Health found out that infants suffered from diarrhea was 22.2 % in 2004. Health &amp; Family Welfare, Govt. of Mizoram state that 70 people died in the last five years (2012-17) because of diarrheal diseases. Since most of the people in Mizoram are Non-Vegetarian. Most of them eat red meat like pork and beef which are not very healthy. White meat should be suggested to the person who is suffering from diarrhea</u>
<u>Organ meat like liver, heart, and kidney.</u> <u>Leavy Vegetables like Mustard leaves, Pumpkin leaves, and beans leaves</u>	<u>Anaemia</u>	<u>According to NFHS-4, 25% of women, 13% of men &amp; children 6-59 months in this region are anemic. Tea is a popular drink among the Mizos. This might be the reason some of the people are anemic. Because tea interferes with iron absorption and can lead to iron deficiency anaemia when consumed in large quantities.</u>
<u>Energy giving foods like wholegrain cereals and milk should be promoted</u>	<u>Energy Deficiency Diseases</u>	<u>Some studies have shown that a large number of pregnant mothers suffer from energy deficiency in quality and quantity in the study villages. Their energy intake was lower than RDA. A correlation was established between energy intake and IMR.</u>

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# MIZO FOOD PRACTICES AND CULTURE

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## INTRODUCTION

The people of Mizoram are called *Mizo*. *Mizos* are of Mongolian stock belonging to the *Tibeto-Burman* family of languages as per the findings of anthropologists, linguists, and historians. The people themselves, however, have their theory of origin based on a popular myth that maintains the *mizos* came out of a very big cave called *Chhinlung* (Laltluangliana, 2018).

*Mizos* form one of the hill tribes of the Indian sub-continent. Their religious practices, as well as a culture, have given them a distinct *mizo* identity. The culture of the *Mizos* is intrinsically woven with their practice of *Jhuming* cultivation (Sarika Rana, 2018).

## THE MIZO FOOD PRACTICES

*Mizos* enjoy different kinds of edible vegetables including the one which are grown in the plantation or *jhum* field and which are readily available in the forest. *Mizo* food is mild and tinted with influences of mainland Indian and Chinese cuisines. Rice is a staple *Mizo* food that is enjoyed with non-vegetarian delicacies like pork, beef, fish, poultry, etc. The people of Mizoram commonly follow two heavy meals and tea in between.

### Early morning tea and large meals

The heavy mealtime is around 8:30 am. Here rice is regularly served along with side dishes like *Bai*-combination of several herbs cooked with string beans and edible ferns; this can be prepared by adding sodium bicarbonate (soda), chilli, and salt. Bamboo shoots were commonly used in cooking, *Rep* (smoked or dried under sunlight), boiled *Rep*-it means smoked, smoked meat (fish, chicken, pork or beef) mixed with flavours of chillies, local herbs, and fresh leafy greens. *Chhum han* -cooked vegetables only with plain water. *Hmarcha rawt* – chutney. *Dal*, *Bekang*-fermented soya bean. This can also be served with some curry.

During lunchtime, tea is commonly served along with some fried rice, *chow artui chhipchhuan* (egg

top rice), *chhangban* (sticky rice which is made from rice flour) which is usually accompanied by *kurtai* (*gur* or jaggery), tea with *sanpiau* (rice porridge mixed with meat sauce and spices), *Alu chop* and *sawhchiar* (rice porridge with meat).

### **Dinner**

Dinner usually starts at around 6:00 pm because *Mizo* people usually go to attend church services at around 7-8 pm. The dishes served are almost the same as breakfast time.

### **USE OF LOCAL MEDICINES**

Throughout Mizoram, different plants are utilized for local medical practices. A study was conducted in Aizawl district in which a random sampling was adopted from 200 women with age groups of 25- 55 years of age. It was observed that more than one-third of the respondents believed in the taboos related to consumption of certain non-vegetarian food, juices, green leafy vegetables, and certain other vegetables. The majority of the respondents agree that the banana flower is good for jaundice and *sarzuk* (silverberry) leaves are good for relieving pain during the menstrual period, the root decoction is also good for expelling the placenta.

*Sumbul* (wild ginger) raw plant is taken as a remedy of tonsillitis and is very good for hypertension, *thingthupui* leaves and bud decoction are good for curing diarrhea and dysentery and *aieng* (turmeric), and the rhizome juice is used as an antiseptic. A decoction of tea leaves is used as the astringent, stimulant, and diuretic. Ash gourd is good for curing diarrhea.

Most of the rural respondents agreed that egg and fermented soybean consumed together in a meal can lead to food toxicity. Many of the respondents believe that *archangkawm* (broken bones tree) is good for curing hepatitis. The majority of rural women agreed that *sarzuk* is good for easy labour at childbirth.

### **FOOD FOR SPECIAL OCCASION**

In Mizoram, big feasts are served during marriage parties, birthday parties, celebrations, and Christmas celebrations. Rice is taken as the main food along with beef & chicken curry, fish curry, pork served cooked with mustard leaves or cabbage, *Bai*, fermented soybean, boiled vegs, chutney of different types, salad, a vegetable soup which is also regularly served, *sawhchiar* (porridge made of pork soup), dessert items like pudding, *dahi* and *nimbu pani* are also served.

Catering is common in Aizawl these days instead of spending more time cooking during the celebration of birthdays, special events, etc. But during Christmas time, a large number of people especially men from every family are involved in cooking which is called '*Hnatlang*'.

This time *chhangban* (sticky bread made from rice flour) with *kurtai* (*gur*) is served along with tea during the day. In the evening a big feast is served to all the people. Rice, pork, beef, fish, chicken, boiled vegetables, *Bai*, salad, chutney, and fries are usually served. *Vawklubawl* (pork head part mixed with pork brain and some vegetables), *Vawkkawchung* (organs of pork), *bawngsa* a *tuiptui* (beef soup) are also served.

## COMPLEMENTARY FOOD FOR INFANTS

The complementary food for infants in Mizoram is almost the same as in mainland India. But due to the large availability of vegetables, the infants can also have the advantage of getting an increased amount of green, yellow, and red vegetables.

*Mizo* ladies commonly cook the food for the family, which includes rice of good quality, dal, vegetables placed in small balls with small amounts of water which is put inside the cooker along with the rice. This is taken out when the rice has been cooked and will be very soft in consistency and tolerable for infants. Another method that is usually practiced is good quality rice roasted and ground in a powdery form which is served in a container. It can be used anytime along with sesame powder and salt. Another item which is eaten commonly is called *Sawhchiar* which is *sa buhchiar* (rice with chicken soup porridge, rice with vegetables).

## CONCLUSION

*Mizos* comparatively practice taking much more varieties of vegetables including leafy vegetables and meats of a different kind. Since there is not yet proper research regarding the effects of this practice relative to the general health of the people, it is very difficult to say that the food practices of the *mizos* are good or not concerning their health condition.

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# FOOD CULTURE OF ARUNACHAL PRADESH

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Arunachal Pradesh is also called ‘The Land of Rising Sun’ and ‘The Land of Dawnlit Mountains’. It was known as North-East Frontier Agency (NEFA) till 20<sup>th</sup> January 1972. It was declared as Union Territory and formally announced the name Arunachal Pradesh by Smt. Indira Gandhi, the then Prime Minister of India on 20<sup>th</sup> January 1972. Arunachal Pradesh attained the full-fledged State and became the 24<sup>th</sup> State of the Union of India on 20<sup>th</sup> February 1987. It is situated on the extreme North-Eastern tip of India in the Trans-Himalayan region between the latitudes 26°8’N & 29°33’N and longitudes 91°31’E & 97°30’E. It is surrounded by international borders from three sides (Tibet or China on its North, Myanmar on the East & the Royal Kingdom of Bhutan on the West), and the State of Assam on the South.

The state has an area of 83,743 sq. km. is one of the largest states in terms of area in the North-Eastern Region of India with sparsely populated with only 16 persons per km<sup>2</sup> as its population density as per the 2011 census.

Arunachal Pradesh is an Agrarian State where more than 70 percent population is dependent on agriculture for their livelihood. The State is gifted with enormous natural resources and suitable agro-climatic zones. Agriculture, therefore, continues to be central to all strategies for planned socio-economic development of the state. The rapid growth of Agriculture is essential not only to achieve self-reliance but also to ensure household food security and to bring about equity in the distribution of income and wealth resulting in a rapid reduction in poverty levels <http://agri.arunachal.gov.in/crop.php>.

## TRIBES OF ARUNACHAL PRADESH

There are 26 major tribes and more than 100 sub-tribes inhabiting Arunachal Pradesh. Each tribe has its language or dialect but only a few have the developed scriptures. Though many local languages

are spoken English is considered the official language in the state and most people speak a good Hindi language to communicate with one another and the rest of the country.

Out of which, the principal tribes are Adis, Apatanis, Buguns, Hrussos, Singphos, Mishmis, Monpas, Nyishis, Sherdukpens, Tagins, Khamis, Wanchos, Noctes, Yobin, Khambas, and Membas. These tribes may have been migrated from Burma and Myanmar and some Mongoloid tribal groups are also seen in this state. They can be differentiated from one another by their tattoos, headgears, or nose plugs.

The **Monpa tribes** are found in the Western parts of Arunachal Pradesh and are a nomadic tribe that follows the Mahayana sect of Buddhism which they adopted from Merak Lama. The Tawang Monastery is the most revered place of worship for them. They are mainly involved in making shawls, carpets, paintings, masks, bags and their **language is Monpa** which is a mix of Dakpa and East Bodhish Tshangla.

The **Sherdukpens** are the most progressive tribe and speak the **Sherdukpen language** which is very similar to the Monpa language. The upper-class Sherdukpens are the **Thongs** and their servants and porters are considered to be the lower class. Thongs are involved in agriculture, fishing, and the rearing of livestock.

The **Nyishi** (means civilized human being) tribe inhabits the major part of Arunachal Pradesh, involved in making cane wrist bands and also in the cultivation of eatables such as rice, millet, and cucumber. They make cane bands to tie the long hair in men in a knot. **The Wancho tribe wears** jewelry with intricate artwork and live in **the Tirap district** bordering Nagaland. They are well known for their trademark of wood and bamboo carved figures. They are also good at weaving and tattooing. **The Nocte tribes** are dedicated followers of Vaishnavism and are well known for farming and sell a few items on large scale for commercial purposes. **The Adi tribe** is the most organized of all the other tribes and Adi women are well known for their extraordinary weaving skills. The Adis migrated to Arunachal Pradesh when Buddhism spread across Tibet in the 17th century. The Adis are famous wetland farmers and hunters.

**The Apatani tribe** is involved in agriculture and is an expert in wet surface cultivation as well as terrace cultivation, in land-use techniques, and has rich ecological knowledge. UNESCO has recognized the Apatani valley as a World Heritage Site for its 'extremely high productivity' and 'uniqueness'. Their festivals are **Drii** and **Myoko**. They are also involved in making shawls, clothes, and jewelry, bamboo, and cane products. The **Khamti** people found in the Namsai and Changlang districts are Buddhists (Theravada sect) and have migrated to the state of Arunachal Pradesh from Assam and are mainly found in the Namsai and Changlang districts and propagate their unique art form.

## CULTURE AND CUSTOMS

There was no police force in Arunachal Pradesh till 1972 as every tribe had a village council to solve issues and set moral standards. The locals believe that **Kojum-Koja** was an ancient civilization that was destroyed by a flood caused by **Biri-Bote**, the ruler of waters. A bride named **Nyangi Myete** survived this calamity and the tribes still believe that she lives on all beautiful things and is celebrated as the epitome of grace and honor.

A miniature bamboo bow and arrow for a boy and a small woven rain hat for a girl symbols is made at the entrance of the house when a **new child is born**. There is no dowry system for any marriage in Arunachal Pradesh, but the groom's family pays money to the bride's family to get the bride. A fine has to be paid for remarriage and **widows** can only take her possessions but are not allowed to take possession of their late husband's property. During the death of a family member, people visit the home of the deceased and stay overnight and sing, talk about the dead person's childhood and his entire life. All the possessions of the dead person are buried along with him/her.

### **FESTIVALS OF ARUNACHAL PRADESH**

**Torgya** is a three-day-long festival hosted by **Tawang Monastery**, well known for its monastic dances called **Cham**, and is celebrated on the 28th day of the 11th month of the lunar calendar. Zamcham, Graicham, Dungcham, and Gayicham are some of the dances that will be performed in the festival which depict the ancient tales of war.

The **Nyishi tribe** of Arunachal Pradesh celebrates **Nyokum** festival celebrated on the 26th of February to show respect for their gods and praying for a good harvest where people wear brightly colored clothes and perform their beautiful tribal dances.

The people of the **Adi tribe** celebrate **Aran, Solung, and Etor**. Solung is a five-day-long harvest festival that is celebrated in September and celebrated with songs, dances, and displays of weapons. Etor is celebrated in May where the men perform various war dances and Aran is observed in March.

**Drii and Myoko** festivals are celebrated by Apatani, which is one of the major tribes of Arunachal Pradesh. Drii is celebrated in July and involves the sacrifice of animals to the gods. And the festival of Myoko is a festival of prosperity which is celebrated in March where they sacrifice fowls to the gods.

The **Khamti** people celebrate the **Sangken** festival on the 14th of April when they splash clean water on everyone as a part of delivering blessings and a symbol of peace and purity. Idols of Lord Buddha are taken out on processions along with the people singing and dancing during the festival.

### **MAJOR FOODS IN ARUNACHAL PRADESH**

Many varieties of rice are available in Arunachal Pradesh. Rice landraces of North-East India have wide bio-diversity but remained nutritionally uncharacterized. Nutritional profiling of 33 indigenous rice landraces from the state of Arunachal Pradesh, Northeast India, and effect milling was evaluated. Total dietary fiber (5.22 g/100 g) was significantly higher than high yielding or hybrid cultivars. The principal nutrient variability of brown rice was: ash (13%), insoluble dietary fiber, IDF (12%), protein (11.%) fat (11%). Compositional diversity exists among rice landraces. Average iron was lesser but zinc content was higher than popular high-yielding cultivars. Nutrient changes due to milling were most profound for thiamin (-69%), IDF (-66%) followed by phytate (-66%).

Nutritionally Arunachal rice landraces are comparable to high yielding cultivars with the added advantage of significantly higher total dietary fiber and lower phytate content. Thus, Arunachal rice landraces represent an agronomically and nutritionally important pool for rice improvement/breeding (Longvah and Prasad, 2020).



