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

PROJECT SUBMITTED

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

B.Sc. NUTRITION AND DIETETICS

BY

Ann Mariya Stephen

Register No - SB21ND008

Jeeshma shaji

Register No - SB21ND024

Nasiha Y M

Register No - SB21ND032

DEPARTMENT OF CLINICAL NUTRITION AND DIETETICS

ST. TERESA'S COLLEGE (AUTONOMOUS)

ERNAKULAM

APRIL 2024

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CERTIFIED AS BONAFIDE RESEARCH WORK

Signature of the Internal Examiner

Signature of the External Examiner

DECLARATION

We hereby declare that the project entitled **"DOCUMENTATION AND NUTRITIVE EVALUATION OF TRADITIONAL FOODS OF KERALA – IDUKKI DISTRICT"**, submitted in partial fulfillment of the requirement for the award of the degree of B.Sc Nutrition and Dietetics is a record of original research work done by me under the supervision and guidance of **Dr. Soumya P.S,**, Assistant Professor, Department of Clinical Nutrition and Dietetics, 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

Ann Mariya Stephen

Jeeshma Shaji

Date: 29/04/2024

Nasiha Y M

CERTIFICATE

We hereby certify that the project entitled "**DOCUMENTATION AND NUTRITIVE EVALUATION OF TRADITIONAL FOODS OF KERALA – IDUKKI 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.Ann Mariya Stephen, Ms Jeeshma Shaji, Ms Nasiha Y M**, during the period of the study under my guidance and supervision.

Signature of the HOD

Ms. Surya M. Kottaram

Head of the Department

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Signature of the Research Guide with designation

Dr. Soumya P.S

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1. INTRODUCTION

" Traditional food is a communal affair, eaten by hands and shared with all"

Madhur Jaffrey

Food is deeply entwined with tradition and represents culture, emotion, hospitality, power, and status through constant engagement, observation, and experimentation with the community, generations have established, conserved, and perfected traditional knowledge, which is a functional knowledge system. Their immediate surroundings. It comprises ideas, principles, and customs gleaned from the real-world experiences of the elder generation, and its main goal is the preservation and advancement of human civilization.

Indian cuisine is made up of several traditional and regional dishes that are indigenous to the Indian subcontinent. Considering the diversity of the soil, climate, cultures, ethnic groups, and occupations, these cuisines use locally sourced fruits, vegetables, herbs, and spices and differ greatly in flavour.

Indian cuisine is also greatly impacted by cultural choices, customs, and religion particularly Islam and Hinduism.

Historically significant occurrences like invasions, commerce, and colonisation have contributed to the introduction of particular foods to this nation. Many new fruits and vegetables were introduced to India by the Columbian explorers of the New World. Many of these, including guava, potatoes, tomatoes, chilies, and peanuts, have become staple foods in many parts of India.

India is rich in culinary traditions and each region offers a great variety of flavors and ingredients. From the spicy curries of the north to the aromatic biryanis of the south, Indian cuisine is as diverse as its culture. One iconic dish is biryani, an aromatic rice dish topped with meat, spices and herbs that dates back to the Mughal dynasty. Another staple is dosa, a crispy fermented rice and lentil crepe popular in South India. Each dish tells the story of Indian history, blending the influences of various invaders, traders and indigenous peoples.

The traditional food of a region is usually defined as a cultural food system that grows from existing and culturally accepted social and natural resources (Kuhnlein and Receveur, 1996). The definition is somewhat broad because it Includes socio-cultural factors such as material acquisition and preparatory activities. Traditional food is a valuable part of popular culture. From the literature it can be concluded that the indigenous peoples of various regions, who merged with the local population, tried to preserve and promote their traditional food by all possible means, although with some difficulties due to environmental influences.

Without additional development, a number of traditional foods already act as functional meals since their original nations are well-known for their well-known methods of preparation and the

health advantages they offer. As a result, Ayurveda prescribes traditional foods together with dietary instructions. Many of the traditional health foods found in India can be classified as ayurvedic foods due to the striking similarities between Ayurveda dietetics and traditional cuisines. Seasonal considerations and recommended dietary patterns are provided for each of the traditional health foods of India, considering the consumer‘s age and health status. The abundance of information about traditional Indian and ayurvedic health foods of Indian origin would be beneficial to health-conscious people worldwide in the age of population globalisation and international food trade.

