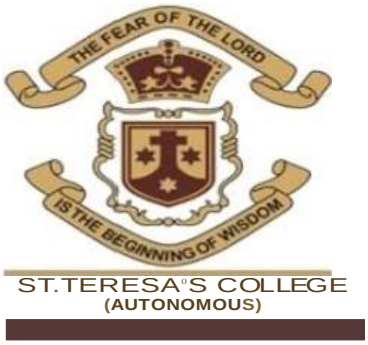
DOCUMENTATION AND NUTRITIVE EVALUATION OF TRADITIONAL FOODS OF KERALA – THIRUVANANTHAPURAM DISTRICT



PROJECT SUBMITTED

In Partial Fulfilment of the Requirement for the Award of the Degree of

B.Sc NUTRITION AND DIETETICS

BY

ANUPA S PRAMOD (Register No :- SB21ND010)

FATHIMA NEHALA SHAMEER (Register No :- SB21ND018)

KHADEEJA NILUFAR (Register No :- SB21ND025)

DEPARTMENT OF CLINICAL NUTRITION AND DIETETICS

ST.TERESA 'S COLLEGE (AUTONOMOUS)

ERNAKULAM

APRIL 2023

CERTIFIED AS BONAFIDE RESEARCH WORK

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CERTIFIED AS BONAFIDE RESEARCH WORK

Signature of Internal Examiner **Signature of External Examiner**

DECLARATION

We hereby declare that the project entitled "**DOCUMENTATION AND NUTRITIVE EVALUATION OF TRADITIONAL FOODS OF KERALA – THIRUVANANTHAPURAM DISTRICT**", submitted in partial fulfilment of the requirement for the award of the degree of B.Sc Nutrition and Dietetics is a record of original research work done by us under the supervision and guidance of **Ms. Abhina B**, Assistant Professor, Department of Clinical Nutrition and Dietetics, Women's Study Centre, St. Teresa's College (Autonomous), Ernakulam and has not been submitted in part or full of any other degree/diploma/fellowship or the similar titles to any candidate of any other university.

Place : Ernakulam

Date :

Anupa S. Pramod

Fathima Nehala Shameer

Khadeeja Nilufar

CERTIFICATE

I hereby certify that the project entitled " **DOCUMENTATION AND NUTRITIVE EVALUATION OF TRADITIONAL FOODS OF KERALA – THIRUVANANTHAPURAM DISTRICT**", submitted in partial fulfilment of the requirement for the award of the degree of B.Sc. Nutrition and Dietetics is a record of original work done by **Ms. Anupa S. Pramod, Ms. Fathima Nehala Shameer** and **Ms. Khadeeja Nilufar**, during the period of the study under my guidance and supervision.

Signature of the HOD

Ms. Surya M. Kottaram
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ANUPA S. PRAMOD
FATHIMA NEHALA SHAMEER
KHADEEJA NILUFAR

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1. INTRODUCTION

"Food is the language of care, the essence of memories, and the bridge between cultures. It brings joy, comfort, and unity, enriching our lives with every flavourful moment shared together."

– Nigella Lawson

Food is our necessity and also a rich cultural expression. It reflects the history, geography, and traditions of a community. Traditional food encompasses dishes that have been passed down through generations within a particular culture or region. These foods often carry historical, cultural, and symbolic significance. They can reflect the local ingredients, cooking methods, and culinary traditions of a community. Exploring traditional foods offers a glimpse into the heritage and identity of a culture, providing insight into its history, values, and way of life. From hearty stews and spicy curries to delicate pastries and savory dumplings, traditional foods celebrate the diversity and richness of culinary traditions around the world (Sibal, 2018).

Our ancestors developed diverse diets as a means of survival, which they later refined through extensive experimentation with locally sourced ingredients. Over time, these traditional food practices became an integral part of each region's culture in India. Indian culture has long emphasized the importance of diet in both preventing and treating illnesses. The therapeutic properties of food have been widely acknowledged and passed down through generations in India. Traditional Indian foods are rooted in various indigenous medical systems, which were once the primary means of promoting physical and mental well-being (Devarajan, 2011).

The traditional food systems of indigenous communities consist of locally sourced items from their natural surroundings that are culturally appropriate. However, the rapid shift in dietary habits among indigenous populations globally is endangering the utilisation of these foods and the traditional knowledge necessary for maintaining traditional food systems (Receveur, 1996).

The Ayurvedic tradition offers a vast reservoir of knowledge on health sciences, including dietary guidelines and recommendations for traditional foods. Many traditional health foods in India align closely with Ayurvedic principles, showcasing a strong similarity

between Ayurvedic dietetics and traditional Indian cuisine. It provides recommended dietary guidelines based on age, health status, and seasonal factors for each traditional health food. As globalization and international food trade continue to shape dietary habits worldwide, health-conscious individuals globally stand to benefit from the wealth of knowledge surrounding traditional Indian and Ayurvedic health foods (Sarkar, 2015).

For generations, traditional Indian foods have been prepared with varying methods across the country, drawing on a rich heritage of culinary wisdom. Over time, traditional knowledge regarding food processing, preservation techniques, and their therapeutic benefits has been established and passed down through the generations. Indian food systems are recognized for their ability to provide various biological functions through the nutrients they contain. Traditional Indian foods are also considered functional foods due to their high content of beneficial components such as healing compounds, antioxidants, dietary fibers, and probiotics. These functional molecules play roles in managing weight, balancing blood sugar levels, and bolstering immune function. Additionally, processing techniques like sprouting, malting, and fermentation further enhance the functional properties of these foods (Kumar, 2015).

The consumption of traditional and ethnic foods is expected to increase due to growing demand from the population, driven by their perceived health benefits and cultural significance. This demand presents opportunities for the manufacturing sector to develop new equipment and improve production efficiency to meet the rising needs. The global fusion of traditional and ethnic foods has led to the creation of new combined dishes, posing challenges for both ingredient suppliers and regulators. However, the functional ingredients found in these foods contribute to overall health improvement. People are increasingly recognizing the role of nutrition in promoting healthy aging and enhancing quality of life, thus emphasizing the importance of consuming nutritious foods to support cellular health and delay the onset of diseases. Today, the integration of biotechnology and bioinformatics facilitates the maintenance of extensive databases on traditional foods, allowing for a deeper understanding of their molecular composition and their effects on the microbiome. This integrated science-based approach enhances safety, hygiene, and knowledge dissemination surrounding traditional and ethnic food (Prakash, 2016).

There is no reliable sources which contain authentic information on traditional recipes

that currently exist. Our effort here is to generate a study entitled " Documentation and Nutritive Evaluation of Traditional Foods of Kerala - Thiruvananthapuram district " with the following objectives.

1. To identify and collect information on the various traditional foods of different districts of Kerala and to document their methods of preparation
2. To evaluate the nutritional characteristics of the selected traditional food.

2. REVIEW OF LITERATURE

Literature relevant to the present study entitled “Documentation and quality evaluation of traditional foods of central zone of Kerala” is reviewed under the following heads.

2.1. Importance of Traditional Knowledge

Mahler (2017) stated that " Tradition is not the worship of ashes, but the preservation of fire." This profound statement underscores the notion that tradition isn't merely about blindly clinging to the past, but rather about actively safeguarding the elements that breathe life and vigor into a culture. It highlights the importance of maintaining traditions as a means of upholding cultural and historical identity. In today's world, despite the modernization, many people still value the idea of passing down traditions to future generations.

Traditional cuisine emphasizes the use of locally sourced ingredients, such as rice, coconut, spices, and fish, which are not only flavorful but also nutritionally rich (Menon, 2018). Grains serve as the main dietary staple in India, providing essential nutrients recommended for overall health. Historical texts, such as the Yajurveda, highlight the use of specific grains like urad, mung, and masoor pulses. These grains are nutritionally dense, offering a valuable source of calories, primarily from starch and proteins. However, certain grains may contain antinutritional properties, such as trypsin inhibitors, which can be mitigated through traditional processing methods like fermentation, soaking, and cooking. Various traditional grain-based health foods are known for their functional and health-promoting properties, which includes

idli, dosa, ambali, selroti etc. Fruits serve as valuable sources of flavonoids, vitamins, minerals, electrolytes, carotenoids, and other bioactive compounds, all of which contribute to human health. Traditional Indian health foods made from fruits and vegetables are known to have various positive effects on well-being which includes banana used as prasadam (spiritual food), banana leaf used as plate for serving food in South India, Jackfruit seed for making curry, banana stem juice for treating hypoglycemia, green leafy vegetables act as an antiaging property etc (Dhamal, 2015).

Guerrero *et al* (2009) explores how consumers perceive traditional food products and innovative adaptations of traditional cuisine. Based on a qualitative cross-cultural investigation, traditional foods play a crucial role in shaping culture, identity, and heritage. They represent specific groups within a culture, fostering a sense of unity among inhabitants of a particular region. To be considered traditional, a food product must be linked to a specific territory and be part of a group of traditional items, ensuring continuity over time.

There are cultural variations in eating habits, such as the use of chopsticks and spoons by Chinese and Europeans, compared to the practice of eating with hands by Arabs and Indians. Traditional cuisines, dishes, and eating customs are passed down through generations within a culture or community, becoming integral to its history and identity. India boasts a diverse range of traditional recipes, from the spicy Chettinad cuisine in the south to the seafood delicacies of Bengal in the east, the flavorsome dishes of Goa in the west, and the rich Kashmiri cuisine in the north. These cuisines rely on traditional ingredients, techniques, and recipes handed down through generations, reflecting the unique backgrounds, traditions, and flavors of each culture (Thampi, 2023).

Traditional cooking methods, including coconut oil tempering, grinding spices on a traditional stone grinder (*ammi*), and slow cooking in earthenware pots (*manchatti*), enhance the flavor and nutritional quality of dishes (Nair, 2016).

Many ingredients used in Kerala's traditional cuisine, such as turmeric, ginger, and curry leaves, are known for their medicinal properties and play a significant role in preventive healthcare (Pillai, 2014). The plants *Moringa oleifera, Amorphophallus paeoniifolius, Curculigo orchioides, Carica papaya, Vitex negundo, Citrus hystrix, and Tribulus terrestris* (with high use values), *Amorphophallus paeoniifolius*, *Discorea pentaphylla* and *Carum*

capticum can be taken for further scientific investigation based upon the traditional knowledge of medicinal plants can be an approach in the discovery and development of novel drug leads (Prabu, 2014).