There are over 500 species of medicinal plants reported so far from Arunachal Pradesh. They can not only cure our ailments but can also be a potential source of economy to the state ([http://arunachalforests.gov.in/medicinal\\_plants.html](http://arunachalforests.gov.in/medicinal_plants.html)). The forestry sector has traditionally been one of the most organized sectors with more than a century-old tradition of scientific management. From ancient times forests have played a very important role in the social-economic and religious activities of the local people. However, of late, forests have been adversely affected by several factors, which include a rapid increase in human & livestock population, insufficient infrastructure, and diversion of forest areas for development activities.

Several other problems unique to forestry sectors are inadequate public awareness about multiple roles of forests, low investments in forestry, sectors are inadequate public awareness about multiple roles of forests, low investments in forestry, inadequate people's participation, technological weakness, and insufficient funds and facilities. To obviate the crisis facing forestry, the National forest policy was revised in 1988 with the principal aim to bring into focus the importance of forests for environmental stability & ecological balance including atmospheric equilibrium, which are vital for sustenance of all life forms-human, animals & plants, by conserving the natural heritage of the country. The policy gives priority to the conservation of forests and biodiversity. The derivation of economic benefit has been subordinated to the principal aim.

Seal (2108) reported the proximate composition and mineral content in the edible parts of six wild edible plants e.g. *Phyllostachys mannii*, *Litsea cubeba*, *Polygonum chinense*, *Musa cheesmanii*, *Musa flaviflora*, and *Phlogacanthus thrysiflorus* consumed by the different tribal people of Arunachal Pradesh in India.

The study disclosed that for different plant species, the crude fat content ranged between  $0.83 \pm 0.03$ – $6.36 \pm 0.29\%$ . The crude protein content was determined high among the leaves of *P. thrysiflorus* ( $16.22 \pm 0.06\%$ ) and in the edible parts of *M. flaviflora* ( $10.55 \pm 0.05\%$ ). The carbohydrate content was also found highest in the leaves of *P. thrysiflorus* ( $31.96 \pm 0.10\%$ ).

The energy content ranged from  $64.32 \pm 2.73$ – $200.25 \pm 0.95$  kcal/100g in the various wild edible plants. Among the various macronutrients estimated in the plants under study, potassium was present in the highest quantity ( $10.87 \pm 0.22$ – $44.96 \pm 0.74$  mg/g) followed by calcium ( $5.52 \pm 0.19$ – $18.36 \pm 0.17$  mg/g) and sodium ( $0.18 \pm 0.008$ – $0.95 \pm 0.04$  mg/g).

The vegetables were also rich in micronutrients, such as iron, zinc, copper, manganese, and magnesium while the heavy metals Pb and Cr were detected in very low amounts in all the vegetables. The heavy metals Cd and Hg were not detected in any vegetable. These results indicate that the proximate composition, mineral, and vitamin contents of these plants under investigation were richer than that of the commercial vegetables and could be used for nutritional purposes.

## CUISINES OF ARUNACHAL PRADESH

The dishes vary based on the tribal influence of *Apatanis*, *Chuki*, *adi*, and *Nishi*. Before Independence when British policy to isolate the Hill people – the Northeast Frontier Agency was in effect, local animals and birds were a part of their routine diet. Currently, the daily diet consists of rice, fish, meat,

and green vegetables.

Many wild herbs and shrubs are also part of the cuisine. Dried bamboo shoots are used extensively in cooking.

People of the Eastern part of Arunachal are dependent on bamboo and other leafy vegetables that are strictly boiled. Fried food is not very popular as people like to eat either boiled or smoked food. Communities near the town of Twang and closer to Tibet consume more if dairy products.

Common vegetable preferred is lettuce which is prepared by boiling it with a pinch of salt, ginger, chillies, and coriander.

As mentioned earlier, Arunachal Pradesh is a state of having 26 major tribes and more than 100 sub-tribes. Each tribe has its kind of foods but the major foods in the state are as follows:

**RICE:** Rice is a staple food among all tribes in Arunachal Pradesh. The main different thing is that the people in the state prefer to cook rice in the hollow bamboo to give it more flavor. Boiled rice cakes wrapped in local leaves is a famous snack.

**MOMO:** Momo (Veg. Momo & Non-veg. Momo) is one of the famous foods of Arunachal Pradesh.

**BAMBOO SHOOT:** As one may be aware that most of the tribals in the North-Eastern region of India, bamboo shoot is widely eaten and as such in Arunachal Pradesh also it is used because of its delicate flavor and is a chief component of food. Bamboo shoots are used in the dishes of boiled vegetables, cooked meat, pickles, and chutneys.

**CHURASABJI:** It is a curry made of fermented cheese made by either yak milk or cow's milk with flakes and a few pieces of the King chilly which makes it spicy but delicious.

**CHHURPI:** Chhurpi is another kind that adds delicacy and is one of the main components of food of some tribes in Arunachal Pradesh. It is made up of two types – one type of chhurpi is made up by the fermentation of cow's/yak's milk and is called white *chhurpi* or *Nhor Chhur* or *chhur kher*. Another kind is made up of soya-beans which is locally called *grep chhur* or black chhurpi.

**LOOGTER:** Loogter is a combination of cooked dry meat and chili flakes (from the King chilly or Bhut Jolokia). It is another delicacy and eaten as a side dish with rice.

**PEHAK :** This is a hot and spicy chutney that is made by the use of fermented soya bean and chilli (King chilly or Bhut Jolokia) and is eaten with rice.

**MEAT:** In Arunachal Pradesh, meat is the main delicacy but people here prefer not to have their meat fried, and it's either boiled or smoked.

**PIKA PILA:** Pika Pila is a type of pickle that is made by using bamboo shoots and pork fat with a little addition of King Chilly and is mostly made by the **Apatani tribe** of Arunachal Pradesh.

## BEVERAGES

**TSHA-JAH:** Tsah-Jah is a tea made up of local ghee with added salt and is usually preferred by people in areas with extreme cold. It is also called butter tea and salt tea.

**MARUAH:** Maruah is another kind of local alcohol made up of barley/*bajra*/millet.

**APONG:** Apong is a local name for rice beer and is one of the most traditional drinks of Arunachal Pradesh. This is a kind of beer (wine) that is purely home-made and is free from any chemicals.

Besides the above-mentioned foods, many other delicious food items are prepared and eaten by respective tribes. T-momo, thukpa, local noodles, other food items made up of different flours, etc. are few more foods found in Arunachal Pradesh. The most important thing is that the people of Arunachal Pradesh prefer the boil foods.

### **NUTRITIONAL STATUS OF THE POPULATION**

Nutritional assessment of Nyishi adults of Papumpare district of Arunachal Pradesh was recorded by Ozar et al, (2017). Socioeconomic status, dietary habits, and anthropometric parameters were implemented with the help of a food and health frequency questionnaire and other anthropometric tools. The study also showed that education, occupation, as well as family pattern, directly affects the food budgeting of the people that ultimately shade impact on health. The anthropometric measurement was done among 100 adults of both sexes of the rural and urban area and BMI were calculated.

Results showed the prevalence of 14% chronic energy deficiency in rural adults whereas it was only 4% in urban. Likewise, 60% of people were found to be as normal in rural against 52% in urban. On the other hand, 14% of a rural adult found to be normal (optimal) and 26% of an adult found to be in prehypertension (normal) against 8% of an urban adult found to be normal (optimal) and 24% of an adult found to be in prehypertension (normal) condition.

### **WAY FORWARD**

Following steps to be taken on priority for improving the Food & Nutritional Security in Mission mode by 2022 & 50% surplus by 2030 by Agro-ecological zone-specific crop planning, creation of adequate irrigation potential, enhancement of Cropping Intensity (CI) to at least 180% (2030).

- Area expansion for crops cultivation by land terracing (up to 25% slopes) of areas under Jhum practice
- Improvement of Jhum productivity through nutrient management and special emphasis on pulses in the cropping system.
- Achieving Seed Replacement Rate (SRR) of Rice (30%), Other Self Pollinated Crops (20%), Cross pollinated crops (50%).
- Replacement of low-performance varieties of Rice, Coarse cereals & Pulses by HYV.
- INM and IPM with special emphasis on the use of organic nutrients & pesticides.
- Promotion of Farm mechanization to bring down the cost of cultivation and post-harvest losses.
- Present Double cropping area of 74600 ha to be enhanced to 100000 ha by 2017 (135% CI), 160000 ha by 2022 (160% CI), and 215000 ha by 2030 (180% CI) with priority in foothills areas.
- Redecoration of farm activities into a commercial venture to enhance farm income by doubling area

under Ginger, Turmeric, Mustard, Large Cardamom, Potato, Chilly & King Chilli.

- Promote cultivation of Tree borne oilseeds viz. Oil Palm with processing and market linkage through PPP mode.
- Major emphasis on the enhancement of Off-season vegetable production to a level of 100000 MT marketable surplus by increasing area up to 25000 ha.
- Traditional organic agriculture by default to be transformed into Organic by design with state organic policy support. Conversion of 2.50 lakh ha area into certified organic to be marketed in the domestic and global organic market.

### **Double cropping**

- Creation of additional irrigation potential and renovation & maintenance of existing irrigation infrastructures.
- Promote Double cropping by providing fencing materials as Govt. assistance for Community fencing and Erection, Masonry & maintenance cost to be borne by beneficiaries in a minimum of 10 ha command area in each cluster.
- Maize-Rice, Rice-Mustard, Rice-Potato, Maize-Vegetables, Rice-Rabi Pulses cropping sequences to be followed to enhance Cropping Intensity vis-a-vis higher crop production.
- 20000 ha under Rice fallow to be covered under Rabi pulses in Rice-Pulse sequence.

### **Enhancement of farm income**

- Promotion of Apiculture in mission mode to improve the productivity of Oilseeds and Income generating venture through the export of organic honey.
- Promote Private investment in the farm sector for value addition, processing, branding, and post-harvest management for better marketability.
- Involve Private sector stakeholders in Integrated Cold Chain & Common Infrastructure management for remunerative marketing of surplus produce.
- Develop market infrastructure & linkage through PPP mode For access into domestic and overseas market.
- Promote primary processing of perishable farm produces through private sector stakeholders.
- Create Farm connectivity for surplus producing areas for smooth transportation of produce to markets.
- Transform Arunachal into a favored Agro-tourism destination by dovetailing with Tourism promotional schemes and Destination marketing of Arunachal's agrotourism.
- Rural Income generation through intensive cultivation of Mustard, Potato, Off-season Vegetables, Ginger, Large Cardamom, King Chilli, etc).

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# NUTRITIONAL ANTHROPOLOGY OF THE TARAO TRIBE OF MANIPUR

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## ABSTRACT

Food habits determine the mental and physical health of a community. It also reflects the nature of social and geopolitical aspects of the community as regards their assertion as a socio-politically and socio-culturally established community. The inter-connectivity of the traditional food habits of the ethnic communities and their cultural practices, wherein the one supplements the other, is specifically brought into focus in this study. The choice of certain foods for rites and ritual processes determine the relationship of local communities to their natural surroundings, whereby certain food items and their uses had become integral to their socio-cultural life. The study, while interacting on the lifestyle and food habits of local communities, focuses on the cultural elements embodied in their oral tradition, folk beliefs and traditional practices which form the core of the numerous rites and ritual worships that the communities observe during their annual and periodic ritualistic ceremonies and festivals. This paper looks at the existing structure of traditional practices on foods and food habits of the Tarao tribe of Manipur that are embedded within their society.

**Keywords:** Tarao tribe, Manipur, food habits, nutritional anthropology.

## INTRODUCTION

Tribals constitute about 8.08 percent of India's total population. In India, it is estimated that there are 427 tribal communities. According to the Census of India (1991), among the 15 major states, Madhya Pradesh had the largest proportion of scheduled tribe population (23.27%) which is followed by Orissa (22.21%). Because of geographical reasons, they inhabit very small villages scattered throughout mountainous terrains. And, due to multi-dimensional factors, tribes face many problems like illiteracy, poverty, difficult terrain, isolation, superstition, and inadequate health facilities.

Manipur has a large percentage of the scheduled tribe population. About 34.4% of its population belongs to the scheduled tribes, whereas, the scheduled caste population is very less at 2.02%. However, there is a distinct division in the demographic pattern between the valley and the hill districts. The scheduled caste and scheduled tribe population account for only around 5% and 3% respectively out of the total population in the valley, whereas, the same accounts for about 90% and 1% respectively for the hill districts.

According to the 2001 Census, Manipur had a population of 23,88,634 persons. The sex ratio of the population was 978 (rural: 969, urban: 1,009). Scheduled castes and scheduled tribes accounted for 60,037 and 7,41,141 persons respectively. The population density was 97 people per square kilometer. Main and marginal workers accounted for about 44.79% of the population as per the 2001 census. Further, 46.06% of the main and marginal workers are cultivators. Two-thirds of the total population is concentrated in the valley and one-third in the hills which are sparsely populated.

Ethnic groups inhabiting Manipur are the Meiteis, the Meitei Pangan (Manipuri Muslims), and a large number of scheduled castes and scheduled tribes. There are thirty-three Scheduled Tribes in the State (Gazette of India No.10 of 2003), namely, the Aimol, Anal, Angami, Chiru, Chothe, Gangte, Hmar, Kabui, Kacha Naga, Koirao, Koirang, Kom, Lamgang, Mao, Maram, Maring, Mizo, Monsang, Moyon, Paite, Purum, Ralte, Sema, Simte, Sukte, Tangkhul, Thadou, Vaiphei, Zou, **Tarao**, Kharam, Poumai, and any Kuki tribes. The list has since been supplemented with the addition of Mate, and Zemei, Liangmai, and Rongmei in place of Kabui as notified earlier by the Government.

## **METHODOLOGY**

The information content, that is, both the qualitative and the quantitative, were collected from the field studies conducted at the Tarao inhabited villages. A Performa giving detailed schedule covering the demographic, ethnological background, socio-economic aspects, socio-religion ceremonies, food and dietary habits, and anthropometric measurements have been used. The primary source of information was obtained from the village community, while the secondary sources of information were obtained from publications and other documents.

## **OBJECTIVES OF THE STUDY**

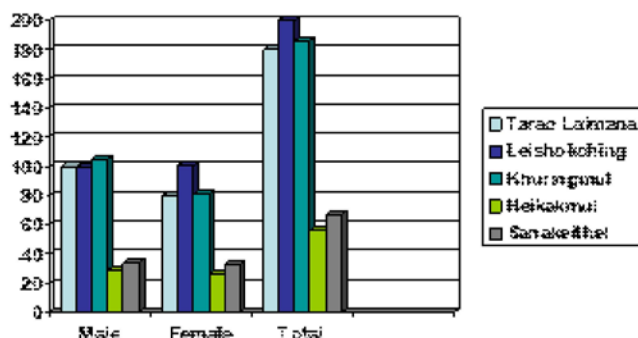
The main objective of the study is to assess the nutritional status of the Tarao tribe and attempt to understand the sources and types of foods and food habits of the tribe.