Originating in the kitchens of our ancestors, traditional meals have been developed throughout millennia, invented, altered, used, and evolved to enhance the nutritional and social well-being of people worldwide. The majority of them are community, environment, location, and culture specific. Particular as well as seasonally specific. These foods support food security, boost livelihoods, and increase people‘s social and nutritional well-being. They are significant from a social, cultural, and economic standpoint. Food culture develops from a people‘s place of origin, therefore by preserving their history, traditional local meals have the power to unite and stabilise communities and promote cultural continuity. According to Achaya (1998).

Diet quality is an important limiting factor for adequate nutrition in many resource-rich environments. One aspect of diet quality related to the adequacy of micronutrient intake is bioavailability. Some traditional home food processing and production methods can be used to increase the bioavailability of plant-based micronutrients. These include heat treatment, mechanical treatment, maceration, fermentation and germination/malting. These strategies aim to increase the physicochemical availability of micronutrients.

A spice is a dried seed, fruit, root, bark, or plant substance that is used as a flavoring agent in nutritionally insignificant amounts as a dietary supplement. Spices are defined as ―a strongly spicy or aromatic herb obtained from tropical plants, usually used as a seasoning.‖ In ancient times, spices were as valuable as metallic gold; and as notable as medicines and perfumes. No country in the world grows as many spices as India, and the quality spices come from Kerala, an Indian state. Due to India‘s varied climatic conditions, from tropical to subtropical to temperate, almost all spices are grown in the country. Almost all of India‘s 28 states and seven union territories grow at least one spice in abundance. Spices and herbs are not only good for our taste buds but also for our health. They provide calcium, iron, B vitamins, vitamin C, carotene and other antioxidants. Not only that, herbs and spices are very low in fat, so you can eat them however you want. The Indian state of Rajasthan is a major producer of spices, including seed spices such as fenugreek, cumin and coriander. Chilled varieties from Rajasthan, especially from the Jodhpur regions of the state, are not only popular in the country but also attract the taste buds of the Indian diaspora abroad. The special quality and distinct taste of Rajasthani spices are generally accredited to the favourable climatic conditions and natural methods that have been used here throughout the ages. Rajasthan has 17 of the 60 varieties of Indian spices that are regularly used in special desert cuisines. The most common of these is panchkuta..

The substitution of traditional foods not only led to a loss of production of traditionally And culturally appropriate food, but also in the loss of traditional knowledge related to food Production. It created serious health and socio-economic problems among community Members (Diaz,2005). Hence, the traditional foods which reflect the rich heritage of regional Cultures should be saved from extinction and the skills gained through generations have to be Preserved.

Factors such as international migration, the communication revolution and culinary tourism influenced the globalization of food habits and this paved the way for a global food culture (Everett and Aitchison, 2008). According to Hollingsworth (2000), traditional foods are now considered competitive products with unique materials and production techniques. Raising these regional foods from local to global standards requires the development of new policies and strategies for quality

2.REVIEW OF LITERATURE

Literature relevant to the present study –Documentation and nutritive evaluation of traditional foods of kerala – idukki district‖ is reviewed under the following heads

2.1 importance of traditional knowledge

2.2 History of traditional foods

2.2 1 Traditional food of India

2.2.2 Traditional foods of Kerala

2.2.3 Meaning, concepts and definition

2.2.4 History and ethical background

2.3 Traditional foods of adequacy of different group

2.4 Health and nutritional aspects of traditional foods

2.5 key challenges of traditional foods

2.6 Future scope of traditional foods

2.1 Importance of Traditional knowledge

The field of research and development is presently very interested in the topic of traditional knowledge. There are initiatives afoot in numerous nations to put traditional knowledge into practice as the value it brings to conservation and management becomes more widely acknowledged. The extent of environmental degradation that is occurring now emphasises the necessity of restoration actions. The need for efficient coordination between science and conventional ecological knowledge is becoming more widely acknowledged as a prerequisite for successful ecological restoration.