Traditional farming practices in Kerala, such as rice-fish cultivation in paddy fields and intercropping of coconut trees with other crops, promote ecological sustainability and biodiversity (Thomas, 2015). Traditional food-related livelihoods, such as fishing, farming, spice cultivation, and culinary tourism, contribute to rural economies and provide sustainable livelihood options (Menon, 2016).

Traditional knowledge in Kerala emphasizes the importance of consuming seasonal and locally available foods, aligning dietary patterns with nature's cycles (Kumar, 2019). Food rituals and communal dining experiences, such as the traditional Kerala feast (sadya), foster social cohesion and strengthen community ties (Nair, 2017). Traditional methods of food preservation, such as sun-drying, pickling, and fermenting, ensure the availability of nutritious foods throughout the year and reduce food wastage (Kumar, 2013). Traditional knowledge of food in Kerala includes adaptive strategies to cope with climate change, such as shifting cultivation practices and diversification of crops (Suresh, 2018).

2.2. History of traditional foods

2.2.1. Traditional foods of India

Traditional Indian food is not just a cuisine; it’s a culinary journey that spans thousands of years and reflects the diverse cultures, climates, and traditions of the Indian subcontinent. From the flaming flavors of the north to the delicate spices of the south, Indian food is as diverse as the country itself. At the heart of Indian cooking lies a rich tapestry of spices, herbs, and aromatics. These ingredients, meticulously blended and balanced, create the distinct and complex flavors that characterize Indian cuisine. Turmeric, coriander, cumin, garlic, ginger, and chili are just a few of the essential spices that lend depth and vibrancy to Indian dishes. One of the defining features of Indian food is its regional diversity. Each state and even each household has its own repertoire of recipes, passed down through generations and adapted to suit local ingredients and tastes.

Functional ingredients found in food play a crucial role in providing beneficial

physiological effects that contribute to improved health. Traditional Indian cuisine is considered "functional" due to its high content of dietary fiber from whole grains and vegetables, antioxidants from spices, fruits, and vegetables, and probiotics from curds and fermented batter products. These ingredients undergo chemical diversification, resulting in synergistic effects in Indian traditional foods. Plant-based Indian dishes are particularly rich in natural dietary fiber and low in fat, thereby naturally reducing the risk of coronary heart disease. The health advantages derived from consuming these foods include maintaining normal bodily functions such as improving gastrointestinal health, boosting the immune system, managing weight, promoting skeletal health, lowering blood cholesterol levels, reducing oxidative stress, decreasing the risk of cardiovascular and neurodegenerative diseases, and potentially preventing diabetes (Devarajan, 2017).

In traditional Indian medicine systems, turmeric is widely utilized for its healing properties in treating wounds, gastrointestinal issues, deworming, and cosmetic purposes. Studies conducted in India have hunted into turmeric’s anti-inflammatory, and antioxidant properties, with recent investigations focusing on its ability to prevent pre carcinogenic effects, inflammation, and atherosclerosis in both animal and human biological systems, both in laboratory and clinical settings. Turmeric and curcumin have shown promising results in increasing detoxifying enzymes, preventing DNA damage, enhancing DNA repair, reducing mutations and tumour formation. Limited clinical trials indicate that turmeric can significantly impact the excretion of mutagens in urine among smokers and regress precancerous lesions in the mouth. Fenugreek seeds, which are abundant in soluble fiber and commonly used in Indian cuisine, have been found to lower blood glucose and lipids, making them potentially useful as a dietary supplement for diabetes management. Similarly, garlic, onions, and ginger have been shown to positively influence the process of carcinogenesis (Kamala, 2018).

The temperate regions of northern India have long been home to traditional rice varieties, which have been valued for their medicinal properties by traditional healers and local farmers since ancient times. These rice varieties are considered to be nutritious and functional foods, fitting the criteria for healthy diets. Therefore, it is essential to conserve these traditional rice varieties and promote them by commercializing them and raising public awareness about their medicinal benefits. These traditional rice varieties are rich in flavonoids, anthocyanins, and polyphenols, which contribute to their high antioxidant activity, making them appealing to health-conscious consumers (Bhat and Riar, 2015).

There are wide varieties of fermented foods found in India and are considered important as a potential source of lactic acid bacteria (LAB). Traditional Indian fermented foods are classified based on their primary ingredients. Some examples include dahi, sinki, inizia, fermented rai, and handua, which have been noted for their significant medicinal properties. Certain fermented products like dahi and kanjika are consumed unknowingly as probiotic beverages by local communities (Kanmani, 2012).

2.2.2. Traditional foods of Kerala

Traditional Kerala food is a delectable fusion of flavors, textures, and aromas, rooted in the state's rich cultural heritage and abundant natural resources. Characterized by the generous use of fresh ingredients like rice, coconut, spices, seafood, and tropical fruits, Kerala cuisine offers a diverse array of dishes to tantalize the taste buds. From fragrant rice-based delicacies like appam and biryani to savoury seafood curries bursting with coastal flavors, Kerala's culinary repertoire showcases the state's culinary diversity. Vegetarian delights such as Aviyal and Olan highlight the bounty of fresh vegetables and lentils, while indulgent desserts like payasam and unniyappam add a touch of sweetness to celebrations and festivals. With its emphasis on locally sourced ingredients, aromatic spices, and time-honoured cooking techniques, traditional Kerala food continues to be cherished and celebrated as a symbol of the state's cultural identity and culinary prowess.

Traditional South Indian cuisine offers a balanced blend of nutrients, with proteins sourced from legumes and coconut, carbohydrates from rice, fats from both visible and invisible sources such as curry and fried snacks, and essential vitamins and minerals from sprouted grams and vegetables. These vegetables are rich in functional components like β-carotene, Vitamins C and E, thiamine, tocopherol, and antioxidants, providing a well-rounded nutritional profile in South Indian dishes.

The prevalent spices in South Indian traditional cuisine include black pepper, coriander, black mustard, cumin, garlic, tamarind, turmeric, chili pepper, curry leaves, and asafoetida. Many of these spices are known for their digestive stimulating properties, anti-microbial, anti-oxidant, cholesterol lowering, anti-inflammatory etc (Devarajan, 2017).

A popular fermented food in Kerala, Idli is made by steaming a batter consisting of fermented black gram and rice. It serves as a significant dietary component, providing protein, calories, and vitamins, particularly B-complex vitamins, which are more readily available compared to the raw, unfermented ingredients. Idli holds potential as a locally produced dietary supplement in developing regions, offering a solution for addressing protein-calorie malnutrition and conditions like kwashiorkor. Alternative legumes such as soybeans and Great Northern beans can be used as substitutes for black gram in idli preparation (Reddy, 1982).

A South Indian popular traditional soup, Rasam is consumed daily in South Indian households. Derived from the Sanskrit word meaning "the essential products of digestion," rasam is typically served with cooked rice, alongside sambar, dry or curried vegetables, and curd. Made primarily from tamarind juice as a base and a variety of health-promoting spices, rasam is known for its strong and blended flavors. These spices include coriander, curry leaves, garlic, tamarind, black pepper, cumin, mustard, red chili, turmeric, and asafoetida. Rasam is considered the spiciest soup, with its thick orange liquid delivering layers of flavor that are both nourishing and healing. In traditional South Indian meals, rasam is usually preceded by a course of sambar rice and followed by curd rice. Rasam is not only enjoyed for its taste but also valued for its potential health benefits, aligning with the principles of Indian medical systems like Ayurveda and Siddha. There are various types of rasam, each with its own combination of spices, offering diverse flavors and culinary experiences (Devarajan, 2017).

The Onam Sadya is a vegetarian feast featuring a variety of flavors that encompass the six rasas, or tastes, as outlined by Ayurveda : spice, salt, bitterness, sourness, pungency, and sweetness. This elaborate meal typically consists of around 20 dishes served on a banana leaf, including appetizers, coconut-based curries, sautéed vegetables, pickles, sambar, rasam, Kerala red rice, and Payasam. The order of serving is carefully arranged to complement and balance the flavors and nutrients. Snacks like Upperi, pickles, chutneys, and dry vegetables are placed on the leaf alongside rice. Parippu, a lentil sauce with ghee, precedes dishes like sambar and kalan (a banana-curd sauce dish), followed by rasam. Various types of Payasam are served immediately afterward, and the meal concludes with curd or buttermilk to aid digestion (Unnithan, 2019).

2.2.3. Meaning, Concepts and Definitions

Kerala traditional cuisine, also known as Keralite cuisine, is a rich tapestry of flavors, aromas, and textures that reflects the state's vibrant cultural heritage and diverse culinary influences. Situated in the southwestern region of India, Kerala boasts a unique geographical landscape, with its lush greenery, serene backwaters, and extensive coastline, all of which have contributed to the richness and diversity of its traditional cuisine. At the heart of Kerala traditional cuisine lies a reverence for fresh, locally sourced ingredients. Rice, which is a staple food in Kerala, forms the backbone of many traditional dishes. Kerala is renowned for its varieties of rice, including the fragrant and nutritious Kerala red rice and matta rice, which are prized for their distinct flavor and texture. Kerala traditional cuisine is a celebration of the state's rich cultural heritage, abundant natural resources, and culinary ingenuity. With its emphasis on fresh, locally sourced ingredients, bold flavors, and diverse culinary influences, Kerala cuisine continues to captivate food lovers from around the world, offering a truly unforgettable gastronomic experience.

Traditional food refers to dishes, recipes, and culinary practices that have been passed down through generations within a specific culture or region. These foods are often deeply rooted in cultural heritage and are associated with rituals, celebrations, and everyday meals. Traditional foods typically use locally sourced ingredients and reflect the historical, social, and environmental influences of the community or region they originate from. They play a significant role in preserving cultural identity and are valued for their flavors, nutritional properties, and connection to heritage.

There are several definitions in the literature regarding the concept of traditional foods. (Bertozzi,1998) defines a traditional food product as a representation of a group, belonging to a specific area, and being part of a culture that involves the cooperation of individuals in that territory. (Jordana,2000) builds upon this sociological definition, stating that for a product to be traditional, it must be tied to a particular territory and be part of a set of traditions ensuring its continuity over time. In 2006, the European Commission provided a definition of "traditional" in relation to foods, stating that it signifies proven usage in the community market for a period demonstrating transmission between generations, typically at least 25 years, which is considered one human generation. In Europe, the sole official definition identified for traditional food products originates from the Italian Ministry of Agriculture. According to this

definition, traditional food products are agri-food items whose processing, storage, and ripening methods have become established over time through consistent and uniform local practices (Guerrero, 2009).