## **THE TARAO TRIBE**

The Tarao tribe is one of the smallest and least known tribes in Manipur. The tribe is confined mainly in the hill district of Chandel, with population distributed in the villages of Tarao Laimanai, Leishokching, Khuringmuul, and Heikakmuul, with another small population settled in Sanakeithel village in Ukhul District. The tribe is also one of the languishing tribes in the State. After several years of petitioning the Government of Manipur to accord formal recognition of the tribe as a Scheduled Tribe of Manipur, the Tarao was finally given official recognition as a Scheduled Tribe by the Government of India in January 2003. According to the Scheduled Castes and Tribes Order (Amendment) Act, 2002

(No.10 of 2003), the Tarao is the 31st tribe in the Scheduled Tribe list of the State of Manipur. Tarao distribution is based on a study by the author in 2003.

In appearance, the Tarao tribe is like any other Mongoloid race who inhabit Manipur. In language and custom, they closely resemble the Chin-Kuki groups. Accounts of the Taraos are found in the royal chronicle of Manipur, the Cheitharol Kumbaba, reflecting their involvement in state affairs as early as 1263 A.D.



Walter Wallace (1969) defined the term 'social' as the 'inter organism behavior relation among human beings'. The elementary social relationships involving a few people become, in turn, the making of the more inclusive social entities such as groups, collectivities, societies, and civilizations. The change from an extended family to a nuclear family may involve not only the diminution of the kinsmen living in the same household and their respective roles but also the curtailment of obligation towards them.

The Tarao society is patrilineal and follows a single line of descent. In their social setup, the Tarao male is relatively more important than the female. In earlier times, the Tarao tribe had a preference for the joint family but due to various reasons, they are now going for small family units.

Traditionally, the Tarao is an endogamous group that goes for inter-clan marriages. But these days there are not many restrictions to marry. One can find several marriages even going beyond the prescribed limit. These changes must have been introduced by the forces of westernization and conversion. The maternal and paternal kinsmen are culturally distinguished in the Tarao kinship system. They also maintained a difference between consanguineal and affinal relatives. A traditional Tarao family is an autonomous unit of production and consumption, patrilineal and patriarchal, and is based on male supremacy. Ideally, there are both joint and nuclear family structures.

## ETHNOLOGICAL ASPECTS OF GASTRONOMY AND RITES AND RITUALS OF THE TARAO TRIBE

The Tarao food habit is very much influenced by both locally produced crops and the availability of imported food items. Their food habit is also influenced by the traditional belief system and customs. They collect a wide variety of seasonally available edible roots, leaves, fruits, tubers, and mushrooms from the wild for their daily diet through the year. They grow vegetables like beans, colocasia, pumpkin, cucumber, Ash-gourd, gourd, sweet potato, taro, etc. for consumption. Normally, the food items change according to the seasonal supply of crops and vegetables. Their staple food is rice and this may be substituted occasionally by roots, tubers, and greens. During the monsoon and the lean seasons, preserved food items like pumpkin, taro, and corn form their major diet.



The sacrifice of either animal or bird and followed by a religious feast is the common feature in their festivals. In the religious feasting and the other social occasions such as marriage and death ceremony, the Tarao cook rice by the steaming method, a traditional way of cooking rice by the tribe.

According to a popular Tarao belief, pregnant women are discouraged from plucking fruits or vegetables that are grown on the terrace roof of the house. It is believed that if they eat these fruits or vegetables, they may remain barren. Interestingly enough, it is believed if pregnant women eat mud, the child born will be healthy. Bitter fruits and foodstuff are not eaten by the pregnant women, for the Taraos believe that if they do so, the child born will be selfish in its later life. They also believe that bitter foodstuff influence the obstruction in the milk flow of the lactating mother. The inner-most stem of the banana plant is given to lactating mothers for it is believed that it helps in the milk flow of the mother. Lactating mothers avoid spicy food for about five months. They are encouraged to eat *Yenbum*, a local plant believed to be good for blood circulation.

According to another popular belief, once a very lazy girl by the name of Trimjur ran into the forest to avoid work, and she disappeared. It was believed that she was transformed into an elephant. The Katrimsha clan, to whom the girl belonged, thus treated the elephant as human and they refrained from killing or eating the meat of the elephant.

In yet another belief, there was a girl from the Tlangsha clan who went into the forest holding a needle and white yarn in her hands. She disappeared inside the forest and it was believed she was transformed into a bear since the bear has white fur on its breast. The Tlangsha women do not eat bear meat on this belief. The Taraos are also discouraged from taking the meat of the monkey.

### **TRADITIONAL FOOD PATTERN**

A study of the Tarao diet reveals that they are inclined to non-vegetarian dietary patterns. However, they rely on less spicy diets. Rather, simple boiling free from oil, steaming, and baking is the important medium of food preparation among the Taraos. The Tarao relish eating rice cooked by the steaming method. This involves a method of cooking rice by hot steam from boiling water which is contained in a pot placed beneath a vessel in which the rice is kept. The rice is washed thoroughly before placing in the vessel. No water is contained in the vessel. It has a small hole at the bottom to allow the steam to pass through. Rice cooked in this method is highly nutritious and tasty. This method of cooking rice by steaming is also practiced by the Chakpa people of Andro and Phayeng villages.

Traditionally, the tribe gets their foodstuff from two sources, firstly, as products from slash and burn to farm, and shifting cultivation, and secondly, as minor forest produce. In modern times, the tribe avail pulses, edible oil, salt, and other food items from the market. For the average villagers, rice forms the main diet and so there is an emphasis to store enough rice to last through the year for the family.

In Tarao Laimanai village, crops are cultivated in the *jhum* fields on land owned by the village community. In the other Tarao villages where it is very little or no arable land of their own, rice is collected through different means such as payment for manual labor in other people's paddy fields during the plantation and harvest seasons, and purchase of the commodity with money earned from small-time businesses and trade. In cases where adequate rice is not available for the family to last

through the year, substitute food is obtained in the form of corn and yam. It has been observed that the rural poor in the interior areas of the State consume yam as their main diet when rice is not available. The Tarao consume vegetables, cereal, and meat as their supplementary diet.

Tarao villagers, who live in the uplands, such as in Tarao Laimanai village, depend primarily on the forest resources for their livelihood and sustenance. They practice *jhumming* on the uplands overlooking the village. The *jhum* cycle at present in the Tarao Laimanai area is between 6-7 years to a maximum of around 14 years. Villagers living in recently established villages in the foothills, like Leisokching, Heikakmuul, and Khuringmuul, lack access to forest resources and they have largely to depend on wage labor to earn their livelihood.

Poverty or the lack of resources is a reason for less consumption of meat of fowl, pig, and other animals in most of the Tarao villages. Few people such as the local village administrators do have access to a choice of food to some extent. But there is a belief among the members of the Tarao village authority that consuming the meat of the animals killed by other animals would bring misfortune to their village.

The Tarao attach much value to their traditional food habits and food acquiring practices. They do not have the habit of taking milk. However, there is no restriction or taboo for it. On the whole, rice is accepted not only as the staple food but as a status in comparison to corn, yam, and other tubers. Further, the vast majority of people are not aware of the types of foodstuffs required to meet the dietary requirements for the different age groups. Custom, habit, and appetite determine the selection of their food. Faulty diets, however, lead to ill health and disease. Good health can be made possible by good eating habits.

Children are fed with mashed cooked rice added with water or sometimes with a banana to give a nourishing food. Egg normally is not given to young children as it could give stomach ache or gastritis problems. In the daytime, feeding is done three times. At late nights, only two meals are provided. Meat such as that of deer (*Satchan*), wild boar (*Lamoak*), Mithun (*Sandang*), and chicken are given to the children. For the old persons, simple boiled food (*Champhut* in Manipuri) and country brew (*Khaachii*) form the main diet. The latter is taken in place of tea or other modern drinks.

The Tarao traditional knowledge on the use of particular plant or animal parts as medicine by consumption as food is quite interesting. There are various examples (Table 12). For instance, they consume the new leaves of the Pomegranate plant for treating diarrhea, or they consume boiled or baked Passion fruit leaves for treating cough and high blood pressure. They also drink a liquid preparation by boiling Passion fruit leaves for the same purpose. The Tarao consume the bile of animals for treating fever. For toothache, the bud of *Hakungnaii* is made into a paste and is placed on the injured area of the gum. In the kidney stone case, the boiled liquid of *Hakungnaii* is consumed.

#### **ANTHROPOLOGICAL APPROACH IN FOOD STUDY**

Activities in most tribal societies center on the problem of finding food. The current nutritional status of the tribes is far from satisfactory and reflects inadequacies in the availability of food in economic, and sometimes physical access to the food that is available in the knowledge of the best ways to use the available resources and in health practices that affect the biological use of the food that is consumed.

The study of food in anthropology began during the nineteenth century with Garrick Mallory (1888) and William Robertson Smith (1889). Anthropologists usually aim at identifying and suggesting solutions to problems of inadequate growth and food insecurity and sustainability in the human population. Maintenance of good nutrition implies adequate intake of food, sufficient in quantity and of good quality, which supplies the body with all nutrients needed for growth, maintenance, and physical activities (Murthy, 1988). Jelliffe (1966) has suggested that environmental influence, especially nutrition, is of greater importance than genetic background or other biological factors.

Food habits vary from one cultural group to the other, and in their evolution sets up a complex pattern of standardized behavior. As the social, economic, and demographic factors play a vital role in the variations in consumption of foods and nutrients, it is necessary to verify the factors associated with the variations in pattern and nutrient adequacies.

Nayga (1994) in his study analyzed the socio-economics and demographic factors and urbanization, region, race, ethnicity, sex, employment status, food stamp participation, household size, weight, height, age, and income. He found that several of these factors significantly affect the consumption of certain nutrients.

Faulty dietary habits and food taboos coupled with religious foods, ceremonial foods, avoidance of some food with preference to a particular food, may restrict the intake of a variety of food and ultimately may be the causes of deficiency diffuses with different clinical signs.

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# ANTHROPOLOGY OF FOOD IN THE NORTHEASTERN STATE OF MANIPUR

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The state Manipur lies at the north-eastern region of India, with Imphal as its capital. The state is confined by an alluring landscape with 9 (nine) hills, valleys, lakes and dense forests. It has diverse ethnic groups speaking different languages and dialects. The state covers an area of 22,327kms and has a population of almost 3 million including the Meiteis, Meitei Pangals, Chin Kukis, Nagas and other communities. Among them, the Meitei community is a major group in the state and *Meiteilon*, popularly known as Manipuri is the main language of the state.

## INTRODUCTION

Based on their distinct culture and traditions, over 36 (thirty-six) indigenous tribes have been registered in Manipur which either falls under the Nagas or the Chin Kukis. The Meitei community follows Hinduism & Sanamahism, the Nagas and the Chin Kukis follow Christianity and the Meitei Pangals follow Islam. Some communities also follow Judaism, Buddhism, etc.

Each community has its distinct dietary habits or food intake. Although different communities have their varieties of food on the daily basis, meals are based on rice with dishes of vegetables, fish, and meat. There are varieties and variations in the food and food intake of the people of Manipur. The Chapter, therefore, focuses on the detailed insight into the dietary patterns among the people of the state. It will also deal briefly with the food taboos and practices of the state. Further, it will talk about the various



indigenous cuisines of Manipur. Finally, this Chapter would throw light on the nutritional values of some indigenous food particularly the herbs and veggies taken by the Manipuris.

### **DIETARY PATTERNS OF THE MANIPURI PEOPLE**

The dietary patterns of the inhabitants of Manipur are varied depending on the ethnic culture and tradition. The Manipuri people depend on the local source of a variety of vegetables which are mostly grown at home or are procured from the local market. Due to this, the dishes of the Manipuri cuisines are mostly seasonal and organic. People used the aromatic herbs and roots while cooking and thus give a significant feature of the Manipuri cuisine.

Rice as a staple food is consumed daily along with some dishes. They prefer food that has less oil consumption. The Manipuris are also fond of indigenous fermented foods like *Ngari* (a fermented fish), *Hawaijar* (fermented soya beans), *Soibum*; *Soidon*; *Soijin* (fermented bamboo shoot products), *Hentak* (a fermented paste made with sun-dried fish powder & taro). A major spice that features in most Manipuri cuisine is the *Umorok* (king chilli). According to findings, fermented foods are associated with a unique group of microflora which increases the levels of Protein, Vitamins, essential amino acids, and fatty acids. (Anna Senrung et.al. 2019). Manipuris are also fond of various species of mushrooms which added to their cuisines.

The Manipuri tribal people mainly prefer non-vegetable foods. They used to have rice with boiled vegetables and meat using aromatic tree leaves and roots to enrich the flavor. Alcohol beverages made up of rice are very common in almost all the festivals of the tribal peoples of Manipur locally called *Yu*. (Devi and Kumar, 2012).

### **ENTOMOPHAGY**

Entomophagy, the practice of eating insects, has a great deal of importance and history with many countries of the world however, its consumption species of insects and their value differ from community to community. Traditional ethno-entomology is practiced by the Mao-Naga tribe and the Poumai-Naga tribe from Senapati district of Manipur, Northeast India has been studied by Kapesa and team who reported that overall 53 and 51 species of insects were consumed by the Mao-Naga and Poumai-Naga tribes respectively consisting of 9 orders and 18 families.

The order Hymenoptera was the maximum number having 20 edible insect species from both the tribes. The order Diptera, Isoptera, and Mantodea have the least edible insect of 1 species each from both the tribes. Besides entomophagy, which adds to the overall protein intake, some insect species were believed to have ethno-entomological uses (Kapesa et al, 2020).

### **FOOD HABITS OF MARAM NAGAS OF MANIPUR**

Anthropologists Meithuanlungpou and Singh (2015) have recorded that the Maram Nagas of Manipur belong to the poor socio-economic group and are involved in *Jhum*, terrace cultivation. The Marams apart from rice which they gather annually from the paddy field, also depend on other seasonal wild vegetables, fruits, and animals from the surrounding forests. Hunting for wild animals and fish by men and collections of wild vegetables by women folks are frequent leisure activities found in the Maram

society. Food and drinks of the Marams are mostly simple and it meets the daily requirement of nutrients so also it is a great source of fun and gratification in times of festivals.