Preserving the customary knowledge of the native and indigenous populations appears to be one of the most divisive and intricate issues. Traditional knowledge and creative practices based on it were driven outside the official intellectual property protection regime by the historical evolution of intellectual property protection following the emergence of individual private property rights.

The world community has just recently become aware of the need to preserve traditional knowledge, but national governments are still in charge of establishing the standards. India has a wealth of information regarding the customary worth of different forest products. Approximately 12% of the 6000 species of potentially therapeutic plants are thought to be in danger of disappearing from the wild because of environmental deterioration as per as *et al* Boesi (2014),

Tibetans have historically taken advantage of a limited number of wild food plants. These serve as a major nutritional supplement to the traditional Tibetan diet, which is deficient in fruits and vegetables, especially for pastoralists. In times of famine, they are even more crucial as a replacement for roasted barley flour. Nowadays, very few wild food plants are frequently eaten; this is especially true in isolated locations and among pastoralists, and less so in larger cities and villages. Younger cohorts Villages have nearly entirely lost their traditional understanding of plants. Because of the processes of modernization and globalisation, many locals have become experts at gathering the natural goods that are in greater demand both domestically and internationally. These initiatives are very beneficial to the Tibetan people. Tibetan medicine views nutrition as a means of treating illness, and medical texts list the medicinal qualities of a number of wild food plants that tibetans nowadays consume

For ages, the conservation of biodiversity in India has been greatly influenced by human faith, beliefs, customs, and culture. This influence on environmental conservation is expected to persist for some time to come. People in both rural and urban India have common beliefs and superstitions about trees, herbs, flowers, fruits, and vegetables. It‘s interesting to note that these beliefs are prevalent not just in India but also in a number of other countries, especially in Asia, Africa, and Australia.

Modern environmentalists often emphasise the idea of ―sustainable development,‖ which calls for using natural resources more sparingly and fairly for a more stable and balanced development without compromising the ability of future generations to use those resources or interfering with their daily lives.

Using multi-sectoral, collaborative, and interdisciplinary approaches, Payyappallimana (2010) outlined ―The United Nations‘ Decade of Education for Sustainable Development (DESD) aims, among other objectives, to foster and promote the mainstreaming of intercultural approaches within a social learning process.‖ Diversity in biology as well as culture Are fundamentally interconnected and play a significant role in the process of teaching about sustainable development. In this context, traditional knowledge (TK), a crucial component of bio-cultural diversity, is also getting more attention. However, including TK into Education for Sustainable Development (ESD) programmes presents a number of methodological and socio-political obstacles. This paper aims to illustrate the significance of and challenges related to such integration in a local context through the example of traditional medicine from Kerala state, India.

Traditional knowledge and practices can be seen as a link between natural or ecological resources on the one hand and human activities and social and economic development on the other (*et al* Berkes *and* Folke, 1994*;* Cochrane, 2006). However, according to *et al* Breidlid (2009), the dominant discourse remained on the study of the Potential of alternative information systems, although he considers it an obstacle to development. The main challenge is to find appropriate tools to convey the role that traditional knowledge, norms and Values can play in achieving Sustainable development. Although ESD requires Many, there is not enough discussion about how

different Information systems could co-exist. In the ESD course, social learning is an approach that values Such diversity and recognizes the legitimacy of different Perspectives.

Asha John *et al.* (2019) reported that, as in all art forms, trends in the food service industry Are constantly changing to meet People‘s ever-changing interests and needs. Monitoring these trends is very important for restaurant owners,chefs,anyone who actually works in the food industry.

Edward *et al* (2017) reports that traditional food and healthy eating habits were one of the fastest growing areas. All people, men and women, need food to survive. But both men and women enjoy food as if it were the sole purpose of their existence. This is why eating disorders are common in both men and women.

2.2 History of traditional foods

2.2.1 Traditional foods of india

Traditional Indian dishes have been prepared for years and the preparation varies from country to country. Traditional wisdom about food processing, food preservation techniques and their healing effects have been rooted in India for generations. Food systems Can produce many biological functions in the human body through food components. Indian traditional foods are also recognized as functional foods because they contain Functional components such as body healing chemicals, antioxidants, fiber and Probiotics.The functional properties of food are improved by processing techniques such as germination, malting and fermentation.