2.2.4. History and Ethical Background

The history of Indian traditional food is a rich tapestry woven from centuries of cultural influences, regional diversity, and culinary innovations. Dating back thousands of years, Indian cuisine has been shaped by a multitude of factors, including geographical features, climate, religious practices, trade routes, and invasions.

Ancient India was characterized by a rich agricultural tradition, with various regions cultivating an abundance of grains, fruits, vegetables, and spices. The Indus Valley Civilization, one of the world's oldest urban civilizations, relied on a diverse array of crops such as wheat, barley, rice, lentils, and millets. Archaeological findings suggest that early Indians were skilled in the art of cooking and food preservation, utilizing techniques such as grinding, roasting, boiling, and fermenting.

The Vedic period (1500–500 BCE) saw the emergence of Sanskrit texts such as the Vedas and the Upanishads, which contain references to food rituals, dietary guidelines, and the importance of hospitality. Ayurveda, the ancient Indian system of medicine, also played a significant role in shaping dietary practices, emphasizing the balance of six tastes (sweet, sour, salty, bitter, pungent, and astringent) and the use of spices for their therapeutic properties.

The Maurya and Gupta empires (4th century BCE–6th century CE) witnessed the flourishing of trade and commerce, leading to the exchange of culinary ideas and ingredients across different regions of India and beyond. The Silk Road facilitated the trade of spices, silk, and other commodities between India, China, Central Asia, and the Mediterranean, further enriching Indian cuisine with new flavors and ingredients.

The medieval period (8th–18th century CE) saw the arrival of various rulers and dynasties, including the Mughals, Persians, Turks, and Europeans, each leaving their mark on Indian cuisine. The Mughal emperors introduced techniques such as tandoori cooking, biryanis, and kebabs, as well as ingredients like saffron, dried fruits, and nuts. Persian and Central Asian

influences contributed to the development of rich gravies, aromatic spices, and layered flavors in Mughlai cuisine.

In South India, the Chola, Chera, and Pandya dynasties cultivated a vibrant culinary tradition centered around rice, coconut, lentils, and seafood. The Cholas were known for their maritime trade and cultural exchange with Southeast Asia, which influenced the use of ingredients like coconut milk, tamarind, and spices in South Indian cuisine.

During the colonial period, India became a melting pot of culinary influences, as traders, explorers, and colonizers from Europe, Arabia, and East Asia arrived on its shores. The Portuguese introduced chili peppers, potatoes, and tomatoes, which became integral ingredients in Indian cooking. The British colonization of India also had a profound impact on the culinary landscape, leading to the fusion of British and Indian ingredients and cooking techniques.

In post-independence India, the country witnessed rapid urbanization, globalization, and the emergence of modern food processing and packaging techniques. However, traditional Indian food continues to thrive, celebrated for its diverse flavors, health benefits, and cultural significance. Today, Indian cuisine remains a source of pride and identity for people across the globe, reflecting the rich tapestry of India's history, heritage, and culinary legacy.

Spices have played a significant role in India's culture, traditions, and preservation since ancient times. They were essential for India's external trade with countries like Egypt, Arabia, and China. References to spices such as cloves can be found in ancient texts like the Ramayana and writings from the Roman Empire dating back to the 1st century AD. Historically, caravans transported spices from places like Calicut and Goa to destinations like Rome and Alexandria, often involving risks to traders' lives. Early documentation suggests that hunters discovered the flavor-enhancing properties of spices when wrapping meat in leaves, leading to their widespread use in cooking. Over time, spices and herbs were also utilized for medicinal purposes and food preservation. They were highly valued commodities for trade, as evidenced by their mention in historical texts such as the Bible (Shukla, 2018).

2.3. Health and Nutritional Aspects of Traditional Foods

Traditional Indian food offers a holistic approach to health and nutrition, combining flavorful ingredients, balanced meals, and time-tested culinary practices to nourish the body, mind, and spirit.

Traditional Indian cuisine incorporates a wide variety of whole grains, legumes, vegetables, fruits, herbs, and spices, providing a rich array of essential nutrients. Traditional Indian diets are characterized by high levels of fiber, vitamins, minerals, and antioxidants, contributing to overall health and well-being (Gautam, 2019).

Indian meals traditionally offer a balanced combination of carbohydrates, proteins, fats, vitamins, and minerals. Researchers highlights the nutritional balance of traditional diets, which typically include grains, lentils, vegetables, dairy, and small amounts of meat or fish, promoting optimal health and nutrition (Shaikh, 2018).

Indian cooking utilizes a diverse array of spices and herbs, many of which have medicinal properties and provide health benefits. Studies have shown that spices like turmeric, ginger, garlic, cinnamon, and cloves exhibit anti-inflammatory, antioxidant, and antimicrobial properties, contributing to overall health and disease prevention (Aggarwal, 2008; Rahman, 2017).

Fermented foods are an integral part of traditional Indian cuisine, offering probiotics that support gut health and boost the immune system. The health benefits of fermented foods like yogurt, buttermilk, dosa, and idli, which contain beneficial bacteria aid digestion and improve gut health (Kumar, 2020).

Traditional food is often aligned with Ayurvedic principles, which emphasize the importance of mindful eating, choosing foods according to one's body type (dosha), and incorporating six tastes (sweet, sour, salty, bitter, pungent, and astringent) into meals for optimal health and well-being. Ayurvedic dietary guidelines focus on balance, moderation, and seasonal eating to promote overall health and vitality (Govindarajan, 2021).

Traditional Indian cooking emphasizes the use of seasonal and locally available

ingredients, ensuring freshness, flavor, and nutritional value. Researchers emphasizes the importance of seasonal and regional variations in traditional Indian diets, which provide a diverse range of nutrients while supporting local agriculture and culinary traditions (Bharathi, 2017). Traditional cuisine often includes a significant emphasis on plant-based ingredients, such as grains, legumes, fruits, and vegetables. These plant-based foods are rich in fiber, vitamins, minerals, and phytonutrients, and are associated with numerous health benefits, including reduced risk of chronic diseases such as heart disease, diabetes, and certain cancers (Satija, 2017). Traditional Indian cooking involves a variety of cooking methods, including boiling, steaming, roasting, frying, and sauteing. Each cooking method offers unique nutritional benefits, and the diversity of cooking techniques helps to retain the nutritional value and flavor of ingredients (Sarkar, 2019).

India's diverse culinary landscape encompasses a wide range of regional cuisines, each with its own unique ingredients, flavors, and cooking styles. (Kaur, 2019) highlights the nutritional diversity of traditional Indian diets, which vary based on regional preferences, cultural practices, and agricultural patterns.

Traditional meals are often consumed in communal settings, such as family gatherings, religious festivals, and community events. These shared meals foster social connections, promote family bonding, and support mental well-being, contributing to overall health and happiness (Taskar, 2010).

Indian cuisine reflects the country's rich culinary heritage and cultural diversity, with influences from indigenous traditions, historical migrations, and foreign invasions. Traditional food is not only a source of nourishment but also a symbol of cultural identity, heritage, and pride, preserving centuries-old culinary traditions for future generations (Rastogi, 2015).

Despite the rise of processed and fast foods, traditional cuisine remains relevant and popular due to its nutritional value, delicious flavors, and holistic approach to health and wellness. (Kaur and Singh, 2018) emphasizes the enduring appeal of traditional Indian foods in the context of modern dietary trends and consumer preferences.

The transition from traditional food to modern processed foods can have significant implications for health and disease risk. Traditional diets are often rich in whole grains, fruits,

vegetables, legumes, and lean proteins, providing a diverse array of nutrients essential for health. In contrast, modern processed foods are often high in refined sugars, unhealthy fats, and sodium, and low in essential nutrients, leading to nutrient deficiencies and imbalances (Monteiro, 2013).

The shift from traditional diets to modern processed foods is associated with an increased risk of chronic diseases such as obesity, type 2 diabetes, cardiovascular disease, and certain cancers. (Popkin, 2012). Traditional diets rich in fiber, fermented foods, and plant-based ingredients support a diverse and healthy gut microbiota, which is essential for digestion, immune function, and overall health. Conversely, the consumption of modern processed foods high in additives, preservatives, and artificial ingredients can disrupt the gut microbiota, leading to dysbiosis, inflammation, and increased disease risk (David, 2014). Traditional diets characterized by whole foods and balanced macronutrient ratios support metabolic health and weight management. In contrast, the consumption of modern processed foods high in refined carbohydrates, added sugars, and unhealthy fats can contribute to insulin resistance, metabolic syndrome, and obesity (Grievy, 2015).

The transition from traditional diets to modern processed foods can have cultural and social implications, including the loss of culinary traditions, cultural identity, and community cohesion. Studies have shown that dietary transitions associated with urbanization and globalization can lead to the erosion of traditional foodways, dietary patterns, and culinary heritage, affecting cultural diversity and social cohesion (Popkin, 2014). Traditional diets rich in whole foods and natural ingredients are associated with lower levels of inflammation in the body, which is a key factor in the development of chronic diseases such as arthritis, inflammatory bowel disease, and autoimmune conditions. In contrast, modern processed foods high in refined sugars, unhealthy fats, and additives can promote inflammation and exacerbate inflammatory conditions (Fritsche, 2006).

Traditional diets often prioritize locally sourced, seasonal ingredients, and sustainable farming practices, which are more environmentally friendly compared to the industrialized agriculture and food production systems associated with modern processed foods. Studies have shown that dietary transitions towards Westernized diets high in animal products and processed foods contribute to environmental degradation, deforestation, and greenhouse gas emissions (Tilman and Clark, 2014).

2.4. Key challenges in the production and usage of Traditional foods

The industrialization of agriculture and globalization of food systems have led to the loss of traditional crop varieties and livestock breeds, threatening agricultural biodiversity and genetic resources. This loss of biodiversity reduces resilience to pests, diseases, and climate change, and undermines the sustainability of traditional food production systems (FAO, 2019).

Intensive agricultural practices, including the use of chemical fertilizers and pesticides, monocropping, and land conversion, contribute to soil erosion, degradation, and loss of fertility. Traditional farming methods, such as agroforestry, crop rotation, and mixed cropping, promote soil health and conservation but face challenges in the face of modern agricultural practices (IPCC, 2019).

Traditional food production systems often rely on rainfed agriculture and natural water sources, which are increasingly threatened by climate change, water scarcity, and competition for water resources. Limited access to irrigation infrastructure and technology hinders the productivity and sustainability of traditional farming practices, particularly in arid and semi-arid regions (UN Water, 2020).