Fermentation of food for future use is an age-old skill of the Maram Naga. The Maram women spare time to preserve easily decomposable seasonal food items by fermenting or drying. Bamboo shoots (*Kabiit badue*), Soya beans (*Lachiimatang*) and mustered leaf juice (*Zangein diu*) are commonly fermented food items.

The daily diet of Marams includes rice and other seasonal products like maize and cereals. Their favorite liquor is the rice beer (*Reshuujou*) which is prepared using locally available rice. The meat of domesticated animals and wild animals including freshwater river fish is very much part of their special menu of festivals and rare occasions but Marams do not eat pork as they believe that the pig was the progenitor of the village Maramei Namdi.

The indigenous drinks (liquor) of the Maram Naga tribe include:-

- Rice Beer (*Reshuujou*),
- Husks Wine (*Joukhii*),
- Banana Wine (*Aghumtijou*),
- Red Tea (*Acha Kagang*),
- Plain Boiled Water (*Dwe Kamaliim*) And
- Sometimes Alcohol (*JO U Hei*) is also taken by the elders which are imported from Imphal Valley.

## **INDIGENOUS TRADITIONAL KNOWLEDGE AND USAGE OF FOLK BIO-MEDICINES**

Rongmei tribe of Tamenglong district of Manipur, India which are also known as Kooki, and are an inhabitant of the Charoi Chagotlong village, Tupul, Tamenglong district of Manipur. These tribals have the traditional knowledge of folk bio-medicine based on diverse plant species for the prevention and cure of certain chronic diseases.

A total of 60 species belonging to 36 different families (ranging from gymnosperm to angiosperm with medicinal benefits), such as the Fabaceae (5), Zingiberaceae (4), Dioscoreaceae (3), Asteraceae (3) Anacardiaceae (3), Lauraceae (3), Oxalidaceae (3) and Moraceae, Magnoliaceae, Solanaceae, Poaceae, Euphorbiaceae, Acanthaceae, and Lamiaceae and were used by locals for ethnomedicine as reported by Prakash et al (2014).

Of the recorded plants, 22 species (36.7%) were herbs, 13 (21.7%) were shrubs, 17 (28.3%) were trees, 2 (3.3%) were grass as per their growth habitat. Based on plant parts used, 13 species (21.7%) were leaves, 6 (10%) as fruits, 1 (1.7%) as bulbs, 6 (10%) as bark and leaves both. Many other parts usage such as bark, (5%), roots, (3.3%), seeds 6.7%, tuber (5%), trunk, flowers, shoots, rhizome, stem, whole plants were also recorded. Thus efforts should be made to promote the use of traditional bio-medicines within rural communities to preserve the traditional knowledge.

## VARIOUS INDIGENOUS FOODS OF MANIPUR

Traditional knowledge of eating raw plants by inhabitants of Manipur as medicinal or health supplement in their diet is an age-old practice. Different underutilized vegetables are used for the preparation of delicious dietary items. Some of them are winged bean (*Tengnoumanbi*), sword bean (*Tebi*), Rhizome of lotus (*Thambou*), arrowhead (*Koukha*), fermented and non-fermented bamboo shoot (*Usoi/soibum*), Foxnut (*Thangjing*), etc (Chanu et al. 2019).

These underutilized vegetables are available freely or consumed in many forms as raw or cooked by the Meitei community in Manipur from time immemorial. They are used for various local delicacies preparation due to its medicinal value and good taste. Some of the healthy dishes of Manipur are shown below.

### 1. KANGSOI

*Kangsoi* is a mixed vegetable stew cooked with *Ngari* and dry fish.



### 2. EROMBA

*Eromba* is prepared with mashed potatoes, veggies, *Ngari* and some chilli.



### 3. CHAMFOOT

*Chamfoot* is a simple boiled veggies with little sugar/salt.



#### 4. KANGHOU

*Kanghou* is a stir fried spicy food prepared with some veggies.



#### 5. PAKNAM

*Paknam* is a baked dish prepared with besan, herbs, veggies, chilli and *Ngari*.



#### 6. SINGJU

*Singju* is a spicy salad prepared with fresh veggies, *Ngari*, roasted powdered perilla seeds and roasted besan.



#### 7. OOTI

*Ooti* is a thick gravy prepared with green peas, green veggies which includes khari (baking soda).





## 8. MAROI THONGBA

*Maroithongba* is a dish prepared with Chinese chives including *bori* (a balls made by paste of black gram), *thangjing* (water fox nut) and *yongchak* (tree bean).



## 9. CHAGEMPOMBA

*Chagempomba* is a dish prepared with *Hawaijar* (fermented soya bean) veggies and *Yongchak* (tree bean).



## 10. CHAKHAO KHEER

Chakhao kheer is a pudding prepared with forbidden black rice and sugar with toppings of dry nuts.



11. **SOIBUM**, a fermented bamboo shoot product, an indigenous food of the state of Manipur used as an indispensable part of the diet. *Soibum* is produced exclusively from succulent bamboo shoots of the species *Dendrocalamus hamiltonii*, *D. sikkimensis*, *D. giganteus*, *Melocana bambusoide*, *Bambusa tulda*, and *B. balcona*. Noney/ kwatha type and andro type are two types of fermentation procedures adopted. The outer inedible and hard casings of succulent bamboo sprouts are peeled off while and the soft portions are chopped and pressed tightly into wooden or earthen pots and left to ferment for 6-12 months in both methods (Nazish, 2013). It is consumed as a regular side dish consumed with steamed rice.

12. **CHAKHAO** is indigenous **black rice** famous for its attractive color and aromatic flavor. According to the findings, it is a good source of protein, vitamin E, fiber, and minerals. It also contributes to the

prevention and management of ailments such as atherosclerosis, diabetes, Alzheimer's disease, hypertension, high cholesterol levels, arthritis, allergies, aging signs, and even cancer (Manipur Organic Mission Agency, 2018).

Asem et al (2017) have reported that the **black scented rice of Manipur** known as *Chakhao* is very glutinous and two varieties Chakhao Poireiton and Chakhao Amubi was available. Both are rich in anthocyanin and phenolic contents and have strong antioxidant activity. The major anthocyanins of the Chakhao Poireiton variety are delphinidin 3-galactoside, delphinidin 3-arabinose, and cyaniding 3-galactoside. The aroma of this rice is due to the presence of 26 volatile compounds that have been recorded by GC-MS analysis in Chakhao Poireiton and 11 volatile compounds in Chakhao Amubi. These volatile compounds were a complex mixture of n-hexadecanoic acid and actadec-9-enoic acid in Chakhao Poireiton and 17- pentatriacontene, 13-octacenal (Z) and hexadecenoic acid ecosyl ester in Chakhao Amubi.

13. **GINGERS OF MANIPUR** – Sharma et al (2011) have identified 33 species under 9 genera that have been collected from different parts of the Manipur State. The characteristic features of the specimen, their traditional uses, anti-oxidant compounds present, and biological activities are described. The identified genera were Alpinia (3 spp.), Amomum (5 spp.), Boesenbergia (1 sp.), Curcuma (10 spp.), Elettaria (1 sp.), Hedychium (7 spp. and 1 variety), Kaempferia (2 spp.), Roscoea (1 sp.) and Zingiber (3 spp.). Of these, 26 species have been used variously as food (15), traditional medicine (21), and ornamental plants (9) by the ethnic people in their culture. Ten species have been identified to possess various bioactive molecules (Sharma et al, 2011).
14. **KHOUKHA BORA/ KOUKHA KANGHOU** (Arrowhead fritters /fried): Arrowhead is the edible tuber of the arrowhead plant which grows in rice field and swamps. In Manipuri cuisine, it is eaten stir-fried (*koukha kanghou*) or as fritters (*koukha bora*). It is prepared by frying the arrowhead dipped in besan paste. It is famous for its taste and delicacy in every local market and small hotel.
15. **WILD EDIBLE PLANTS**: A total of 68 wild edible vegetables belonging to 42 families were documented which are being used by indigenous communities for nutritive and therapeutic purposes. Of these species, 54 are perennial (79 %) while others are annual (19 %). Herbaceous plants make up the highest proportion of edible plants. Leaves are the dominant edible part followed by shoot and stem, and most are consumed through cooked food.

Further, 57 species (84 %) are commonly available, and 11 (16 %) are rare. According to integrated assessment, 2 species have the highest integrated value, 26 species have high value, 31 species have general value and 9 species are of low value. The majority of the species have a high or general value (Konsam et al, 2016).

**16. INDIGENOUS HERBS AND VEGETABLES**

Sl. No.	LOCAL NAME	COMMON NAME	SCIENTIFIC NAME	ENERGY (Kcal)	PROTEIN (100g)	CARBO. (100g)	FIBRE (100g)	FAT (100g)	MINERALS FOUND
1.	CHANTRUK	Shepherd's Purse	<i>Capsella bursapastoris Moench</i>	-	0.29g	0.1g	-	.02g	Vit.A,B1,C & Fe
2.	MAYANTON	Hoary Basil	<i>Ocimum canum Sims</i>	-	0.16g	63.9g	-	0.5g	Vit.C
3.	NUNGSHIHIDAK	Spearmint	<i>Mentha spicata</i>	44Kcal	3.29g	8.41g	6.8g	0.73g	Vit.A,C,Ca, Fe, Mg, Mn, Zn, Cu
4.	MAROINAPAKPI	Hooker chives	<i>Allium hookeri</i>	-	1.25g	-	3.16g	0.008g	K, Ca& Na
5.	MAROINAKUPPI	Chinese chives	<i>Allium tuberosum</i>	-	2.6g	2.4g	0g	0.6g	Vit.A,B1,B2,C, Ca, P, Fe, Mg, Na, K, Zn
6.	AWAPHADIGOM	Culantro	<i>Eryngium foetidum</i>	-	0.3g	0.65g	2.7g	.06g	Ca, Fe, P, carotene&Vit. A, B1,B2
7.	PERUK	Pennywort	<i>Centella asiatica</i>	-	1.75g	7.03g	3.47g	0.53g	Ca, Fe, Mg, P, K, Na, Zn, Vit.A & C
8.	YENDEM	Indo Malayan Taro	<i>Colocasia Schott</i>	187 Kcal	2.2g	23g	1.9g	0.1g	Fe, Cu, Mg, K& Zn

9.	YONGCH AK	Tree bean	<i>Parkia timoriana</i>	514Kca 1	26.1g	37.3g	2.56 g	28.8 g	Vit.C, folic acid, beta- carotene
10.	KOLAMNI	Water spinach	<i>Ipomoea aquatic Forsk.</i>	19Kcal	2.6g	3.1g	2.1g	0.2g	Ca, Fe, Vit.A & C
11.	SOUGRI	Roselle leaves	<i>Hibiscus sabdariffa</i>	-	3.5g	8.7g	-	0.3g	, Vit.A, C, Cal, Fe

**Source:** Purdue University, Famine Foods; Omotade Oloyede, Aluko Bukola, Anthony Jide Afolyan. (2012); nutrition-and-you.com. (2019); www.researchgate.net; Rotter.ex Spreng; Christopher Ramcharan(1999); www.b4fn.org>resource>details; Md. Rabiul Karim, Nasrim Ferdous, Narayan Roy, M.G. Sarowar Johan, Apurba Kumar Sarkar, Mohammad Shariar Shovan. (2015); A. Jugindra Singh. (2013); Nutrition facts of Water spinach (Google specialist); Pragya Singh, Mahejibin Khan, Hailu Hailemariam. (2017); Beon Young Won, Ki-Young Shin, Hyun Jee Ha. (2015); en.m.wikipedia.org.Ginger.wikipedia; Prof. N. Irabanta (2016); Malia Frey (2020)

## FOOD TABOOS AND FOOD BELIEFS

Food taboos and food beliefs hold a vital role in people's health. Food taboos and beliefs are different for every community considering their religion, culture & tradition and also differ from place to place. And various communities in the state follow certain food restrictions for women which are mainly related to their health and reproductive cycle.

Pregnant women need more nutritious dietary habits including vitamins and minerals for the betterment of their health and the baby's growth and development. In Meitei community, women in the postpartum period are restricted to have oily & spicy foods and advised to give simple boiled foods prepared with vegetables (for example, *yendem* (Indo Malayan taro) *kangsoi*, which has high iron content). It is a customary practice to serve *Hentak* (a paste of fermented sundried fish powdered and taro) and a special fish called *Ngamu* (commonly known as lata or snakehead) to the women in this period (postpartum).

Restrictions are also applied according to the diseases the people have. Meithuanlungpou G and Singh N (2015) have reported that many food items were considered taboo for different categories of people in a Maram society. Some of these food taboos are still practiced by today's generation also especially those food taboos which are related to king, queen and pregnant woman.

- The Maram chief and his wife are not supposed to eat dog meat, fowl, betel leaf, and tomato. For pregnant women, the taboo foods are eggs, crabs, the brain of animals, and rotten meat.

- Lactating mothers with an infant are to avoid fruits, bitter vegetables, and items procured from the climber family.
- A Maram child who is newly inducted to boyhood shows the meat obtained from the head of the animal as a sign of subordination to the elders.
- The new bride is to stay away from delicious food on the first day of the marriage. Sacrificial food items cannot be touched by the patient and the general public.

### FOODS THAT CAN BE PROMOTED IN THE EAT RIGHT MOVEMENT

The staple diet of Manipur consists of rice, vegetables, meat, and fish. All the dishes mentioned above are healthy and can be promoted especially the greens leafy vegetables, fermented foods, and fish items.

- The most prominent fermented food items of Manipur which need promotion are fermented soybean (*Hawaijar*), fermented bamboo-shoot (*Soibum/Soijim/Soidon*), fermented fish products like *Ngari* and *Hentak*, mustard leaf extracts (*Ziang Sang and Ziang Dui*), fermented beverages like *Atingba* and wine from the fermentation of natural fruits (Jayaram et al, 2009).
- The Fish Based Fermented Foods such as *Ngari*, which forms an intrinsic part of the diet of people in Manipur, where *Phoubu*, a sun-dried, non-salted dry form of a fish species *Puntius sophore* is used is an important probiotic source.
- *Hentak*, a ball-like thick paste prepared by fermentation of a mixture of sun-dried fish (*Eso musdanricus*) powder and petioles of aroid plants (*Alocasi macrorhiza*) in Manipur is consumed as curry as well as a condiment with boiled rice and given to women in the final stages of their pregnancy or patients recovering from sickness or injury is another fermented food which needs promotion.
- Manipur falls in the global hotspot of biodiversity. Wild edible plants (WEPs) are widely consumed in the daily diet of the local people and are critical for the sustenance of ethnic communities and also as a source of their income.
- *Chakhao* is indigenous black rice famous for its attractive color and aromatic flavor that should be marketed across the country. Entomophagy, practices by indigenous tribes also can be promoted for improving protein intake.