The structure of the human body changes at different stages of life, and maintaining normal physiological functions requires unique eating habits. As these different stages show, our ancestors had a variety of healthy and nutritious foods. From Indian civilizations and ancient Indian literature namely Bhagavadgita, Ramayana and Manusmritis, every community that lived in India had a different and distinctive food belief system. However, most of them were influenced by Aryan beliefs and practices. According to Aryan belief, food was considered a source of strength and a gift from God.

Traditional food systems, which include all foods from local natural resources, are unprocessed, small-scale, low-tech anthropogenic biophysical systems with short value chains from farm to plate (Kuhnlein *et al.,* 2006; Burlingame *et al.,* 2012; Dube*). et al.,* 2014*).* These food systems consist of harvesting, foraging, hunting, fishing, and gathering plant and animal foods, and are often shaped by different food practices, ecological characteristics, geographic variation, and sociocultural and historical experiences (Kuhnlein *et al.,* 2013*).* Indigenous peoples, who form distinct social and cultural groups with strong ties to their territory and surrounding natural resources, are often the sole custodians of traditional food systems and related ancestral ecological knowledge (Kuhnlein *et al,* 2009*).* Indigenous food systems have sustained them for thousands of generations, producing food in harmony while preserving local biodiversity. Integral to traditional food systems, Indigenous Peoples or Ifs are central to Indigenous culture and identity and contribute to their physical, mental, spiritual and economic well-being. These foods include

wild, domesticated or cultivated species of plants, animals and/or fungi that originate from the surrounding natural environment and are a crucial source of nutrition and material livelihoods for people in indigenous communities (Kuhnlein *et al.,* 2013*;* Settee *,and et al.* Shukla, 2020*).*

Traditional foods processed and prepared by women of Northeast region are closely related to cultural, ecological region, spiritual life and health. The processing and preparation of ethnic foods not only shows the creativity and treasure of food heritage of the tribal women, but also their gradual learning to support life and the ecosystem as a whole. In the study of the diversity of ethnic foods, efforts were made to study ethnic foods made from local soybeans, bamboo shoots, green beans, lai patta (mustard leaf) and (Brassica juncea (Linn.) Czern. and Coss.) . from various selected tribes of Northeast India. The tribal women of the northeastern region vary widely among ethnic dishes made from soybeans, bamboo shoots, lapatta, broad beans and rye. Each state has a slightly different method of processing these foods based on culture, differences in ingredients used in the food, climate, and general processing and preparation knowledge. The foods used in the diet were found to be nutritious and culturally important in various festivals and ceremonies. Ethnic food prepared and consumed by women cannot be seen in isolation but is a complex dynamic in which nutrition, health, food security, culture, ethics, subsistence economy and ecological sustainability are important factors..

The seven sister states of Northeast India are characterized by a diverse population of different ethnic backgrounds. Natural and fermented foods are an integral part of the diet of these ethnic tribes. It is the oldest and most economical method for developing different aromas, flavors and textures, as well as food preservation and biological enrichment by manipulating different microbial populations. Wild fruits and vegetables have a higher nutritional value than cultivated fruits and contribute to sustainable food production and food security. Fermented products are regional and have their own unique platforms and production methods. Most tribes tend to grow soybeans, bamboo shoots and locally available vegetables. The fermented alcoholic beverages produced in this region are unique and deeply connected to the socio-cultural life of the local people.

Indian traditional foods can be classified into eight broad categories: (1) processed Grain products, (2) fermented foods, (3) dehydrated products, (4) pickles, chutneys, sauces, and relishes, (5) ground spice and spice mixtures, (6) fried food products, (7) dairy products, and (8) confections and sweets. (Srinivasan, 2010).

Although a significant portion of Indian food is vegetarian, many traditional Indian dishes also include chicken, goat, mutton, fish and other meats. Indian cuisine Has been influenced by various cultural groups that have come to India throughout history, such as Persians, Mughals and Europeancolonists(IASCharisma,2013).