Traditional food producers often face challenges in accessing markets, establishing value chains, and complying with quality and safety standards. Limited infrastructure, inadequate transportation networks, and lack of market information and resources constrain the economic viability and competitiveness of traditional food products in global markets (IFAD, 2018).

Rapid urbanization, changing lifestyles, and cultural shifts contribute to the erosion of traditional food habits, culinary traditions, and dietary patterns. Fast food consumption, and processed foods are increasingly replacing traditional foods, leading to negative health outcomes, loss of cultural identity, and social disconnection (UNESCO, 2010). Inadequate policy support, regulatory frameworks, and institutional mechanisms pose challenges to the promotion and preservation of traditional food systems. Weak governance, lack of incentives, and conflicting priorities in agricultural and food policies hinder efforts to safeguard traditional knowledge, promote sustainable agriculture, and protect indigenous food cultures (UNCTAD, 2019). Traditional food production systems are often characterized by gender-specific roles

and responsibilities, with women playing key roles in food cultivation, processing, and preparation. However, gender disparities in access to resources, decision-making power, and land ownership limit women's participation and contribution to traditional food production. Promoting gender equity and social inclusion is essential for enhancing the resilience and sustainability of traditional food systems (FAO, 2020).

Globalization and market integration have transformed traditional food systems by introducing new food products, technologies, and consumption patterns. While market integration offers opportunities for economic growth and diversification, it also poses challenges such as increased competition, price volatility, and loss of market share for traditional food producers. Strengthening value chains, promoting local markets, and enhancing market access for traditional foods are critical for ensuring the viability and resilience of traditional food systems in a globalized economy (UNCTAD, 2018).

The commodification and mass production of food products have led to the homogenization of culinary traditions and the erosion of cultural diversity. Traditional foods and culinary practices, which are deeply rooted in local cultures, histories, and identities, face the risk of marginalization and extinction in the face of globalization and cultural assimilation. Efforts to preserve and promote traditional food cultures, culinary heritage, and indigenous knowledge are essential for safeguarding cultural diversity and identity (UNESCO, 2001).

Traditional food producers often lack access to sustainable agricultural inputs, technologies, and practices that can enhance productivity, resilience, and environmental sustainability. Limited access to certified seeds, organic fertilizers, renewable energy, and climate-smart agriculture technologies hinders the adoption of sustainable farming practices and agroecological approaches. Investing in research, extension services, and capacity-building initiatives is critical for promoting sustainable intensification and innovation in traditional food production systems (UNEP, 2020).

Addressing these multifaceted challenges requires holistic approaches that integrate environmental, social, economic, and cultural dimensions of sustainable development, with a focus on empowering local communities, promoting resilience, and fostering inclusive and equitable food systems.

2.5. Future scope of Traditional Foods

There is growing interest in reviving indigenous crops and traditional crop varieties that are well-adapted to local agro-climatic conditions and possess unique nutritional and culinary attributes. Emphasizing the cultivation and consumption of these traditional crops can contribute to agricultural biodiversity conservation, climate resilience, and food sovereignty (Padulosi, 2019).

Traditional food systems offer valuable lessons for building more sustainable and resilient food systems. Integrating traditional ecological knowledge, agroecological practices, and indigenous farming techniques can enhance the sustainability, productivity, and biodiversity of food production while mitigating environmental impacts (HLPE, 2020).

Traditional food plays a central role in culinary tourism, cultural heritage preservation, and gastronomic experiences. Promoting traditional cuisines, culinary festivals, food trails, and heritage sites can enhance cultural exchange, tourism revenue, and community empowerment while preserving culinary traditions and intangible cultural heritage (UNWTO, 2018).

Traditional foods are often nutrient-rich, culturally appropriate, and aligned with dietary diversity and balance. Integrating traditional foods into public health policies, nutrition programs, and school meal initiatives can improve dietary diversity, address malnutrition, and promote healthy eating habits, particularly among vulnerable populations (WHO, 2020).

There is potential for innovation and value addition in traditional food processing, preservation, and product development. Leveraging traditional knowledge, indigenous ingredients, and sustainable food technologies can create opportunities for market diversification, value chain development, and entrepreneurship in the traditional food sector (FAO, 2018).

Policy support, regulatory frameworks, and institutional collaboration are essential for promoting the production, consumption, and trade of traditional foods. Strengthening policy coherence, investment incentives, and public-private partnerships can create an enabling environment for traditional food promotion, preservation, and sustainable development (UNCTAD, 2017).

Traditional food production systems often incorporate agroecological practices that enhance resilience to climate variability and extremes. Promoting climate-smart agriculture, diversification of crop varieties, and water-efficient farming techniques can help traditional food producers adapt to changing climatic conditions and mitigate the impacts of climate change on food security and livelihoods (FAO, 2021).

Traditional food systems are deeply rooted in local cultures, knowledge systems, and community practices. Strengthening community-based initiatives, indigenous food networks, and participatory governance structures can empower local communities, enhance food sovereignty, and promote social cohesion, cultural resilience, and self-determination (UNDP, 2019).

Traditional food systems are closely intertwined with biocultural diversity, encompassing the diversity of ecosystems, species, knowledge systems, and cultural practices. Protecting and promoting biocultural diversity through community-based conservation initiatives, traditional ecological knowledge, and indigenous stewardship can enhance resilience, sustainability, and well-being in food systems (CBD, 2020).

Traditional food systems often embody principles of circular economy, minimizing waste and maximizing resource efficiency. Emphasizing traditional practices such as nose-to-tail eating, root-to-stem cooking, and fermentation can reduce food waste, conserve resources, and promote sustainable consumption patterns in alignment with the principles of the circular economy (Ellen MacArthur Foundation, 2019).

There is a resurgence of interest in traditional foodways, culinary heritage, and artisanal food production among consumers, chefs, and food enthusiasts. Celebrating traditional food cultures, heritage grains, heirloom varieties, and slow food movements can foster a deeper appreciation for local flavors, traditional recipes, and cultural authenticity in the global food landscape (Slow Food International, 2021).

Traditional food systems contribute to food security, rural livelihoods, and poverty alleviation, particularly in rural areas and indigenous communities. Strengthening smallholder farming, local food markets, and community-based food initiatives can enhance food

sovereignty, income generation, and livelihood resilience, while reducing dependence on external inputs and market volatility (IFAD, 2020).

Transformative policy innovations and governance reforms are needed to address the systemic challenges facing traditional food systems, including land tenure rights, intellectual property rights, and access to genetic resources. Implementing inclusive policy processes, participatory decision-making mechanisms, and multi-stakeholder partnerships can foster policy coherence, institutional accountability, and transformative change in food systems (HLPE, 2017).

These emerging trends and opportunities underscore the importance of safeguarding traditional food systems, promoting food sovereignty, and fostering sustainable development for present and future generations.

Hence, in this study, entitled “Documentation and nutritive evaluation of Traditional Foods of Kerala – Thiruvananthapuram district“, we have made an attempt to document the traditional foods in Trivandrum.

3. MATERIAL AND METHODS

This chapter deals with the methods and tools followed in the various phases of the study and the details are presented under the following headings :

3.1. Locality of the study.

3.2. Selection of sample.

3.3. Plan of study.

3.3.1. Collection of information regarding traditional food habits in Thiruvananthapuram.

3.3.2. Documentation of traditional foods in Thiruvananthapuram.

3.3.3. Preparation of selected traditional foods in Thiruvananthapuram.

3.3.4. To develop nutritive value of selected traditional foods in Thiruvananthapuram district.

3.1. Locality of the study

Trivandrum, also known as Thiruvananthapuram, is the capital city of the southern Indian state of Kerala. It is known for its lush greenery, beautiful beaches, and rich cultural heritage. Trivandrum, like the rest of Kerala, is known for its unique and flavorful cuisine. The following localities were namely selected :

Table 1: Localities of the study

Sl.No	Localities selected
1.	Varkala
2.	Neyyathinkara
3.	Nedumangadu
4.	Chirayinkeezhu

5.	Kattakada

3.2. Selection of sample

Population above the age of 45 years with knowledge in traditional food preparations were also selected randomly from each study locality. As traditional food habits differ with respect to region, religion, and caste, the selected samples were categorized based on the communities they represent. A total of 10 people, belonging to different communities like Hindus, Muslims and Christians were selected.

Table 2. Distribution of respondents selected for the study.

Hindus	Muslims	Christians	Total
12	5	8	25

3.3. Plan of study

Based on the objectives of the study, the plan of the study was designed. The study comprised the following headings :

3.3.1. Collection of information regarding traditional food habits in Trivandrum
3.3.2. Documentation of traditional foods in Trivandrum.
3.3.3. Preparation of selected traditional foods in Trivandrum.
3.3.4. To develop nutritive value of selected traditional foods in Trivandrum district

3.3.1. Collection of information regarding the traditional food habits in Trivandrum

From the identified study locations, information regarding the traditional foods and food habits of each community associated with religious customs, festivals, special occasions, the ingredients and their methods of preparation, were collected through questionnaires that contained information about the same.

The samples were also interviewed to collect further details on their childhood

experiences involving the traditional foods, different festivities and special foods prepared during those occasions, foods they consumed during their school life, etc. We were also shown different traditional kitchen equipments and utensils including churner, *Bharani* or canister, *muram*, mortar and pestle, *arakallu*, *cheena chatti*, or *mann chatti* or clay pot, *kal chatti* or stone pot, *para* or bushel, kooja or earthen pot etc.

3.3.2. Documentation of traditional foods in Trivandrum

From the questionnaire and interviews, the details of different traditional foods of different communities were identified and a list of traditional foods thus identified is given in table. We also gathered detailed information of method of preparation of selected traditional foods. Documentation of the process through photographic and written methods was done. The history of selected traditional foods and the changes occurred to traditional food preparations were also collected from the skilled experts using time/trend line through in-person interviews.

Table 3 : Different traditional foods.