### SUMMARY

Manipuri cuisine represents diverse socio-cultural and geographical features. Cultural beliefs and practices play a role in the distribution of nutrition to the community. It is seasonal in nature and organic.

A major spice in most dishes is *Umorok* or king chilli. The use of aromatic herbs and roots holds a significant feature of the Manipuri dishes which endow with nutritional and medicinal values. Food taboos and beliefs are different for every community considering their religion, culture & tradition and also differ from place to place. And various communities in the state follow certain food restrictions for women which are mainly related to their health and reproductive cycle.

Tribal communities of Manipur have the traditional knowledge of folk bio-medicine based on diverse plant species for the prevention and cure of certain chronic diseases and use it because of the availability of these plants and their cost-effectiveness. However, the younger generations are unaware of this treasure and thus efforts should be made to promote the use of traditional biomedicines within rural communities to preserve the traditional knowledge.

The current trends in dietary intake reveal that the predominant intake of ready-made foods and the emerging trend of fast food culture has raised serious health issues like diabetes, heart diseases, and anemia among people of all ages, especially pregnant and lactating women.

The systematic quantitative dietary assessment of the pre-adolescent Maram Naga children by Meithuanlungpou G and Singh N (2015) have revealed that the daily intake of food items include puffed rice, pulses, milk, green vegetables, potatoes, fruits, and occasionally some amount of oil. The results indicated that there is a grave need to improve the mode and amount of nutrition for the Maram Naga children. Eating in the afternoon depends on the availability of food in the family and the Anganwadi centers and other agents of child nutritional programs should play an important role.

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## FOOD CULTURE OF TRIPURA

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### FOOD CULTURE OF TRIPURA

Tripura, the third-smallest state in the country is situated in North-East India and shares borders with Bangladesh, Mizoram, and Assam. In 2011 the state had 3,671,032 residents, constituting 0.3% of the country's population, and is the second most populous state in North Eastern Region after Assam (Census, 2011). It is one of the most literate states in India with a literacy rate of 87.75% (GOT, 2020).

This territory was ruled by an independent princely state by Manikya dynasty even under the British Empire and the Great Chinmoy in Agartala was the former royal abode of the Tripuri king and is known as the **Queen of Eastern hills**.

Tripura joined independent India in 1949, was accorded the status of a 'C' category state on January 26, 1950, and on November 1, 1956, it was recognized as a Union Territory. Thereafter, with sustained efforts and struggle of the people of Tripura, a full statehood was granted on January 21, 1972, as per the North-East Reorganisation Act, 1971, a democratic set-up stretched up to the village level was granted in 1978 with election to the local bodies that ultimately culminated in the introduction of three-tier Panchayati Raj System.

Once Tripura was a single-district state, today Tripura has 8 districts, 23 subdivisions, 58 rural development blocks, 591 Gram Panchayats, eight Jilla Parishads, nine Nagar Panchayats, 10 Municipal Councils, and 1 Municipal Corporation. Also, 587 village committees are working as Gram Panchayats under the 6th Schedule areas <https://tripura.gov.in/>.

### CULTURE AND TRADITIONS

Being a princely state with over 184 kings who ruled Tripura till it merged with the Indian Union on October 15, 1949, this territory has been interspersed with various political, economic, and social developments.

The Tripuri Maharajas were great patrons of Bengali culture, especially literature, Bengali language replaced *Kokborok* as the language of the court (Chaudhary, 2016). Elements of **Bengali culture**, such as Bengali literature, Bengali music, and Bengali cuisine are widespread, particularly in the urban areas of the state (Prakash, 2006). Tripura population is represented by 70% Non-Tribals mostly Bengalis and 30% Tribals (indigenous population) of which more than half are Tripuri and others like Chakma Reang Jamatia and others as per the 2011 census of India.

Tripura is a state with a rich culture, traditions, flora, and fauna. The state has 5 mountain ranges namely the Boromura, Atharamura, Longtarai Shakhan, and Jampui Hills, has a tropical savannah climate, and received heavy rains from the southwest monsoon. Around 60% of the state is covered with a forest of evergreen, moist deciduous, bamboo and has half of the Indian primate species in them.

The state is known for its handloom particularly hand-woven cotton fabric, tribal dress ‘pasra’, and woollen shawls. Handicrafts of wooden carvings and bamboo products like furniture, jewelry, baskets.

The sculptures at the archaeological sites of Unakoti (one less than one crore) of Saivite rock carvings and murals, Pilak with Buddhist and Hindu images, Buddhist Stupa at Baxanagar, Devtamura (Chabimura) with massive carvings on Gomati river banks provide evidence of artistic fusion between organized and tribal religions. Sculptures are evidence of the presence of Buddhist and Brahmanical orders for centuries in Tripura. Neermahal in the middle of Rudrasagar Lake is a cultural **Water palace** of the State. This society has been enriched by myths and legends of tribal society over the past half a millennium <https://tripura.gov.in/>

The patron goddess of Tripura is the **Tripura Sundari** or Devi Tripureshwari and worship of Chaturdasha deities and celebration during festivals such as Durga Puja, Kali Puja, Dolyatra, Ashokastami is marked with distinct food and flavours among the Hindus.

The influence of other cultures who have migrated in Tripura is visible in other festivities such as the Ganga puja, Kharchi puja, and Ker puja (<http://www.incredible-northeastindia.com/tripura/fairs-festivals.html>)

Cultural programs are marked by songs and dances, Indian classical music including the **Rabindra Sangeet** especially the birth anniversaries of great poets and lyricists Rabindra Nath Tagore and Kazi Nazrul Islam.

Use of locally crafted musical instruments is the *sarinda*, *chongpreng* (both string instruments), and *sumui* (a type of flute).

Traditional ethnic group dances along with traditional clothes as costumes are still celebrated to mark religious occasions, weddings, and festivities (Department of culture, GOT, 2020).

- Reang tribe’s young girls perform the ‘Hoza Giri’ dance with the balance of earthen pitchers along with a delicately rhythmic physical movement. Reang community, the second-largest scheduled tribe of the state.
- Bizhu dance is performed by the Chakmas community during the Bizhu festival (the last day of the month of *Chaitra* in the Hindu calendar).

- The collective musical recitation of 'Manasa Mangal' or 'Kirtan' (devotional songs in the chorus) of the non-tribals.
- The 'Garia' dance of the tribals, organized on the occasion of New Year festivities and worship of 'Garia',
- The 'Dhamail' dance of the non-tribals, organized on familial occasions like a wedding ceremony in rural areas.
- The musical duels (Kabi Gaan) between two rival rhyme-makers on public platforms form the staple of Tripura's folk culture
- Other dance forms include the Wangala dance of the Garo people, hai-hak dance of the Halam branch of Kuki people, and Sangrai dance, and Owa dance of the Mog tribes.

According to the 2011 census, Hinduism is the majority religion in the state, followed by 83.40 percent of the population. Muslims make up 8.60 percent of the population, Christians 4.35 percent, and Buddhists 3.41 percent (Census, 2011). Christianity is chiefly followed by members of the Lushai, Kuki, Garo, Tripuri, Halam tribes.

### LIVELIHOOD AND AGRICULTURE OF TRIPURA

Due to difficult terrain, it lacks infrastructure and has a poor economy along with high unemployment and poverty rates. Agriculture and allied activities contribute largely to the state's domestic products as only 27 percent of the land are available for cultivation.

The partition of India in 1947 placed Tripura at a huge disadvantage in terms of connectivity. Before partition, the distance by road from Agartala to Kolkata was about 500 kms. After partition, the route to Kolkata via Siliguri land corridor became 1,700 km long. Tripura lost all its rail-heads to the west, south, and north-as they fell in East Pakistan, now Bangladesh, and the State was then cut off from India's railway network [https://tripura.gov.in/sites/default/files/Economic\\_Review\\_2017-18.pdf](https://tripura.gov.in/sites/default/files/Economic_Review_2017-18.pdf).

The partition led to the movement of evicted people and witnessed a heavy influx of refugees into Tripura from erstwhile East Pakistan, now Bangladesh, who arrived with little wealth in hand and resulted in a huge infrastructural and economic set-back for Tripura, mainly due to its long international border [www.ecostat.tripura.gov.in](http://www.ecostat.tripura.gov.in).

Service industries, agriculture, forestry, mining, and secondary sectors such as industry and manufacturing are contributors to the economy of the state.

**Rubber and tea** are other important cash crops of the state and Tripura rank second in India after Kerala in the production of natural rubber. **High-quality timber** is also provided from the forests of Tripura which hosts trees of Sal (*Shorea robusta*), teak (*Tectona grandis*), Garjan (*Dipterocarpus turbinatus*) and gamar (*Gmelina arborea*) which contributes to the economy of the state <https://tfdpc.tripura.gov.in/>. The rubber world of Tripura Forest Development and Plantation Corporation Ltd. (TFDPC), established in 1976 is one the few forest corporations in the country running in good profit and a good example of generating wealth from forest management and helping in economic empowerment of rural poor and tribal in Tripura.

Demand is increasing for fish and fish protein, which has resulted in widespread overfishing in the wild fisheries. **Pisciculture or fish farming** has significantly improved in the state and the Department of the fishery (Department of the fishery, GOT, 2020), has played a major role in meeting the food security of the State with 3.1% of the total state area under the use of fish production (capture fisheries, 23.72%; culture fisheries, 76.28%).

**Rice** is the major crop in Tripura. Other crops are sugarcane, *mesta*, pulses, jackfruit, and pineapple. Traditional indigenous people practice **Jhum cultivation** (slash and burn).

Debnath et al (2017) reported the resource productivity of rice cultivation in Tripura. The study was conducted in both hill and valley regions of the state by selecting a sample of 120 rice growers. The productivity of resources of rice of individual farms was estimated through Cobb-Douglas production function. The major resources for the productivity of rice were human labour, fertilizer, and manures in the hill region and agrochemicals human labour, fertilizer, and manures in the valley region. The use of small farm machinery like power-operated tiller and cono-weeder has been suggested as an intervention in the form of technology introduced for enhancement of labour efficiency. The study suggested that the state government should provide necessary region-specific training and education to the farmers for judicious use of resources like fertilizers and agrochemicals in rice cultivation in Tripura.

Fruits such as oranges, mango, tayberry, jujube, longan, lychee, watermelon, melons, and tamarind are commonly grown in the state. All vegetables and seasonings and herbs grown available in India are grown in the household/ or commercially available in Tripura.

## TRIPURI FOOD CULTURE

**The food culture** of Tripura is predisposed by its diverse ethnolinguistic groups. Tripura's cultural diversity is reflected in the food habits of the tribal and non-tribal people. Bengali people represent the largest ethnolinguistic community of the state. **Bengali culture**, as a result, is the main non-indigenous culture. Food culture is also influenced by **tribal groups** such as Debbarma, Jamatia, Reang, Tripura, Noatia.

Food habits are also influenced by **migrant groups** from neighboring states such as tea labourers in Tripura such as the Murasing, Chakma, Halam, Garo, Kuki, Mizo, Uchoi, Dhamai, Roaza, Mogh Munda, Oraon, and Santhals.

In urban Tripura, rich spicy food with varieties of Chinese cuisine is available. The non-tribal Bengalis of Tripura live on rice, fish, chicken, mutton, and pork and the Muslims consume beef.

**Tripuri cuisine** (*Mui Borok*) is essentially non-vegetarian food prepared with meat, but with the addition of vegetables. The foods are sometimes considered to be healthy as they are usually prepared without oil.

**Rice**- Tripuri rice is called *Mai* (in Kokborok language) is made from several local varieties Maisa, Maimi, and Guriya. *Chakhwi* (salted rice paste), *Mwkhwi* (dessert), and *Mwitru* are common foods. *Berma* (*Shidal* in Bengali), is a small, oil-pasted, and dry fermented fish.

**Bangui rice** and fish stews, *Muya* (bamboo shoot), local fishes, vegetables, herbs, *Batema* (this

jelly-like food is prepared by making a paste of *Batema* (*elephant yam*) which is washed several times with salt and water to remove the itch, cut into pieces and preferred with fresh pasted garlic.

Rice is enjoyed with spicy curries as a large variety of fish are available and also imported from Bangladesh. Boiled '*Hilsa*' with mustard seed and green chilly is very popular.

*Bhangui* is a flavourful rice dish which is wrapped in banana leaves.

**Meat** is consumed by many animals and fish including frogs and turtles. Meat items include *Wahan* (pork), *Tohhan* (chicken), *Puhan* (mutton), *Kaishing* (turtle), *Aah* (fish), *Aahthuk* (prawns or shrimps), *Khangrai* (crabs), *Shindai* (mussels), *Shikamuk* (common periwinkle or turritella communis), *Totobuck* (pila (gastropod)) and *Yongla* (frog). *Mosdeng, wahan* (pork) *moso* (prepared by adding boiled pork, onion pieces, salt, pasted ginger, and roasted green chilli paste), and roasted meat are extremely popular within and outside the state.

*Muya* (bamboo shoot) *Awandru* is a Tripuri food item that contains bamboo shoots, rice flour, and *Berma*.

*Kosoi Bwtwi* is made of Beans and dried fish *Berma*. The vegetarian version is made with beans and garlic and is generally served with rice.

*Muya* (bamboo shoot) *bai Wahan Chakhwi* is made from bamboo shoots, jackfruit, papaya and pork

*Gudok* is a mash of assorted vegetables cooked with *berma* and without any oil and is prepared by bamboo pipes and imparts a special aroma and taste. This dish is now disappearing and *gudok* is now prepared in cooking pans.

**Flowers** used in their cooking are Saajna phool (Drumstick flowers), kumdra phool (pumpkin flowers), Kaala phool (Banana flower) usually made into fritters

**Spices** like ginger garlic onion green chillies are used when steaming and boiling food. Hollow bamboo is also used to cook food. In curries spices like bay leaves (tej paata), Panch phoran ( mix of five spices),garam masala, Dhanian guda ( coriander powder), Jeera guda ( cumin powder), Haldi guda (turmeric powder).

A lot of greens are used for cooking. 'Lai ' saag (mustard leaves), Sajna paata (drumstick leaves, ), tender leves of misti kumdra (yellow pumpkin ), datta saag -laal and sabuj (red and green colour leafy vegetable),mula patta (radish leaves), pui saag

Vegetables seam (broad beans), Banana stem, Fresh Seeds of broad beans, barbati, kathal (jackfruit) are popular.