2.2.2 Traditional foods of kerala

Ancient Trade-Influenced Cuisine of Kerala is an invaluable collection of culinary traditions and various food recipes that evolved from the cuisines of Kerala. The dining area is spacious and as diverse as possible. Proximity to the sea and the natural beauty and natural resources of the state – especially the abundance of fragrant spices – attracted the inhabitants of foreign soil and inspired them to start foreign trade along what later became known as the Spice Route. In a country where people‘s eating habits were dominated by fish, other seafood and vegetables, different meats, foreign cooking techniques and exotic flavors came to life and became important foods due to the influence of foreign trade. Every outlying community in Kerala has many recipes which are well represented in detail in this book. These recipes were cherished by families and passed down through generations through cross-cultural interactions with Paradise and Malabar Jews, Syrian Christians, Muslims, Anglo-Indians, Latin Catholics and others who mixed and evolved from the local population. The book offers a researched and rich cultural history of a foreign food culture, tracing how new ingredients adapted to local food traditions and evolved into a parallel food lineage, creating new textures, flavors and tastes.

The external influence on Kerala cuisine is significant and every religion from Muslims to Syrian Christians develops its own cuisine and cooking style.The Moplah food of the Malabar region has a distinct flavor borrowed from traders who regularly visit the region. Kerala cuisine is rich in coconut, rice, tapioca and spices such as black pepper, cloves, cinnamon and ginger. The Portuguese introduced cassava, which is now widely eaten in Kerala. The region is also famous for Sadhya, served during the Hindu festival of Onam, which consists of boiled rice and various vegetable dishes prepared on banana leaves. Due to its long coastline, Kerala cuisine is also rich in seafood such as fish, prawns, clams and crabs.

2.2.3 Meaning, concepts and definition

Kerala cuisine is a culinary style originating from Kerala, the state of Malabar on the southwest coast of India. Kerala cuisine offers a variety of both vegetarian and non-vegetarian dishes, with fish, poultry and red meat along with rice as typical accompaniments. Chillies, curry leaves, coconut, mustard seeds, turmeric, tamarind, asafoetida and other spices are also used in the preparation.

Kerala cuisine is a culinary style originated in the Kerala, a state on the southwestern Malabar Coast of India. Kerala cuisine offers a multitude of both vegetarian and non-vegetarian dishes prepared using fish, poultry and red meat with rice as a typical accompaniment.

The traditional food of Kerala is deeply rooted in the state‘s history and culture. Kerala cuisine is largely influenced by its geography and climate, as well as the state‘s trade relations with other countries. The cuisine is characterized by the use of fresh and locally sourced ingredients, including coconut, rice, spices, and herbs. Rice is the staple food of Kerala, and it is usually served with a variety of side dishes, such as sambar, rasam, and thoran. The use of coconut is also

prominent in Kerala cuisine, and it is used in different forms, such as grated, roasted, or ground into a paste. Kerala‘s cooking techniques are also diverse, with dishes being prepared through boiling, frying, steaming, and baking.

Kerala cuisines are famous for their unique blend of flavours and spices that tantalize the taste buds. Among the most popular dishes are Appam and Stew, which consists of a thin pancake made from fermented rice flour and coconut milk, served with a vegetable or meat stew. Puttu and Kadala Curry, a breakfast staple in Kerala, consists of steamed rice cakes served with a curry made from black chickpeas. Meen Curry, a fish curry made with coconut milk and spices, is another favourite among seafood lovers. And lastly, Malabar Parotta and Chicken Curry is a popular street food in Kerala, with flaky layered flatbread served with a spicy chicken curry. These dishes not only showcase the delicious and unique flavours of Kerala cuisines, but also reflect the state‘s rich culinary heritage.

Traditional foods are foods and nutrients that are passed down from generation to generation or consumed over several generations Traditional foods and dishes are traditional in nature and may have historical precedent in national cuisine, or local cuisine. Traditional food and drinks can be prepared at home, in restaurants and small producers, as well as in large food factories.

Traditional foods are foods for which (1) the main production steps are carried out in a given area at the national, regional or local level, (2) are authentic to the recipe (mixture of ingredients), the origin of the raw materials and/or the production process, (3) have been commercially available for about 50 years.