SI.No	Different traditional food
1.	Thiruvathira puzhuk
2.	Boli and paal payasam
3.	Kappa and chutney
4.	Vada kottu curry
5.	Kozhithoran
6.	Aviyal
7.	Sarkkaravaratti
8.	Parippu payasam
9.	Trivandrum prawn curry
10.	Neyyappam
11.	Sarkkara payasam
12.	Ari payasam
13.	Therali
14.	Mandaputtu
15.	Palada pradhaman

16.	Gothambu payasam
17.	Beetroot pachadi
18.	Ada pradhaman
19.	Unniyappam
20.	Rasavada

Out of the above foods, the following foods were selected for further study :

Table 4 : Selected traditional foods

SI.No	Selected traditional foods
1.	Boli and paal payasam
2.	Sarkkaravaratti
3.	Unniyappam
4.	Kozhithoran
5.	Aviyal
6.	Therali
7.	Vada kottu curry
8.	Rasavada
9.	Ari payasam
10.	Kappa and chutney

3.3.3. Preparation of Selected Traditional foods in Trivandrum

3.3.3.1. Boli and paal payasam

Ingredient (2 Servings)

Ingredients for Boli

- 1 cup of Maida (all-purpose flour)
- A pinch of turmeric powder
- Water, as needed
- Ghee, for cooking
- 1 cup of chana dal (split chickpeas), soaked for 2-3 hours

- 1 cup of jaggery, grated
- 1/2 teaspoon of cardamom powder
- 2 tablespoons of grated coconut (optional)
- Ghee, for cooking

Ingredients for Paal Payasam

- 1/2 cup of rice (preferably basmati)
- 4 cups of milk
- 1/2 cup of sugar (adjust to taste)
- A pinch of saffron (optional)
- 1/4 cup of chopped nuts (cashews, almonds, pistachios)
- 1/4 teaspoon of cardamom powder
- Ghee, for frying the nuts

Preparation

Preparations for Boli

- Prepare the fillings : Cook the soaked chana dal in a pressure cooker or pan until soft. Drain any excess water and mash the dal. Add grated jaggery, cardamom powder, and grated coconut. Mix well and cook until the mixture thickens. Allow it to cool.
- Make the dough : Mix Maida with turmeric powder and enough water to make a soft, pliable dough. Divide the dough into small balls.
- Roll out the Boli : Take a dough ball and roll it out into a small circle. Place a spoonful of the filling in the center and fold the dough over it. Roll it out gently into a flat circle.
- Cook the Boli : Heat a tawa or griddle and grease it with ghee. Cook the boli on both sides until golden brown, adding ghee as needed.

Preparations for Paal Payasam

- Cook the rice : Wash the rice and cook it in a pot with water until it is soft and mushy. Mash the rice slightly
- Prepare the milk mixture : In a separate pot, boil the milk. Add sugar, saffron (if using), and cardamom powder. Stir well.
- Combine rice and milk : Add the cooked rice to the milk mixture. Cook on low heat, stirring continuously, until the payasam thickens.

- Fry the nuts : In a small pan, heat ghee and fry the chopped nuts until golden brown. Add the fried nuts to the payasam.

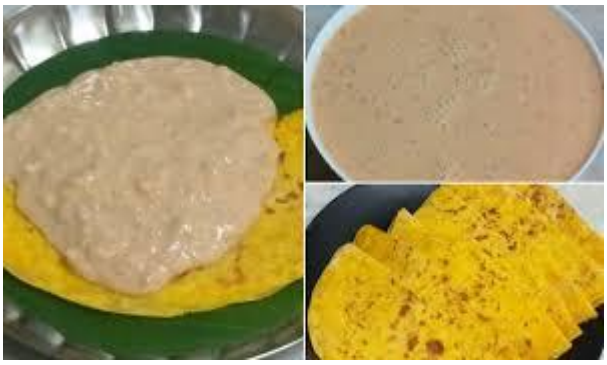


Plate 1 : Boli and paal payasam

3.3.3.2. Sarkkaravaratti

Ingredients (20 numbers)

- 1 cup of jaggery (sharkara)
- 1 cup of water
- 1/2 teaspoon of dry ginger powder
- 1/2 teaspoon of cardamom powder
- 2 cups of diced ripe plantains (ethapazham)
- Ghee or coconut oil, for frying

Preparation

- In a saucepan, combine the jaggery and water. Heat over medium heat, stirring occasionally, until the jaggery melts completely and forms a syrup. Remove from heat and set aside.
- Heat ghee or coconut oil in a deep pan or kadai over medium heat.
- Add the diced plantains to the hot ghee/oil and fry until they turn golden brown and crispy. Remove them from the pan and set aside to cool slightly.
- Once the fried plantains have cooled slightly, lightly crush them using a flat spoon or a masher. They should be crushed into small, uneven pieces.
- Reheat the jaggery syrup over low heat. Add the crushed fried plantains, dry ginger powder, and cardamom powder. Mix well to coat the plantains evenly with the syrup.

- Continue cooking over low heat, stirring frequently, until the mixture thickens and the plantains are well-coated with the syrup. This may take about 15-20 minutes.
- Once the mixture reaches a thick, sticky consistency and the plantains are well-coated, remove from heat.
- Allow the mixture to cool slightly, then shape it into small, bite-sized balls or pieces.
- Allow the Sarkkaravaratti to cool completely and harden before serving.


Plate 2 : Sarkkaravaratti

3.3.3.3. Unniyappam

Ingredients (50 numbers)

- 1 cup of rice flour
- ¼ cup of jaggery (grated or chopped)
- ½ ripe banana (mashed)
- ¼ teaspoon of cardamom powder
- 1/4 teaspoon of dry ginger powder
- ¼ teaspoon of black sesame seeds
- ¼ cup of grated coconut (optional)
- Water, as needed
- Ghee or oil, for frying

Preparation

- Heat a small pan and add the jaggery with a little water. Stir until the jaggery melts completely. Strain the mixture to remove any impurities and set it aside to cool.

- In a mixing bowl, combine the rice flour, mashed banana, cardamom powder, dry ginger powder, black sesame seeds, and grated coconut (if using).
- Gradually add the cooled jaggery syrup to the dry ingredients and mix well to form a thick batter. Add water if needed to achieve the right consistency—it should be thick but pourable.
- Heat the unniyappam pan (a special pan with multiple round cavities) and add ghee or oil to each cavity.
- Once the ghee/oil is hot, pour the batter into each cavity, filling it up to ¾ full.
- Cook on medium-low heat until the bottom side is golden brown. Flip each unniyappam using a skewer or fork, and cook the other side until golden brown as well.
- Remove from the pan and drain on paper towels to remove excess oil.
- Serve warm. Unniyappam can be stored in an airtight container for a few days.

Plate 3 : Unniyappam

3.3.3.4. Kozhi Thoran

Ingredients (6 servings)

- Chicken – 500g
- Oil – 2 tbsp
- Red chili powder – 2 tsp
- Turmeric powder – ½ tsp
- Curry leaves – 2 strands
- Grated coconut – 1 cup
- Onion – 2 no. sliced
- Garlic paste – 2 tsp
- Salt – to taste
- Black mustard seeds - 1 tsp

Preparation

- Heat oil in a pan over medium heat.
- Add mustard seeds and let them splutter.
- Add sliced onions and curry leaves. Sauté until onions are translucent.
- Add chicken pieces, turmeric powder, chili powder, and salt. Cook until chicken is almost done.
- Add grated coconut and continue cooking until chicken is fully cooked and coconut is lightly toasted.
- Adjust seasoning if needed.
- Serve hot with rice or roti.

Plate 4 : Kozhi Thoran

3.3.3.5. Aviyal

Ingredients (3 servings)

- Carrot - 1 peeled and chopped into small pieces
- Green beans - 10-12, chopped into small pieces
- Potato - 1, peeled and diced
- Peas - 1/2 cup
- Grated coconut - 1/2 cup grated coconut
- Green chili - 1, chopped
- Cumin seeds - 1/2 tsp
- Yogurt - 1 cup
- Salt - to taste
- Curry leaves - for garnish
- Coconut oil - 1 tbsp

Preparation

- Boil the carrot, beans, potato, and peas in water until tender. Drain and set aside.
- Grind grated coconut, green chili, and cumin seeds into a coarse paste.
- In a large bowl, mix the boiled vegetables with the ground coconut paste.
- Add yogurt and salt to the vegetable mixture. Mix well.
- Heat coconut oil in a pan, add curry leaves, and saute for a few seconds.
- Pour the seasoned oil over the aviyal mixture and mix gently.
- Serve hot.

Plate 5 : Aviyal

3.3.3.6. Therali

Ingredients (5 servings)

- Rice flour – 1 cup
- Grated coconut – ½ cup
- Jaggery – ¼ cup
- Cardamom powder – ¼ teaspoon
- Banana leaves – for wrapping
- Water – as needed
- Salt - to taste

Preparations

- In a bowl, mix rice flour, grated coconut, jaggery, cardamom powder, and a pinch of salt.
- Gradually add water to the mixture and make it into a smooth dough. The consistency should be firm yet pliable.
- Take a banana leaf square and slightly heat it over a flame to make it flexible.
- Place a small portion of the dough onto the banana leaf and shape it into a cylindrical or oval dumpling.
- Fold the banana leaf over the dough to enclose it completely.

- Repeat the process with the remaining dough and banana leaf squares.
- Steam the dumplings in a steamer for about 15-20 minutes or until cooked through.
- Once done, remove the dumplings from the steamer and allow them to cool slightly before serving.
- Serve Therali warm or at room temperature.

Plate 6 : Therali

3.3.3.7. Vada Kottu Curry

Ingredients (6 servings)

Ingredients For Vada

- Black gram dal - 1 cup, soaked for 4-6 hours
- Green chillies – 2 or 3, finely chopped
- Ginger – 1 inch piece, grated
- Curry leaves – a handful, finely chopped
- Salt - to taste
- Oil - for deep frying

Ingredients For Kottu Curry

- Potatoes – 2, boiled and diced
- Carrots – 2, diced
- Onion – 1, finely chopped
- Tomato - 1, finely chopped
- Ginger-garlic paste - 1 tablespoon
- turmeric powder - 1/2 teaspoon
- Chilli powder - 1 teaspoon
- Coriander powder - 1 teaspoon

- Garam masala - 1/2 teaspoon
- Salt - to taste
- Oil - 1 tbsp
- Curry leaves - a handful
- Mustard seeds - 1 teaspoon
- Cumin seeds - 1 teaspoon
- Coriander leaves - 1 tbsp chopped for garnish

Preparation

Preparation For Vada

- Drain the soaked black gram dal and grind it into a smooth paste using very little water.
- Transfer the batter to a bowl and add chopped green chilies, grated ginger, chopped curry leaves, and salt. Mix well.
- Heat oil in a deep frying pan. Take small portions of the batter and shape them into small round vadas.
- Deep fry the vadas in hot oil until they turn golden brown and crispy. Drain excess oil and set aside.