**Fruits** of komala (orange ), lechu (Lychee), Kathal (jackfruit), Lembu -elaichi, kaghjee ( lemon), Sapri (pineapple),borai (jujube) are local products.

**Rice** varieties of Aatab, jhoom, Binni, Khasa are popular.

**Fish** like Pabda, tilapia, ilish, catla, rohu, carp are commonly consumed.

**Pitha** is a traditional rice cake (dumpling fritter or pancake ) made during festivals and pujas. Awangbangui pitha made with rice flour wrapped in bangui leaves, Koat pitha deep-fried rice flour fritters with banana and jaggery and many others.

Mulayari is Bamboo flower rice (seed of a dying bamboo shoot)

## LOCAL DRINKS

Local fermented drinks are common in North East India and consumed before meals, as a welcome drink, and on special occasions or festivals.

- **Chauk** is the **rice beer** prepared by fermenting rice in water.
- **Apong**, is also made from millet/rice.
- **Muya Awandru** is another type of local beer and is made out of dry fish, *berma*, bamboo shoots, and rice flour.
- **Chuwarak** is locally made from rice, pineapple, or jackfruit and a mix of scotch and champagne and is considered to be one of the safest alcohol all around the world.

## SUMMARY

Being a forest state with limited infrastructure, Tripura has lots to be done in terms of food and nutrition security.

The food culture of the state is influenced by its ethnic local and migrant tribes but Bengali culture is prominent in Tripura.

The food is mainly non-vegetarian and consumption of many types of meat is seen along with fish with limited or no use of oil. The practice of the use of *berma* can be increased by improving the availability of protein-rich fish for each household through pisciculture promotion by the state for the **Eat Right Movement**.

The “Sankalp Se Siddhi” is a radical transformation for a New India by 2022-23. The State Government of Tripura has plans for achieving an optimum level of public-private partnership and policies for more efficient delivery of public goods and services such as agriculture for doubling the farmers’ income, health, education, power, water supply, sanitation, rural and urban developments as well as infrastructure building including connectivity with the neighboring country Bangladesh and ASEAN. Tripura is putting in place a ‘development state’ guided by the philosophy of “Sabka Saath Sabka Vikas” [www.destripura.nic.in](http://www.destripura.nic.in).

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Photo 1 Bamboo Jewellery



Photo 2 Metal Jewellery





Photo 3 Local Cloth Pattern



Photo 4 Assorted Bamboo Products



Photo 5 Necklaces



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# ETHNOGRAPHY OF NAGALAND AND THE EAT RIGHT MOVEMENT

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## INTRODUCTION

Nagaland, the 16<sup>th</sup> state of India bounded by Myanmar on the East, Arunachal Pradesh on the North, Assam on the West, and Manipur on the South and established on 1 December 1963. The state of Nagaland has a population of 19,88,636 as per the 2001 census is hidden among the Himalayas, mostly mountainous except the areas bordering Assam valley and incomparable traditional and cultural heritage. This region falls within 8 mega biodiversity hotspot regions in the world and is exquisitely rich in flora and fauna. Nagaland is also known as **The Falcon Capital of The World**. Mount Saramati is the highest peak in Nagaland with a height of 3,840 meters, and its range forms a natural barrier between Nagaland and Myanmar.

The people of Nagaland which is situated in Northeast India are known as Nagas which is a term for many indigenous communities in Northeast India and Upper Burma. They are also known as *Noga* by the Assamese and *Hao* by the Manipuri and Chin by the Burmese. According to the Burma Gazetteer, the term 'Naga' is of doubtful origin and is used to describe hill tribes that occupy the country between the Chin in the south and Kachin (Singpho) in the Northeast.

The Naga people belong to the Indo-Mongoloid group of people living in the contiguous areas of the North-Eastern hills of India and the upper portion of Western Myanmar. Tohring (2010) lists 66 Naga tribes whereas Kibangwar Jamir (2016) lists 67 tribes. The 1991 Census of India listed 35 Naga groups as Scheduled Tribes: 17 in Nagaland, 15 in Manipur, and 3 in Arunachal Pradesh. The major-recognized tribes of Nagaland are Angami, Ao, Chakhesang, Chang, Khiamniungan, Kuki, Konyak, Lotha, Phom, Pochury, Rengma, Sangtam, Sumi, Yimchungru, and Zeliang. The Naga languages differ from tribe to tribe, and sometimes even from one village to another. They are, however, under the Tibeto-Burma family.

People of Nagaland have a strong warrior background and though Head Hunting has now become obsolete, the warring tribes used to take the heads of their enemies to establish triumph. Folk songs and ballads eulogizing bravery, beauty, love, generosity, etc., are transmitted from generation to generation through music and dances. Their costumes display the ancestral lineage and the design of the shawl denotes their social status. Some distinct festivals of Nagaland are the Hornbill festival, an inter-tribe festival called Lui Ngai Ni, Chithni festival of the Mao, Sekrenyi festival of the Angami, Chavan Kumhrin, the festival of the Anal Naga, Moatsu, Tokhu Emong, and Tuluni (Government of Nagaland, 2018) and 88% of Nagas are Christians as per the Census of India, 2011.

## **AGRICULTURE**

Nagaland is a land of agriculture. About 70 percent of the population depends on agriculture. The contribution of the agricultural sector in the state is very significant. Rice is the staple food. It occupies about 70 percent of the total area under cultivation and constitutes about 75 percent of the total food production in the state.

The major land use pattern is slash and burns cultivation locally known as Jhum. The total cultivable area is 7,21,924 hectares. The area under jhum and terraced cultivation is about 1,01,400 hectare

Out of the total land area of 16,57,587 hectares, the forest area occupies approximately 8,62,930 ha. There are wildlife sanctuaries and national parks, namely, Intanki and Puliebadze in Kohima District, Fakim in Tuensang, and Rangapahar in Dimapur.

The warm tropical temperature climatic condition and ideal rainfall regime ensure abundant growth of a variety of forest and rich biodiversity.

## **FOOD CULTURE OF NAGA PEOPLE**

People prefer steaming their food to frying and all the tribes have distinct cuisines that use meat, fish, and fermented products extensively. The locally grown herbs, ghost peppers, ginger, and garlic are used a lot in almost all the dishes. A typical Naga meal consists of Rice, a meat dish, one or two boiled vegetable dishes, and a chutney/pickle (Tathu).

In Angami Naga society, it is custom and ritual for women to initiate agriculture and the beginning of harvest was started by a woman known as Liedepfü or the first reaper. The preparation of rice beer is usually done by women (Yano, 2015). Women are responsible for all onerous household activities like cooking, farm works, agriculture, collection of food plants, and many more. Women are the main collectors of wild edible plants (Singh and Teron, 2017).

Galho, Galkemelu, Ghabe, Modi, and Tathu are the important traditional dishes of the Angami tribe. Several kinds of meat (both farm and bushmeat), fermented food items, fish, mollusks, crustaceans, arachnids, vegetables are cooked by the Nagas. Many dishes resemble Burmese and Thai cuisine. A traditional Naga kitchen is outdoors because fire is one of the most essential components of cooking. Hanging above any Naga kitchen fire will be pieces of meat (both pork and beef), that slowly dry out and smoke high above the flames.

- Rice, pork, chicken, dog, insects and worms, vegetables, and famous chili sauces are essential in the Naga diet.
- Rice is the main carbohydrate source in the Naga diet and this region produces several prized rice varieties, but rice is also imported into the region from other states.
- Drinking hot tea and beverages from bamboo cups is commonly practiced.
- **Zutho** is the famous rice beer from Nagaland

### Meat, chicken, and fish

- **Pork with bamboo shoot** is the “state mascot”. The unique art of combining certain herbs and spices with meat and bamboo shoot makes this dish unique for this region.
- Pigs are chopped up using traditional long-handled Naga knives on top of a stilted bamboo slaughterhouse.
- **Dried/smoked meat** forms is a very important role in cuisine and have practical significance for sustenance farmers/foragers and hunters.
- **Smoked meat** is often kept for an entire year and provides food security for individual families. The meat is hung above a fire or hanging on the wall of the kitchen for anywhere between 1 day to 2 weeks or longer.
- **Smoked Pork in Akhuni**-Fermented soybean is a staple in Naga curries and it is locally known as Akhuni or Axone in Nagaland. Moreover, pork is the preferred meat in Nagaland which makes this dish special. Akhuni comes in powdered or cake form and is used commonly in stews along with other vegetables. Another popular combination is the dried river fish with akhuni.
- **Modi** is prepared during special occasions where big pieces of meat of *Mithun*, beef, or pork are cooked in a very large pan under a huge fire and stirred continuously and ginger, garlic, onion, chilli, and salts are added to increase flavor and delicacy. Blood of *Mithun* is also added and stirred continuously until the meat is cooked.
- **Pork stew** is a common dish where the dried smoky pork is chopped into bite-sized pieces before being boiled in a thin soup that included potatoes, tomatoes, and chillies.
- **Roasted Intestines** from any animal especially pigs are relished by the Nagas.
- **Chicken glutinous rice soup** is mildly flavored but served with chili sauce.
- **Bamboo steamed fish** - fish is stuffed into a hollow tube of bamboo with a few light spices and placed in the ash of the fire to cook.
- **Kongshia Lon is the Eel chili sauce** is a common accompaniment where dry eel pounded with chillies, garlic, and salt and consumed with rice. Crab chili sauce is also used with rice.
- **Akini Chokibo**- ‘*akini*’ means perilla seeds and “*chokibo*” means snails. Snail meat is popular in Nagaland and is included in pork dishes. Lard from the pork and fermented soybean (known as *Axone* or *Akhuni*) are also added to the dish.

- **Meat is cooked with *axoni*** or with plants like *Amaranthus* sp., Bamboo shoot, *Brassaiopsis* sp., *Chenopodium album*, *Colocasia esculenta*, *Curcuma angustifolia*, *Fagopyrum esculentum*, *Hibiscus sabdariffa*, *Oenanthe stolonifera*, *Persicaria chinensis*, *Polygonum molle*, *Zanthoxylum armatum*, and *Zanthoxylum rhetsa*.
- **Galho** is a soupy concoction of rice and vegetables or meat used an assortment of seasonal greens and is flavored with smoked pork or port fat.
- **Galkemeluo** is prepared by boiling wild leaves with bamboo shoots, garlic, tomato, potato, dry or smoked meat, dry fish, fermented soybean, *Zanthoxylum rhetsa*, and *Zanthoxylum armatum*. Tomato is specially added to give a slightly sour taste. *Galkemeluo* of snail and fishes (especially *Clarias*) are also prepared.

### Vegetables

Fermented beans and vegetables are part of Naga culture. Popular fermented foods are *dacie/dzacie/axoni/axone*, which is a fermented product of soybean. Nagas tend to prefer boiled edible organic leaves and wild forage still makes up a large part of the diet of many Naga regions.

- ***Axone*** – where soybeans are boiled, fermented, and either smoked or sun-dried, often served with smoked pork and beef (Sumi tribe).
- ***Yongjack (Parkia speciosa)***- long tree beans often eaten roasted over coals, and are often traded in bunches.
- **Bean mix** includes beans, tomatoes, peas, cabbage, and spices.
- Fermented bamboo shoots known as *baastenga*, made from the tender shoot of the Bamboo tree are often served with fish and pork (Lotha Nagas)
- ***Anishi*** - fermented taro leaves (*Colocasia esculenta*) made into patties and then smoked over the fire or sun-dried (Ao Nagas, Zeliangrong Nagas, and Konyaks).
- Naga food tends to be spicy and there are several different varieties of chilies in Nagaland namely the *Naga Morich* and *Bhut jolofia*.
- ***Galho*** is a soupy concoction of rice and vegetables garnished with just ginger-garlic. Rice is cooked with several wild leaves with the addition of salt, garlic, potatoes, tomatoes, dry fish, and fermented soybean along with *Perilla frutescens* for flavor.
- ***Galkemeluo of Clarias*** is made with banana flowers which are separately boiled and cooked with the flesh of *Clarias*, leaves of *Zanthoxylum armatum* or *Zanthoxylum rhetsa* and chillis (Singh and Teron, 2017).
- Local ginger is spicy and aromatic.
- Garlic and ginger leaves are also used in cooking meat dishes.
- Sichuan pepper is also a popular spice used by the Nagas.
- Use of *cilantro* or the Mexican coriander, leaves, and roots of the chameleon plant or Bishop's

weed, chives, Chinese onion (*Allium chinense*) or also known as Naga garlic, winged prickly ash are typical spices and condiments used to flavor Naga foods.

## ENTOMOPHAGY – INSECTS AS FOOD

Local markets or Wednesday market as the market sells varieties of **insects** including cicadas, sting bug, silkworms, crickets, dragonflies, tawny mole crickets, red ants, frogs, grasshopper, snail, crabs, etc. Insects popularly consumed by the Nagas are of many orders such as *Coleoptera*, *Lepidoptera*, *Orthoptera*, *Odonata*, *Isoptera*, *Hymenoptera*, etc. are harvested seasonally to add variety to their meals. Snails cooked with pork and silkworm larvae, Naga curry made with crushed potato and tomato.

**Winged Termites** are found abundantly at the onset of monsoon after the first rains. The wings are detached from their bodies and termites are fried in limited oil and consumed as a snack or served with the main meal. **Red ant larvae/ Eggs** are taken from the nest of ants from the trees having broad leaves trees such as the mango tree. The eggs and the larva are separated from the adults, fried, and served with the meal. **Eggs and larvae of Bees** after smoking their hives are then either taken as a snack or with the main meal, throughout the year. The pupae and larvae of bee and wasp are eaten raw, queen termites are fed raw to weak children as a source of protein. **Larvae of the silkworm**, especially Eri, also serve as a good source of food. **June beetles** (*Coleopterans*) are found perched on the branches or leaves of mango trees or castor leaves are eaten after removing the wings as a snack or served with the main meal. They are also sometimes ground into a paste. This serves as a good appetizer. These beetles are mostly found from March to May.

**Belostoma, giant water bugs**, are collected along with fish during fishing, wings and appendages are removed before either roasted over a fire or fried in oil. They are either served whole or most preferably by making a paste with chilly and some other spices or stuffed with dry rice and boiled and roasted. *Belostoma*, especially the females, is strongly flavored which seems to give a good appetite during meals. **Aquatic beetles** (*Hydrophilus*) are caught during fishing are cooked with fish or fried. **Beetle Grubs** (*Datecera albefaciata*), often found while chopping firewood, **Grasshoppers** served with the main meal, **Crickets** and **Spiders** are deliberately hunted and roasted or fried.