Preparation for Kottu Curry

- Heat oil in a pan. Add mustard seeds and cumin seeds. Let them splutter.
- Add chopped onions and saute until they turn translucent.
- Add ginger-garlic paste and saute until the raw smell disappears.
- Add chopped tomatoes and cook until they turn mushy.
- Add diced potatoes, carrots, turmeric powder, chili powder, coriander powder, garam masala, and salt. Mix well.
- Cook the vegetables until they are tender but not mushy.
- Add the fried vadas to the curry and mix gently.
- Garnish with chopped coriander leaves and serve hot.

Plate 7 : Vada Kottu Curry

3.3.3.8. Rasavada

Ingredients (7 servings)

Ingredients for Vada

- 1 cup urad dal (split black gram)
- 2-3 green chilies, chopped
- 1-inch piece of ginger, grated
- A handful of chopped curry leaves
- 1 teaspoon whole black peppercorns
- Salt to taste
- Oil for deep frying

Ingredients for Rasam

- 2 large tomatoes, chopped
- 2 cups water
- 1 teaspoon tamarind paste
- 1 teaspoon mustard seeds
- 1 teaspoon cumin seeds
- 1 teaspoon turmeric powder
- 2-3 dried red chilies
- A pinch of (Hing)
- A handful of chopped coriander leaves
- Salt to taste

Preparation

- Soak the urad dal in water for about 4-6 hours or overnight. Drain the water and grind the dal into a smooth paste using a little water if necessary.

- Add chopped green chilies, grated ginger, chopped curry leaves, whole black peppercorns, and salt to the ground dal mixture. Mix well.
- Heat oil in a deep frying pan. Wet your hands and take a small portion of the dal mixture. Flatten it slightly and make a hole in the center to form a doughnut shape.
- Carefully slide the shaped vadas into the hot oil and fry until they turn golden brown and crispy. Remove from oil and drain excess oil on paper towels.
- For the Rasam, heat a little oil in a separate pan. Add mustard seeds, cumin seeds, dried red chilies, and hing. Let them splutter.
- Add chopped tomatoes, turmeric powder, and salt. Cook until tomatoes turn mushy.
- Add water and tamarind paste. Let it simmer for a few minutes.
- Garnish with chopped coriander leaves.
- Serve the hot Rasa Vadas with the prepared Rasam.

Plate 8 : Rasavada

3.3.3.9. Ari payasam

Ingredients (8 servings)

- Rice-2 cup.
- Sugar-1 cup
- Milk-1liter.
- Cardamom powder-1 teaspoon.
- Ghee-2 teaspoon.
- Cashew and resins.

Preparation

- Cook rice in a cooker with 4 cups of water.
- After cooking the rice added sugar.

- Then add milk and cardamom powder.
- Fry cashews and raisins in ghee.
- Added these fries into the mixture.

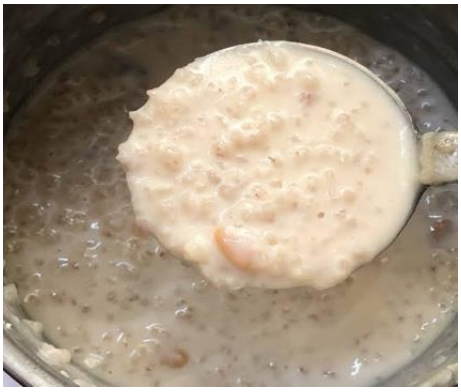


Plate 9 : Ari payasam

3.3.3.10. Kappa and chamanthi

Ingredients (4 servings)

- Tapioca-1/2 kg
- Shallot-100 g
- Red chilli-5 nos.
- Coconut oil-1 teaspoon.
- Salt-as needed.
-

Preparation

- Boil tapioca added water and salt as needed.
- Cook well and drain water from tapioca and serve the plate.
- Grind shallot, red chilli, and salt.

- Then added coconut oil.

Plate 10 : Kappa and Chamanthi

3.3.4. To develop a nutritive value of selected food in Trivandrum

The nutrients that we are selected for analysing the nutritive value for each recipe are based on the high nutritive content present in that recipe; which include: Energy, protein, fat, carbohydrates, iron, calcium, phosphorus, magnesium, vitamin c.

ENERGY

Energy refers to the capacity of food to fuel physiological processes and sustain bodily functions. It's primarily derived from macronutrients like carbohydrates, proteins, and fats. Carbohydrates are the body's preferred energy source, quickly converted into glucose. Proteins, vital for tissue repair and growth, contribute energy when carbohydrates are insufficient. Fats, stored in the body, provide sustained energy during prolonged activities. The unit of measurement for energy in food is calories or joules. Balancing energy intake with expenditure is crucial for maintaining a healthy weight and supporting overall health and vitality.

CARBOHYDRATES

Carbohydrates are essential macronutrients found in foods like grains, fruits, vegetables, and dairy products. They serve as the body's primary energy source, providing fuel for vital functions and physical activities. Carbohydrates are composed of sugars, starches, and fiber. Sugars, such as glucose and fructose, are quickly absorbed and used for immediate energy. Starches, found in foods like bread and pasta, are broken down into sugars during digestion. Fiber, found in fruits, vegetables, and whole grains, aids in digestion and helps

maintain digestive health. Balancing carbohydrate intake is crucial for overall health and energy levels.

PROTEIN

Proteins are essential macronutrients crucial for the body's structure, function, and overall health. Composed of amino acids, they play vital roles in muscle repair, growth, and maintenance. Proteins also serve as enzymes, hormones, and antibodies, facilitating various biochemical reactions and immune functions. Dietary protein sources include animal products like meat, fish, eggs, and dairy, as well as plant-based sources like beans, lentils, nuts, and seeds. Adequate protein intake is necessary for optimal health, tissue repair, and the synthesis of enzymes and hormones. Balancing protein intake with other nutrients supports overall well-being and helps maintain muscle mass and function.

FAT

Dietary fats are essential macronutrients vital for overall health and well-being. They provide energy, support cell growth, protect organs, and help the body absorb certain vitamins. Fats come in various forms, including saturated, unsaturated, and trans fats, each with distinct effects on health. Sources of healthy fats include avocados, nuts, seeds, and fatty fish, while unhealthy fats are often found in processed foods and fried items. Balancing fat intake is crucial for optimal health, as excessive consumption of unhealthy fats can increase the risk of heart disease and other health issues, while consuming healthy fats supports cardiovascular health and overall wellness.

IRON

Iron is a crucial mineral essential for various physiological functions in the body. It plays a key role in the formation of haemoglobin, the protein in red blood cells responsible for transporting oxygen throughout the body. Iron is also involved in energy metabolism, immune function, and cognitive development. Dietary iron sources include red meat, poultry, fish, beans, lentils, spinach, and fortified cereals. Iron deficiency can lead to anaemia, fatigue, weakened immune function, and impaired cognitive function. Ensuring an adequate intake of iron-rich foods is vital for maintaining overall health and preventing iron deficiency-related

conditions.

CALCIUM

Calcium is a vital mineral essential for maintaining strong bones and teeth, as well as supporting various physiological processes in the body. It plays a crucial role in muscle contraction, nerve function, and blood clotting. Dairy products like milk, cheese, and yogurt are rich sources of calcium, along with leafy green vegetables, fortified foods, and certain fish like sardines and salmon. Adequate calcium intake during childhood and adolescence is critical for optimal bone development, while throughout adulthood, it helps prevent osteoporosis and bone fractures. Balancing calcium intake with vitamin D and other nutrients supports overall bone health and well-being.

PHOSPHORUS

Phosphorus is a mineral essential for numerous bodily functions, primarily bone and teeth health, energy metabolism, and cell structure. It's a critical component of DNA, RNA, and ATP, the body's primary energy currency. Phosphorus also plays a role in maintaining pH balance, muscle contractions, and nerve signaling. Dietary sources include dairy products, meat, poultry, fish, nuts, seeds, and whole grains. Adequate phosphorus intake is crucial for bone strength, dental health, and overall cellular function. However, excessive phosphorus intake, often from processed foods and sodas, can disrupt calcium balance and lead to health issues like bone loss and kidney damage.

MAGNESIUM

Magnesium is an essential mineral vital for various physiological processes in the body. It plays a crucial role in muscle and nerve function, energy production, and bone health. Magnesium is also involved in over 300 enzymatic reactions, including protein synthesis, blood glucose regulation, and blood pressure control. Dietary sources of magnesium include leafy green vegetables, nuts, seeds, whole grains, and legumes. Adequate magnesium intake is important for maintaining cardiovascular health, muscle function, and bone density. Deficiency in magnesium can lead to symptoms like muscle cramps, fatigue, and irregular heartbeat, highlighting the importance of consuming magnesium-rich foods regularly.

VITAMIN C

Vitamin C, also known as ascorbic acid, is a water-soluble vitamin crucial for various physiological functions. It serves as a potent antioxidant, protecting cells from oxidative damage and supporting immune function. Vitamin C is essential for collagen synthesis, promoting wound healing, and maintaining healthy skin, gums, and blood vessels. Dietary sources include citrus fruits, strawberries, kiwi, bell peppers, broccoli, and leafy greens. Adequate vitamin C intake is vital for overall health, as it helps boost immunity, enhance iron absorption, and reduce the risk of chronic diseases like heart disease. Regular consumption of vitamin C-rich foods supports optimal health and well-being.

4. RESULT AND DISCUSSION

The results of the present study "Documentation and nutritive evaluation of traditional foods of Kerala - Thiruvananthapuram" district is presented under the following headings.

4.1. Traditional food habits of different communities in Thiruvananthapuram.

4.1.1. Preference of traditional foods of different communities.

4.1.2. Reasons for preference of traditional foods.

4.1.3. Frequency of preparation of traditional food items.

4.1.4. Frequency of preparation of traditional health foods.

4.1.5. Traditional food items prepared on special occasions.

4.1.6. Traditional kitchen utensils.

4.2. Nutritive value of selected traditional foods.

4.1. Traditional food habits of different communities in Thiruvananthapuram

Traditional food habits of the respondents of different communities were ascertained with respect to the preference for traditional foods, reasons for the preference, frequency of preparation of traditional foods, traditional foods prepared during special occasions, religious festivals and rituals, frequency of preparation of traditional health food and details of traditional kitchen utensils and equipments used.

4.1.1. Preference of traditional foods of different communities

The details regarding the preference of traditional foods among different communities are given in Table 5 below.

Table 5 : Preference of traditional food

Communities (n)	Preferred	Not Preferred
Christians (8)	5(62.5)	3(37.5)

Muslims (5)	5(100)	-
Hindus (12)	8(66.6)	4(33.3)

Numbers in parenthesis indicates percentage.

It was found that all respondents of Muslim community in Trivandrum were preferred the traditional foods and 62.5 per cent of Christians preferred traditional foods and 66.6 per cent of Hindu preferred the types of traditional foods.

The rise of canned food culture, which has led to numerous adverse health effects, has spurred a resurgence in the preference for traditional dietary practices (Leena 2007). About 70 per cent and more respondents preferred traditional foods due to their purity, variety and palatability (Shyna, 2001).

4.1.2. Reasons for preference of traditional foods

The reasons given by the respondents for the preference given for traditional foods are presented in Table 6 given below :

Table 6 : Reason for the preference of the traditional food

Reasons	**Christians (n = 8)**	**Muslim (n = 5)**	**Hindus (n = 12)**	**Total (n = 25)**
Healthy	8(100)	5(100)	12(100)	25(100)
Tasty	8(100)	4(80)	9(75)	21(84)
No adulteration	6(75)	4(80)	5(41.6)	15(60)
Less expensive	1(12.5)	1(20)	-	2(8)
Ingredients are Locally produced	-	1(20)	3(25)	4(16)

Numbers in parenthesis indicates percentage.

All respondents belonging to Christians, Muslim and Hindus preferred traditional foods because of its health benefits. All respondents of Christian preferred traditional foods due to its

taste and health benefits. About 100 per cent of Christians, 80 per cent of Muslims, and 75 per cent of Hindus preferred due to its taste and about 75 per cent of Christians, 80 per cent of Muslims and 41.6 per cent of Hindus preferred traditional foods as there was no adulteration in it. Less expensive was one of the reasons for choosing traditional food for 20 per cent Muslims and 12.5 per cent of Christians. About 25 per cent of Hindus and 20 per cent of Muslims are preferring it because of the local availability of the ingredients.

All respondents who gave preference to traditional foods indicated that they preferred traditional foods because of their health benefits and all the Christians preferred traditional foods since they are very tasty.

Seshadri (2005) noted that within a relatively brief period of around 50 years, there has been a notable transformation in food preferences and dietary habits, particularly in urban regions across India. Similarly, it was observed that there is a significant shift in the eating habits of people from Kerala, attributing it to factors such as the decline of joint family structures, the growing responsibilities of working women, and changes in lifestyle (Rajashekhar, 2005).

4.1.3. Frequency of Preparation of traditional foods

The frequency of preparation of different traditional foods by the different communities for breakfast, lunch and snacks are given in Table 7.

Table 7 : Frequency of preparation of traditional foods

Frequency	**Christians (5)**	**Muslims (5)**	**Hindus (8)**	**Total (n = 18)**
Daily	5(100)	3(60)	5(62.5)	13(72)
Weekly thrice	0	2(40)	1(12.5)	3(16.6)
Weekly twice	0	0	2 (25)	2(11.1)

Numbers in parenthesis indicates percentage.

From the Table 7, it is evident that 100 per cent of Christians prepared traditional food items daily. About 60 per cent of Muslims who preferred traditional foods prepared traditional

foods daily and 40 per cent of them prepared weekly. About 62.5 per cent of Hindus prepared traditional food items daily, 12.5 per cent of them prepared weekly thrice and 25 per cent of them prepared weekly twice.

Abraham (2007) observed that Christians typically consumed either pazhankanji or kanji for breakfast, accompanied by puzhuk. For lunch, Syrian Christians included parboiled rice, along with fresh or dried fish dishes, thoran with vegetables or legumes such as cowpea or horse gram, and varutharacha curry.

4.1.4. Frequency of preparation of traditional health foods

The frequency of preparation of traditional health foods by the respondents who preferred traditional food items has found to be as follows :

Table 8 : Frequency of preparation of traditional health foods.

Frequency	**Christians (5)**	**Muslims (5)**	**Hindus (8)**	**Total (n = 18)**
Occasionally	2(40)	1(20)	4(50)	7(38.8)
Never	3(60)	4(80)	4(50)	11(61.1)

Numbers in parenthesis indicates percentage.

From the Table 8, it is evident that 40 per cent of the Christians who preferred traditional foods was found to prepare traditional health foods occasionally and the remaining 60 per cent never prepared any. Likewise, 20 per cent of the Muslims who preferred traditional food items prepared them occasionally and 80 per cent did not prepare any traditional health food. About 50 per cent of the Hindus who preferred traditional foods prepared them occasionally and the remaining 50 per cent never prepared any.

Rekha (2007) noted that pregnant women were provided with traditional health foods, which included green gram, sesame oil, jaggery, and various types of herbs. These foods were found to be rich in protein, fat, vitamin E, and iron, fulfilling the heightened nutritional

requirements of the body during pregnancy.

4.1.5. Traditional food items prepared on special occasions

Traditional foods prepared during special occasions by different communities are detailed in the Table 9 to 11.

4.1.5.1. Muslims

The details of traditional foods prepared by the Muslim community on special occasions are presented in Table 9.

Table 9 : Traditional foods prepared by Muslims on special occasions

Occasions	Items
Marriage	Neychoru, meat preparations, biriyani, pathiri
Birthday	Non-vegetarian meals
Noyambu thura	Mutton roast, beef curry, neychoru, biriyani, jeeraka kanji
Ramadan	Pathiri, biriyani, neychoru
Muharram	Wheat verakiyathu

The Muslim community gave importance to a variety of dishes on occasions related to marriage. Traditionally, the feast given for guests during marriage included items like neychoru, pathiri, beef curry or any other meat preparations and biriyani. Birthdays were celebrated only in high income families. On those days, meat preparations were included along with the major-meal of the day. Noyambu thura, which is the breaking of religious fast observed in the evening during the month of Ramadan, a variety of special dishes namely thari kanji, beef curry, Mutton roast, beef curry, neychoru, biriyani, jeeraka kanji and some of the typical traditional items prepared and served. On the day of Ramadan (perunnal) a religious festival celebrated by Muslims, a grand feast was arranged in all households in which the major

items prepared included pathiri, neychoru, and biriyani. Beef curry or mutton curry were also served as side dishes. Variety of fried snacks were prepared and exchanged between friends, relatives and neighbours during this occasion. Muharram was celebrated with wheat verakiyathu.

4.1.5.2. Christians

The details of traditional foods prepared by the Christian community on special occasions are presented in Table 10

Table 10 : Traditional foods prepared by Christians on special occasions

Occasions	Items
Marriage, Betrothal, Birthday, Holy communion	Beef stew, pulissery, beef ularthiyathu, neychoru, mappas, fish molly, vindaloo, paachoru, biriyani
Christmas	Appam, beef stew, fish molly, thaaraavu mappas
Easter	Appam, beef stew, meen pollichathu, beef cutlet, pulissery, beef ularthiyathu
Death	Kanji, vegetarian meals
Festivals related to Church (perunnal)	Appam, Beef stew

The betrothal function began with paachoru, followed by appam and stew. Then, a traditional Christian Sadya featuring various non-vegetarian dishes was served. On the marriage day, a traditional dish called paachoru was served for breakfast, accompanied by a meat curry. Low-income families served kanji and beef ularthiyathu. It was common among the Christian community to serve avilosu podi, achappam, and kuzhalappam alongside paachoru on the wedding day. Additionally, achappam, kuzhalappam, vattayappam, vellayappam, avilosu podi, and avilosunda were prepared for various occasions like betrothals and weddings to treat guests. During the death of a family member, kanji was prepared and served to the family members and relatives. For Christmas, muttayappam, vettappam, etc. were made at home and on Christmas day a non-vegetarian feast was also arranged. Festivals related

to churches were celebrated by preparing a variety of dishes like vattayappam, achappam, kuzhalappam, etc are prepared.

4.1.5.3. Hindus

The details of traditional foods prepared by the Hindu community on special occasions are presented in Table 11.

Table 11 : Traditional foods prepared by Hindus on special occasions

Occasions	Items
Marriage, Peridal, Chorunnu, Griha prevesham	Sadya
Adiyantharam	Adiyanthira sadya
Shradham (bali edal)	Kanji ,puzhuku
Onam	Sadya, papadam ,pazham, payasam
Vishu	Sadya, Vishu kanji
Karkkidakam	Thavidu ada
Temple festivals	Unniyappam, murukku

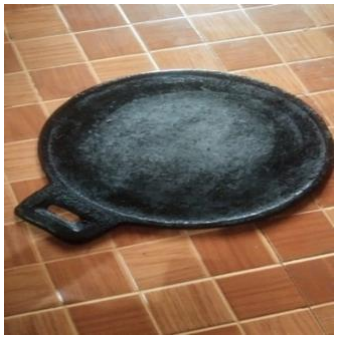
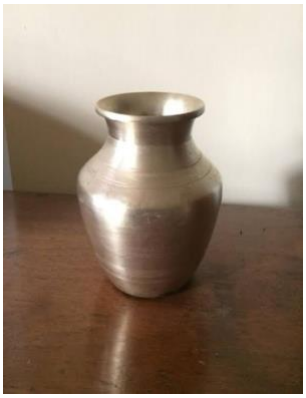
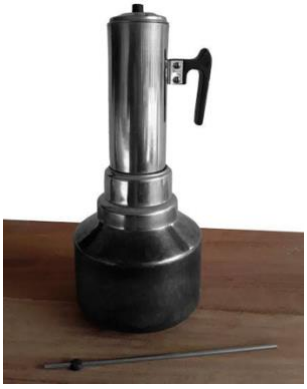
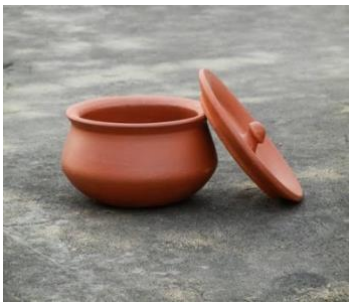
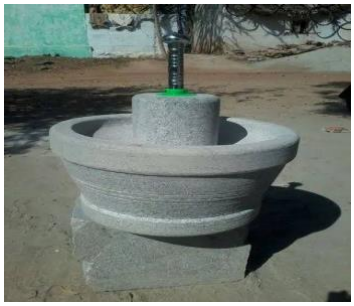
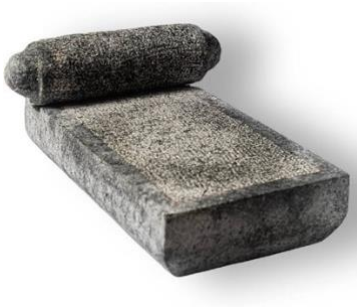
For marriage, Peridal, Chorunnu, and Griha prevesham ceremonies, a traditional Sadya meal is served. Adiyantharam ceremonies are accompanied by Adiyanthira Sadya. During Shradham (bali edal), kanji and puzhuku are typically served. For Onam celebrations, it include Sadya along with papadam, pazham, and payasam. Vishu festivities involve Sadya and Vishu kanji. Karkkidakam is marked by the serving of thavidu ada. Temple festivals often feature treats like unniyappam and murukku.