## WILD FOODS OF THE ANGAMI TRIBE

Diversity of wild foods of the Angami Nagas was done by Singh and Teron (2017) who documented over 29 wild edible plants belonging to 26 genera under 21 families by the Angami Nagas in their traditional dishes. The most widely utilized plants belong to *Apiaceae* (3 species) which is followed by *Polygonaceae*, *Cucurbitaceae*, *Rutaceae*, *Malvaceae*, *Urticaceae* and *Amaranthaceae* (2 species each), *Saururaceae*, *Verbenaceae*, *Thelypteridaceae*, *Plantaginaceae*, *Piperaceae*, *Passifloraceae*, *Leguminosae*, *Asteraceae*, *Moraceae*, *Lamiaceae*, *Athyriaceae*, *Brassicaceae*, *Araceae* (1 species each) and one arborescent species of *Bamboo*. Almost all parts of plants are consumed such as leaves, stems, tubers, young shoots, roots, rhizomes, inflorescences, flowers, fruits, and seeds. There is an amazing diversity of culinary knowledge among the Angami Nagas but consumption of fried foods is very rare. Most plants are eaten boiled and a few species are taken raw. Other methods of food preparation include roasting, baking, and frying.

## SHIFTS IN FOOD PATTERNS

There have been significant changes in their food patterns among the new generation Angami Nagas. They prefer the western food culture. Many new food plants from other places are introduced in their food habits. Many new food plants that were not known before are introduced among the Angamis and incorporated into their food system such as *Parkia timoriana*, *Psophocarpus tetragonolobus*, *Vicia faba*, etc

The new generation Angamis have effected significant changes in their lifestyles because of financial improvements and conversion to Christianity.

The opening of several restaurants, fast foods, and modernized hotels have introduced western food culture in their traditional food habits. Today many young people prefer to take such western foods rather than their traditional boiled dishes. It leads to ignorance of wild edible plants among the younger generations. Therefore there is serious impairment in the transfer of traditional knowledge of wild edible plants and food preparation among the younger generations.

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# ANTHROPOLOGY OF FOOD IN SIKKIM - THE NORTH-EASTERN GATEWAY OF INDIA

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## INTRODUCTION

Sikkim is located in the North-Eastern part of India and bordered Bhutan, Tibet, and Nepal which have a profound influence on their culture and food intake. Sikkim State is drained by the two main rivers, namely Teesta and Rangit. Teesta is an important tributary of the Brahmaputra, the greatest river of Assam Himalayas (Eastern Himalayas). Zoogeographically especially of the fish fauna found in the Teesta drainage system is as most of the Assam Himalayan forms. The state is blessed with rich biodiversity and famous for its flora and fauna along with many wild edible plant forms which are an important constituent of traditional diets and food and nutrition security of this region.

In the Sikkim Himalaya, a total of 190 species have been screened as edible species out of which nearly 47 species come to the market. Sundriyal, (2001) assessed the nutritive value of 27 edible wild plant species of which 22 were fruits and 5 were leaves/shoots. Among different plant parts, generally higher nutrient concentration was recorded for leaves, followed by new shoots and fruits and suggested that since these were the repository of nutrients they can be grown for commercial cultivation and adopted in the traditional agroforestry systems, which will lead to reduced pressure on them in natural forest stands as well as producing economic benefits for poor farmers.

It is populated by three major ethnic groups: the Nepali, the Bhutia, and the Lepcha and thus is a mixture of Hindu and Tibetan culture.

## AGRICULTURE

Adverse geographical location and difficult terrain have limited agricultural land, however, besides tourism, agriculture is the main source of income. Sikkim is an organic State, the Department of Agriculture

is propagating and advocating farmers to adopt new and modern technology of organic farming system to sustain production and certification process in identified areas and further envisage in making Sikkim a Model Organic State. Maximum thrust is being given in increasing the productivity of various crops through proper crop management in the organic system of farming, an extension of irrigation facilities farm mechanization, value addition, and post-harvest.

The major agricultural produce of Sikkim includes rice, maize, millets, fruits, spices, oilseeds, and potatoes.

**Rice:** *Oryza sativa L.*, which is among the oldest cultivated crop as evident from Vedic literature and Archeological excavation. Rice is one of the staple food crops in Sikkim as inferred from the epithet “Denzong”-meaning “Valley of Rice”. Its antiquity in Sikkim is difficult to trace out but some experts consider the entire NE Region including Sikkim and adjoining area of China shall be the probable home of rice. A large number of landraces are cultivated in Sikkim, also, introduced since the 1970s.

**Finger Millet:** *Eleusine coracana Gaertn.*, or ragi. In Sikkim finger millet is popularly known as ‘Kodo’. The social and economic condition of Sikkim has given special importance to this crop. Here the grain is mainly used for malting and preparing ‘Change’ or ‘Jansu’. The powder is also used as bread or ‘Dhainro’.

**Barley:** *Hordeum vulgare*, is grown in small pockets in Sikkim.

**Wheat:** *Triticum aestivum*, Wheat cultivation in non-traditional states including Sikkim is being popularized by improving irrigation facilities and developing seeds suitable for cultivation.

**Urd:** *Phaseolus mungo Linn. / Vigna mungo (L) Hepper*, is known as ‘Kalodal’ or ‘Panhelo dal’ and is extensively cultivated in all the dry belts of South and West districts of Sikkim. In Sikkim total area under urd, cultivation is 3.55 thousand hectare production is 2.78 thousand Tonnes and productivity is 783.10 kg/ha.

**Horticultural activities** in the State comprise of activities that aim at promoting the production of fruits such as Sikkim Mandarin, pear, kiwi, papaya, and banana; traditional vegetables such as bean and garden pea, other vegetables like tomato, cole crops, radish, etc. various cucurbits including chayote; potato; spice crops like large cardamom, ginger, turmeric & cherry pepper and flowers including Cymbidium orchids, rose, liliun, gladioli, anthurium, carnation, gerbera, alstroemeria, and zantedeschia. The activities relating to the promotion of non-traditional practices like beekeeping and mushroom cultivation, plantation of bamboo and medicinal plants have been intensified to add greater diversification. <https://sikkim.gov.in/departments/horticulture-cash-crop-department/function-mission-objective>

**Pea:** *Pisum sativum L.* **Soybean:** *Glycine max (L.) Merr.* Varieties of products are prepared from Soybean, such as Soya milk, Soy Cheese, Soya flecks for breakfast, fermented soybean as “Kinema”, Soya biscuits as nuggets, and eaten in the form of boiled soybean pod or roasted beans especially for the children. It is being reported medically that its regular consumption, helps to reduce cardiac disorders due to the presence of abundant polyunsaturated fatty acid in Soya oil. Generally, rice and soybean are cultivated during the Kharif season, so it becomes an optional crop as the farmers have to decide the

type of crop to be selected. But in hilly areas of Sikkim where rice production is low, soybean may be a profitable crop for these areas.

**Potato:** *Solanum tuberosum* L. and **Sweet Potato:** *Ipomoea batatas* Lamb, are commonly grown in Sikkim.

**Mustard:** *Brassica* spp. Rape Seed-Mustard is the most important oilseed crop of Sikkim. In Sikkim, this oilseed is cultivated with the sole motive of obtaining edible oil as almost all state population utilize this oil as the main edible oil, thus it has so much importance

**Large Cardamom:** *Amomum subulatum* Roxb, a member of the family, Zingiberaceae under the order Scitaminae is the main cash crop cultivated in the sub-Himalayan state of Sikkim and Darjeeling district of West Bengal. Sikkim is the large producer of large cardamom and constitutes the lion share of the Indian and world market. The large cardamom plant is a perennial herewith subterranean rhizomes with leafy shoots.

**Chilly:** *Capsicum annum* Linn. and **Bird Chilly:** *Capsicum frutescens* Linn. Chilly was introduced by the Portuguese 400 years ago and in Sikkim, cherry pepper is also known as **dale Khorasan** is the most favorite chili grown in almost every kitchen garden.

**Turmeric:** One of the major produces from the state of Sikkim; turmeric is used in many forms in the daily routine. The organic turmeric enhances the benefits of regular turmeric with chemical-free growth leading to no side effects. India also exports turmeric in powder form and as oleoresin.

**Ginger,** Ginger (*Zingiber officinale* Rose) locally known as “Adua” is an important spice/cash crop grown in Sikkim since time immemorial. It is commonly used for religious purpose by Limbo Phedangmas and Rai Bijuwas which show its attachment with the people of Sikkim since ancient times. The crop is a good source of income for small and marginal farmers. The main ginger producing areas in the state are Mangalbaria belt, Chakung, Chumbung, Zoom, Tharpu, Malbansey, Gyalshing in the West District; Turuk, Salghari, Sumbuk, Ratepani, Namthang, Mellidara, Maniram, Namchi, Tarku, Bermiok, Dong in the South District; Rhenock, Rongli, Rorathang, Pakyong, Pachekhani, Pandam, Khamdong, Sirwani, Sang, Nazitam in the East District; and small pockets of Dzongu and Mangan area of North District.

**Fruits** include **Mandarin:** *Citrus reticulata*, Sikkim Mandarin represents the most important commercial fruit of Sikkim. Sikkim Mandarin is similar to the Nepal or Assam or Darjeeling Mandarin. It is a native fruit of Sikkim and is very popular in the Kolkata market. **Banana:** *Musa* spp. The mountainous region of Assam, Burma, Thailand, or Indo-China is the center of origin. In Sikkim, it is an important fruit and cultivated (hill banana) throughout the state in the kitchen garden, boundaries of field and farms, etc. **Papaya:** Scientific name: *Carica papaya*, In Sikkim, its importance as a fruit crop has recently been realized and being grown in the foothills of the state below 900 meters elevation. The State Department of Agriculture produces seedlings at Namli garden and Majitar farm in East District and Kaijeley farm in West and distribute to the farmers every year on large scale for the rapid development and growth, of this fruit crop. It is a highly paying fruit crop with very high yield potential. **Litchi:** *Litchi chinensis* Sonn, **Passion Fruit:** *Passiflora edulis*. **Guava:** *Psidium guajava* Linn, In Sikkim, it is the third important fruit crop. Till 1976, it was cultivated in a limited area as in the Kitchen garden or as

border tree, etc. It is now cultivated in the form of orchards below 1200 meters elevation in the hills of the states. **Jack Fruit:** *Artocarpus heterophyllus* (*A. integrifolia*), Jackfruit is popularly known as poor man's fruit and the ripe fruit significantly contributes to the nutrition of low-income families as it is a good source of vitamins, minerals, and calories. The fruits can have 10-500 flakes and seeds.

Vegetables include **Broccoli:** *Brassica oleracea* var. Sikkim has suitable weather for its cultivation and supply of broccoli to different parts of the country along with export.

**Iskus:** *Sechium edule* (*Jacq.*) Sw, or Chayote's name is derived from the vine's Indian name, Chacha. It is a popular vegetable in N-E hilly region commonly called squash and grows abundantly without much care and attention in the high hills of Meghalaya, Manipur, Mizoram, Nagaland, and Sikkim. **Tomato:** *Lycopersicon esculentum*, Tomatoes are used for soup, salad, pickles, ketchup, puree, sauces, etc. and the agro-climatic conditions of Sikkim make tomato grown and available throughout the year. **Cauliflower:** *Brassica oleracea* var. *botrytis*, Cauliflower was introduced in India in 1822 (Swarup and Chatterjee, 1972) as the Cornish types Bram England and later the other European types also were introduced and later a tropical cauliflower resistant to hot weather and high rainfall was developed in India. It is an important vegetable crop of the Sikkim and is widely cultivated for its white tender head (curd).

**Onion:** *Allium cepa*, used as salad and cooked in various ways in all curries, fried, boiled, baked, used in soup making, in pickles, and for other purposes. This is one of the vegetables which are exported.

**Pumpkin:** *Cucurbita moschata*, It is used both in immature and mature stages as a vegetable, it is also consumed as processed and stock feed. The flesh is delicious when fried, boiled, or baked. The fully matured fruits are used to prepare candy, sweets, or fermented into beverages. Orange-fleshed pumpkins are rich in carotene. Its young leaves, tender shoots, and flowers are also cooked and consumed. **Tree Tomato:** *Cyphomandra betacea* Sendt, the fruits closely resemble a tomato; hence its name is the best known of about 30 species of *Cyphomandra*. The name 'tamarillo' was adopted in New Zealand in 1970 and become the standard commercial designation for the fruit. It must have been carried at an early date to East Africa and Asia, as it is well established in the Nilgiri hills and the hills of Assam. Tree tomato is grown in the Kitchen garden throughout the hilly areas of Sikkim. The fruit made into 'Charri', 'achar' etc. the introduction of this crop in the hilly areas of Sikkim, Nepal, and Bhutan is still not known.

**Brinjal:** *Solanum melongena* L., is one the most popular vegetables grown throughout the North East Region. There are many wild relatives of brinjal and are being grown in the kitchen garden. The unripe fruits are used as a cooked vegetable alone or mixed with other vegetables. Pickles and industrially processed food are also produced from brinjal. **Carrot:** *Daucus carota*, Tropical or Asiatic types conical carrots are conical in shape and dark-colored because of more anthocyanin pigments and less of carotene. **Radish:** *Raphanus sativus* L, Radish is a popular vegetable in the North Eastern region including Sikkim.

Besides the edible plants, many **Ornamental Plants** are grown in Sikkim and add to their livelihood. **Anthurium**, commonly known as painter's palette, and more than 100 different varieties with a wide range of sizes, shapes, and colors are grown.

**Cymbidium**, the orchid is one of the most prized cut flowers in the present cut flower trade. **Rose**, is an important follower in both domestic and international markets.

The North Eastern Regional Agricultural Marketing Corporation Ltd. (NERAMAC) incorporated on 31st March 1982 is a Govt. of India Enterprise with its Head Quarters at Guwahati, Assam was formed to improve agricultural prosperity and providing remunerative prices to the farmers of North Eastern States including Sikkim for their produces by minimizing market intermediaries and middlemen and now has a full-fledged Zonal office at Tadong, East Sikkim. Organic vegetables, large cardamom, turmeric, chili, etc., auction and price are regulated.

Sikkim State Co-operative Supply and Marketing Federation Ltd. (SIMFED) was established in the year 1983 as an Apex Marketing society for the state of Sikkim with the main intention of undertaking the wholesale supply of consumer goods to the Multi-Purpose Cooperative Societies (MPCS) and Consumer Cooperative Societies (CCS) and to arrange for bulk marketing of the surplus Agricultural produce including the important cash crops of the state.