4.1.6. Traditional kitchen utensils

Information on traditional kitchen utensils and equipment used were collected and listed in Table 12.

Table 12 : Traditional kitchen utensils/equipments and its uses.

SI. No	Utensils and equipment	Purpose of use
1	Uruli	Cooking and preparing traditional medicines etc.
2	Dosa kallu	For making crispy dosas and chapathi
3	Chembbu	Making rasam and to set curd etc.
4	Puttu kutti	Steaming the Puttu
5	Manchatti	Used to make fish curry etc. retain the nutrients of the food
6	Attukallu	Used to grind dosa batter , rice masala's etc.
7	Ammikallu	Grinds coconut, chilies etc.
8	Mankudam	Use to store water and take from it
9	Idikallu	Used to crush spices , garlic , ginger etc.
10	Ural and olakka	To grind rice to rice flour and also makes spice powders

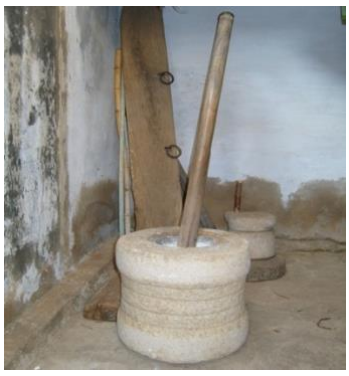



Plate 11 : Traditional Kitchen Utensils

4.2. Nutritive value calculation of the traditional foods collected

Table 13 : Nutritive value calculation of the traditional foods

Sl. No.	Name of the food	Energy (kcal)	CHO (g)	Protein (g)	Fat (g)	Ca (mg)	Fe (mg)	P (mg)	Mg (mg)	Vit C (mg)
1.	Boli	288.36	31	16.44	19.37	22.03	1.93	135.72	29.5	0.01
	Paal payasam	197.96	25.91	3.59	8.85	92.79	0.26	105.17	23.4	2.1
2.	Sarkkaravaratti	575	134.7	4.35	0.8	120.5	5.43	116.2	175.4	16.12
3.	Unniyappam	166.12	25.12	1.77	6.29	19.96	0.78	31.15	-	0.4
4.	Kozhi thoran	193.81	2.1	13.7	14.5	11.75	0.63	198.5	18.31	1.08
5.	Aviyal	155.59	8.29	3.99	11.65	109.6	0.69	95.37	42.8	15.47
6.	Therali	287.17	55.42	5.26	9.49	16.37	1.02	98.22	31.03	0.08
7.	Vada kottu curry	267.89	22.28	16.06	15.6	33.11	1.66	143.12	68.12	16.68
8.	Rasavada	152	13.27	4.58	8.63	23.6	32.2	82.1	41.6	10.3
9.	Ari payasam	648.6	72.76	18.8	11.54	11.01	0.99	274.09	74.8	2.07
10.	Kappa & chamanthi	130.46	17.64	2.22	6.36	19.79	-	32	17.44	10.65

Macro nutrients and micro nutrients of 10 different traditional foods are mentioned here. Among these food items ari payasam has highest calorie (648.6 Kcal) and the lowest one is kappa and chamanthi (130.46Kcal). Almost all food items have sufficient amount of carbohydrates but highest amount was for ari payasam (72.76g) and the lowest is for kozhi

thoran (2.1g). Highest protein content is noticed in ari payasam (18.8) and the lowest in unniyappam (1.77 g). Among fat, the lowest fat content present in sarkkaravaratti (0.8g) and the highest in boli (19.37 g).

Most of the traditional foods contain moderate to high amount of calcium. Sarkkaravaratti contained highest amount i.e. (120.5 mg). Ari payasam contained the lowest amount (11.01 mg). Iron content is assessed only in food items that contain more of iron. Highest amount of iron present in rasavada (32.2mg) and lowest amount among this is present in paal payasam (0.26 mg). Phosphorus content is mostly present in the ari payasam (247.09 mg) and the lowest amount of it is in unniyappam (31.15mg). Amount of magnesium present in sarkkaravaratti is high (175.4mg) and lowest is in unniyappam which is zero. The most vitamin C rich food item is vada kottu curry (16.68 mg) and the lowest is in boli (0.01mg).

5. SUMMARY AND CONCLUSION

The present study entitled 'Documentation and Nutritive Evaluation of Traditional Foods of Kerala – Trivandrum District' was undertaken with the aim of identifying and collecting information on the information regarding the traditional foods and food habits of each community associated with religious customs, festivals, special occasions, the ingredients and their methods of preparation. Trivandrum district, the capital of Kerala was selected for the study. Trivandrum, also known as Thiruvananthapuram, is known for its lush greenery, beautiful beaches, and rich cultural heritage. Trivandrum, like the rest of Kerala, is also known for its unique and flavorful cuisine. Population above the age of 50 years with knowledge in traditional food preparations were selected randomly from each study locality to collect the relevant information. The respondents were categorised into different communities like Hindus, Muslims and Christians.

It was found that all respondents of Muslim community in Trivandrum preferred the traditional foods and only 62.5 per cent of Christians preferred traditional foods and 66.6 per cent of Hindu preferred the types of traditional foods. All respondents belonging to Christians, Muslim and Hindus preferred traditional foods because of its health benefits. All respondents of Christian preferred traditional foods due to its taste and health benefits. About 100 per cent of Christians, 80 per cent of Muslims, and 75 per cent of Hindus preferred due to its taste and about 75 per cent of Christians, 80 per cent of Muslims and 41.6 per cent of Hindus preferred traditional foods as there was no adulteration in it. Less expensive was one of the reasons for choosing traditional food for 20 per cent Muslims and 12.5 per cent of Christians. About 25 per cent Hindus and 20 per cent Muslims are preferring it because of the local availability of the ingredients. On collecting data on the frequency of preparation of traditional foods, it was found that 100 per cent of Christians prepared traditional food items daily, 60 per cent of Muslims who preferred traditional foods prepared traditional foods daily and 40 per cent of them prepared weekly thrice, and about 62.5 per cent of Hindus prepared traditional food items daily, 12.5 per cent prepared them weekly thrice, and 25 per cent prepared them weekly twice. It was evident that 40 per cent of the Christians who preferred traditional foods was found to prepare traditional health foods occasionally and the remaining 60 per cent never prepared any. Likewise, 20 per cent of the Muslims who preferred traditional food items prepared them occasionally and 80 per cent did not prepare any traditional health food. About 50 per cent of the Hindus who preferred consuming traditional foods prepared traditional health foods

occasionally and the remaining 50 per cent never prepared any.

As traditional food habits were highly diversified and these items have strong link with religious and cultural practices, the food patterns of different communities during special occasions, festivals/rituals were also studied. The important traditional food items of Muslims on special occasions included neychoru, meat preparations, biriyani, pathiri, mutton roast, beef curry, jeeraka kanji etc. The important traditional food items of Christians on special occasions included appam, beef stew, mappas, fish molly, vindaloo, paachoru, beef ularthiyathu. The important traditional food items of Hindus on special occasions included sadya, Vishu kanji, unniyappam, murukku etc.

The nutritive value of these foods were also calculated. It was found that among these food items Ari payasam holds highest calorie (648.6 Kcal) and the lowest one is kappa & chamanthi (130.46kcal). Almost all food items have sufficient amount of carbohydrates but highest in ari payasam (72.76 g) and the lowest in kozhi thoran (2.1g). Highest protein content is noticed in ari payasam (18.8) and the lowest in unniyappam (1.77 g). Among fat, the lowest fat content present in sarkkaravaratti (0.8g) and the highest is in boli (19.37 g).

Most of the traditional foods contain moderate to high amount of calcium. Sarkkaravaratti contained highest amount (120.5 mg). Ari payasam contained the lowest amount (11.01 mg). Iron content is assessed only in food items that contain more iron. Highest amount of iron present in rasavada (32.2mg) and lowest amount among this is present in paal payasam (0.26 mg). Phosphorus content is mostly present in the ari payasam (247.09 mg) and the lowest amount of it is in unniyappam (31.15mg). Amount of magnesium present in sarkkaravaratti is high (175.4mg) and lowest is in unniyappam which is zero. The most vitamin C rich food item is vada kottu curry (16.68 mg) and the lowest is in Boli (0.01mg).

Hence, it can be concluded that even though there is a rich treasure of diversified traditional foods in Trivandrum, many of them are undergoing several changes. Transitions and modifications occurred in the traditional food habits and food patterns. In the present study, the documentation of traditional foods was done with an aim to protect these items from getting endangered. Future work could be conducted to document, replicate and popularize the traditional foods of Trivandrum.

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APPENDIX

Questionnaire for Traditional Recipe

Name :

Age :

Gender : Male/Female

1. Which region or community does these recipe originate from ?
2. Can you describe the cooking process step by step ?
3. How is this dish traditionally served or eaten ?
4. Are there any special techniques or tips for preparing this dish ?
5. What is the name of the traditional recipes ?
6. What are the main ingredients required ?
7. What are some common variation or modification to the recipe ?
8. Is there any folklore or story associated with these recipes ?
9. Are there any specific occasions or festivals when this dish is prepared ?
10. What is the history or cultural significance of their recipes ?
11. How often do you consume traditional food in your daily diet ?
12. What are some of your favourite traditional food ?
13. Do you prefer homemade traditional food or dining restaurant specializing in Kerala cuisine ?
14. Are there any specific traditional recipes that have been passed down through your family for generations ? If yes, which one.
15. Are there any traditional food preservation techniques or methods that you or your family still practice ?
16. Are there any specific traditional Kerala cooking utensils or equipments that you still use ?
17. How do you think traditional Kerala food compared to modern processed food in terms of nutritional value and health benefits ?
18. Do you know any health benefits of traditional food ?
19. What traditional food do you associate with special occasions or celebration ?
20. What is your fondest memory associated with traditional food ?