## FISHERY AND FOOD

The establishment of Fisheries in the State was a wing in the Forest Department in the late 1970s was a great milestone and it was the primary driving force for realizing the high potential of **Fisheries Development in the State**. Nature has endowed Sikkim with the distinct advantage of abandoned water bodies and varied aquatic life. With the initial conservation of riverine fish species and the development of sport fishing recently the strategy of the Fisheries Development Programme changed from conventional policy to promotion and development of Fish Culture and breeding and stocking in ponds, raceways, rivers, lakes, and reservoirs as an income-generating activity in the rural areas.

The dominant fish species in Teesta and Rangit tributaries are *Schizothorax spp (Asala)*, *Neolissocheilus spp (Katley)*, *Garra spp (Buduna)*, *Pseudecheneis spp (Kabrey)*, *Barilius spp (Chirkay)*, *Semiplotus spp (Chepti)*. Ornamental species of fish recorded are *Barilius bendelisis bendelisis*, *Barilius vagra*, *Danio aequipinnatus*, *Danio naganensis*, *Garra lamta*, *Noemacheilus scaturigina* and *Noemacheilus sikkimensis*.

## FOOD CULTURE

Food Culture Food culture in Sikkim has been reflected in the pattern of food production (Tamang, 2005). Food culture has been evolved as a result of traditional wisdom and empirical experiences of generations over some time, based on agro-climatic conditions, ethnic preference, socioeconomic development status, religion, and cultural practices of the region.

The Sikkimese cuisine has major influences from Nepal, Tibet, and West Bengal. The majority of the state has an ethnic Nepalese and Tibetan majority with the former overpowering the latter.

The Bhutia and the Lepcha are non-vegetarians and prefer beef and pork. Some Nepalis are vegetarians. Nowadays, the vegetarian diet is becoming popular among 3 different ethnic groups due to health, religion, and personal preference. Non-vegetarians eat chicken, mutton, lamb, and pork. Beef is taboo to a majority of Nepalis except for Tamang and Sherpa. Newar prefers to eat buffalo meat.

Though fishery is a developing sector in Sikkim, consumption of fish products in the local diet is comparatively less than other fermented products such as vegetable and dairy products. This may be attributed to the pastoral system of agriculture and the consumption of dairy products in these regions. Women usually do the cooking. Elders and male members are served the meals first and women eat afterward in the kitchen.

The Sikkimese food is not spicy and prepared in *gheu or maa* (butter), but now commercial edible oil is being used. Most of the people in the state are rice eaters however, roti or chapatti (wheat-based baked bread) is replacing traditional rice-eating habits among the urban population. In the rural areas, people mostly eat cooked maize as a staple food.

### SAMPLE MENU IN SIKKIM

**Morning:** A full mug of tea with sugar or salt with or without milk, with a pinch of hot black pepper.

**First early meal:** bhat-dal-tharkari-achar (rice-legume soup-curry-pickle) corresponding to cooked rice, dal, vegetable mixed with potatoes, meat or milk products, and pickles.

*Tarkari*, which means side dish or curry, includes different varieties of ethnic fermented and nonfermented food items.

**Refreshments:** Traditional snacks and tea in the afternoon.

**Early evening dinner:** bhat-dal-tharkari-achar. In the food culture of “matwali” Nepali (alcohol drinkers, which are part of the social provision system), ethnic fermented beverages and distilled alcoholic drinks are usually part of the evening meal [5].

Common street foods are Noodles, *Gughni*, *Kala Channa*, *Momos with Tamatar ki Chutney and roti with Gundrak*, and *Muli ko Achaar*, *Onion Pakora*, *Aaloo Chop*, *Parathas* (both vegetarian and non-vegetarian), and Buns.

The Bhutias and Lepchas community usually eat *thug-pa*, noodles in soup. A field survey conducted in randomly selected 370 households in Sikkim representing the major ethnic communities, namely, Nepali, Bhutia, and Lepcha has documented more than 83 common and uncommon nonfermented ethnic foods of Sikkim consumed by different ethnic groups in Sikkim, India. Some of these foods have been documented by Tamang and Thapa (2014) included *achar*, *alum*, *chatamari*, *chhwelaa*, *dheroh*, *falki*, *foldong*, *kodoko*, *roti*, *kwanti*, *momo*, *pakku*, *phaparkoroti*, *phulaurah*, *ponguzom*, *suzom*, *thukpa*, or *gya-thuk*, and *wachipa*.

### ETHNIC FERMENTED BEVERAGES OF SIKKIM

Traditional alcoholic beverages constitute an integral part of the dietary culture and have strong ritual importance among the ethnic people in the Himalayas where social activities require provision and consumption of appreciable quantities of alcohol (Tamang and Thapa, 2014). Alcoholic beverages are exclusively prepared from locally grown cereal-grains using traditionally prepared with mixed inocula or starter called *marcha*. Traditional alcohol brewing is a home-based industry mostly done by rural women using their indigenous knowledge of alcohol fermentation. Rural women also sell food products



in the local markets and earn their livelihood. A food consumption survey is an indispensable tool for the assessment of nutritional intake and pattern of food consumption.

**Jaanr**- is a traditional beverage made from various grains such as maize, rice, wheat, etc. *Makai ko Jaanr*, *Bhaate Jaanr*, *Simal tarul ko Jaanr*, *Gahun ko Jaanr*, *Jahun ko Jaanr*, etc. are the most popular among tourists.

- **Marcha/ Khesung/ Phab/ Buth** is made from rice, wild herbs, spices and used as a starter culture to ferment alcoholic beverage by the Limboo, Rai, and Lepcha communities (Tamang et al, 1996).
- **Chang or Thomba** is the fermented traditional drink of Limbu people of Eastern Nepal made from millet and yeast.
- **Kodo ko jaanr/ Chyang/ Chee** are made from finger millet as a mild-alcoholic, slightly sweet-acidic beverage by the Non-Brahmin Nepalis, Bhutias, Lepchas (Thapa and Tamang, 2004, 2006).
- **Bhaati jaanr** is made from rice and is a mild-alcoholic, sweet-sour, food beverage; paste Non-Brahmin Nepalis, Bhutias, Lepchas.
- **Makai ko jaanr** is a maize-based mild-alcoholic, sweet-sour, beverage made and consumed by the Non-Brahmin Nepalis, Bhutias, Lepchas.
- **Gahoon ko jaanr** is a wheat mild-alcoholic, slightly acidic, beverage consumed by non-Brahmin Nepalis, Bhutias, Lepchas Tamang et al. (1996).
- **Simal tarul ko jaanr** is a Cassava tuber Mild-alcoholic, sweet-sour, food beverage; paste Non-Brahmin Nepalis, Bhutias, Lepchas.
- **Jao ko jaanr** is a Barley based mild-alcoholic, slightly acidic, beverage Non-Brahmin Nepalis, Bhutias, Lepchas.
- **Faapar ko jaanr** is a Buck wheat-based mild-alcoholic, slightly acidic, beverage Non-Brahmin Nepalis, Bhutias, Lepchas.
- **Raksi/ arak** is made from cereals and is a clear distilled liquor with a high alcohol content drink Non-Brahmin Nepalis, Bhutias, Lepchas (Kozaki et al., 2000).

#### FERMENTED FOODS OF SIKKIM

- **Kinema** is a soybean-based fermented food made by the non-brahmin Nepalis and used as sticky soybeans or curry (Tamang, 2001).
- **Meseura** is made from fermented black lentil which looks like the ball served with cooked rice.
- **Gundruk** is a dried sour soup or pickle made from leafy vegetables.
- **Sinki** is a dried, sour, soup or pickle made from the radish taproot.
- **Mesu** is made from bamboo shoots and is a sour pickle. Its chief producers are the Limboo women belonging to the Nepali community. The months of June to September are suitable for the preparation of mesu when Bamboo shoots sprout. Locally available species of bamboo are used such as *choya*

*bans* (*Dendrocalamus hamiltonii* Nees and Arnott), *bhalu bans* (*D. sikkimensis* Gamble), and *karati bans* (*Bambusa tulda* Roxb) (Tamang and Sarkar, 1996) which are defoliated, chopped, and pressed tightly into a green bamboo hollow stem, the tip of the stem is covered tightly with leaves and left to ferment for 7-15 days.

- **Khalpi** is made from cucumber in a form of a sour pickle.
- **Niguru With Churpi**- is another fermented food in which cheese.
- **Chhurpi Soup**- cottage cheese and *panache phoran* soup garnished with coriander leaves and served as a welcome drink to visitors.

### SOUPS AND NON-FERMENTED BEVERAGES OF SIKKIM

- **Pheuja**, butter tea prepared from yak milk is consumed in high altitudes mainly north Sikkim.
- **Sikkim Tea**- prepared from the tea garden called Temi tea garden and served in unique traditional cups.
- **Thukpa** - is a flavorful noodle soup that has its origins in the eastern parts of Tibet and this soup has garlic, chopped onions, and green chillies and can be both vegetarian (shredded and chopped vegetables) and non-vegetarian (red meat and boiled or poached eggs).
- **Thenthuk** is a Tibetan noodle soup made of vegetables, wheat flour, and meat/, chilli powder, and vegetable.
- **Gya Kho**- a Tibetan soup served in a chimney shaped bowl and cooked under coal for enhanced flavor.

### SOME LOCAL VEGETARIAN FOODS OF SIKKIM

- **Dalley Khorsani**, - the fireball red chillies are very popular in Sikkim are preserved for years either in vinegar or salt, and many spicy chutneys are made from this chilly.
- **Dal Bhaat**- a traditional Nepalese dish which is a combination is that of boiled rice and lentil soup
- **Dhenroh**, boiled maize-rice, is a staple food in villages.
- **Squash**- a local vegetable dish
- **Chuchey Karele** – a local vegetable dish
- **Butter Beans** – local pulse dish
- **Momos**- which is a Tibetan delicacy and steamed dumplings that can be stuffed with cheese, and vegetables.
- **Dhindo**- a Nepalese dish where a buckwheat or millet flour mix added to boiling water while continuously stirring it with a ladle with or without the addition of clarified butter or normal butter. It is prepared in an iron pan called *Palame Tapke* and an iron spatula or ladle called the *Dabilo* which also enhances the iron content of the food. The paste is then rolled into balls, dipped into lentil soup or chutney, and relished.

- **Gundruk and Sinki- these are** Nepalese dishes. Gundruk is made of radish leaves and cauliflower cooked with spices and tomato sauce. Mustard leaves and oil are added to Gundruk to lend it a nice taste. The dish is rich in roughage and helps one maintain one metabolism. Traditionally, this dish is made in an earthen pot. Sinki is a tap root fermented dish and is popular for its taste and health benefits. Gundrak ka Achaar is made with dried rai ko saag, chillies, and onions and has a peculiar and strong smell.
- **Sael Roti-** is a fried rice bread of Nepal and Tibet origin that is usually served along with Potato Curry.
- **Kinema Curry-** is eaten with rice and made from fermented soybean.
- **Kinema- protein-rich** boiled and fermented soybean cooked with sautéed spices and served with bhaat (rice).
- **Kalo Daal-** made with a local pulse which is a *cross between our Moong beans and black Udad.*
- **Rai no Saag - local green vegetable**
- **Simrayo ko Saag-** *another local green which is slightly sour, but truly delicious, also called the Spanish water Grass*
- **Sukhe Aaloo-** *baby potatoes spicy dish.*
- **Churpi ka Jhol -** *a Nepali cheese, cooked in tomato gravy.*
- **Kodo Ko Roti** is a finger millet roti served with fermented pickles made with local vegetables.
- **Tama Curry or Bamboo Shoot Curry-** a staple dish made with fermented bamboo (turmeric is added to the curry to remove the bitter taste of bamboo shoots).
- **Shimi Ko Achar- eaten with** sael roti (bread), this pickle is made from string bean (locally known as Shimi) and flavored with green chillies, sesame seeds, and lemon juice.
- **Kauri** is a mini shell made from maida and added as a mini dumpling to vegetable stock to make the soup. Vegetables or meat could be added to the soup.
- **Sha Phaley -** The vegetarian is stuffed with Tofu.
- **Dhan ki Kheer -** a local dessert made from local field rice

#### SOME LOCAL NON-VEGETARIAN FOODS OF SIKKIM

- **Momos-** which is a Tibetan delicacy and a steamed healthy food that has found its place among many other states of India. Momos as dumplings that are stuffed with meat, cheese, and vegetables.
- **Gorkhali Lamb-** Grilled lamb pieces sealed with a chilli mixture before adding to a rich and flavourful curry, Gorkhali lamb is a traditional dish from Nepal that is extremely famous in Sikkim and is most often served with sel roti.
- **Phagshapa-** is a non-vegetarian dish made from pork fat, radishes, and red chillies and has no added oil.

- **Sha Phaley**- is a Tibetan dish made with minced meat deep-fried pastry. The bread or the pastry is stuffed with a mixture of ground beef, cabbage, and spices, folded into semi-circles, and finally deep-fried.



A simple early vegetarian lunch in Sikkim (Photo- Vanisha Nambiar)



Traditional dinner (Photo- Vanisha Nambiar)



A local woman in the kitchen (Photo- Vanisha Nambiar)



Traditional kitchen (Photo- Vanisha Nambiar)

## SUMMARY

Overall Sikkim's food culture is influenced by Tibet, West Bengal, and Nepal and to fight the cold weather inclusive of many beverages and soups both fermented and non-fermented to maintain the energy levels. Traditional foods have an important bearing on the dietary habits of the people of Sikkim. Several healthy low-fat, steamed, vegetarian, and non-vegetarian foods of Sikkim besides momos have been listed above and need further promotion.

The wild edible plants form an important constituent of traditional diets in the Himalaya, these plants can be promoted for commercial cultivation for improving the economy and reducing the burden of food in Sikkim.

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# About the Editor



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# About the Book

This book is in tandem with the current National movement of India, “Be Vocal for Local”. It is based on the principle that food, anthropology (culture), agriculture, and health are all interconnected. For planning a good diet chart, we must understand regional crops, food choices, and traditions. Many food habits and ancient foods and food systems followed by indigenous people of India, have health benefits and were resilient.

The book has contributions from over 64 Nutritionists, Dietitians, Sociologists, Botanist, Anthropologists, and Historians across India, and will be a very useful reference book for Students, Practicing Dietitians/Nutritionists, Anthropologists, Community Development Professionals, and Policymakers/Bureaucrats, and anyone who has a desire to learn about the rich culture of India.



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