Azarand *et al (*1996*)* defined traditional food as certain food in a region whose ingredients are available locally and are not used in other regions. *Rao et al* and Srivastava *et al (*1998) defined traditional foods as foods that were developed due to the need to utilize the most local foods using available artifacts and knowledge and were passed down from generation to generation. According to Jordana *et al (*2000), a traditional product is a ―representation‖ of a group that belongs to a certain space and is part of a culture that requires the cooperation of individuals operating in the area. The author also showed that to be traditional, the product must be related to the region and also be part of the traditions, which inevitably ensures its continuity over time.

2.2.4 History and Ethical background

Food consumption and morality are as old as morality itself. Nonetheless, over history, a number of approaches to critically analysing food production and consumption patterns have been established.While early Christian morality simply refused to assign any moral value to food intake, ancient Greek and Jewish food ethics focused on the issue of moderation and the distinction between legal and illicit food products. However, food turned became one of the main targets of monastic programmes for moral exercise (askesis) during the Middle Ages. Food ethics underwent significant changes in the seventeenth and eighteenth centuries due to the growing scientific interest in food intake. Meanwhile, the social dimension of food ethics was identified in the

nineteenth century, which led to an increasing focus on the production and distribution of food products.

In addition, the writers mentioned regional and traditional goods as facets of the country‘s cultural legacy that have the power to unite and stabilise local communities. The study and registration of traditional foods, according to Trichopoulou *et a*l. (2007), helps preserve significant aspects of a country‘s culinary heritage and culture and introduces traditional foods to future generations, both domestically and abroad.

Food is an integral part of any culture-Bhagavad Githa says ‒from food do all creatures come into being‖. Traditional food processing in India began when man ceased to be a food hunter (Potty, 1986). Traditional foods evolved hundreds of years ago are indispensable for majority of people (Tyn, 1986).

The concept of ethnic identity is multifaceted and refers to the preservation or loss of attitudes, values, and behaviours associated with one‘s original culture. It is also proposed that acculturation, or acquiring characteristics of the host or dominant culture, is a distinct but related process.

2.3 Traditional foods of different group

While regional variations exist in traditional Indian meal patterns, all typically feature a diverse array of dishes from each food group. (2020 *et al*, *Ka*lpana)

This ground-breaking resource makes the tremendous diversity of Indian cuisine—including the bewildering variety of ingredients and dishes—manageable. Although there isn‘t a national dish or cuisine in India, a lot of the subcontinent‘s foodways share a common set of ingredients, recipes, and cooking techniques. Additionally, there are prevalent perspectives regarding eating.

The changing food habits of the people of Kerala is the best example. Traditional eating habits were well planned and nutritious; foods like banana flower, foods like avial, thoran, puttu, appam etc were good for health. Today, our options are mostly prepared meals available in the market. Rest centers operating in modern cities are growing rapidly, the food prepared by them contains many flavorings and artificial dyes, which are dangerous for human health. On the contrary, our traditional food culture, especially in Kerala, was mainly vegetarian and almost every family had its own vegetable garden and the vegetables from those gardens were used. Thus, traditional eating habits were oriented towards healthy health and a better environment, while the modern lifestyle, including eating habits and materialistic consumption habits, is harmful not only to human health, but also to the environment and natural resources.

The Dalit traditional food system in Zaheerabad district has survived largely due to the preservation and continuation of the rich biodiversity of women-led agriculture, which not only produces quality food and medicine, but also quality fodder and medicine. For animals and high soil fertility, which contains a lot of nutritious, uncultivated foods.The deli menu has a wide selection (329 types/varieties) of grains, millets, legumes, oilseeds, fruits, vegetables, greens, roots

and tubers. Roots, leaves, flowers, fruits, gums and bark are consumed seasonally. There is a wide range of processing methods: boiling, smoking, frying, boiling, sun drying, shade drying, shallow frying and deep frying

According to Agilandeswari and Mohan *et al (*2017*),* Traditional South Indian foods, provide a perfect combination of proteins from legumes and coconut, carbohydrates from rice, fats both visible and invisible from curry and fried savory items, vitamins and minerals from sprouted grams, and vegetables which contain functional components such as β-carotene, Vitamins C and E, thiamine, tocopherol, and antioxidant compounds. Rasam is a traditional South Indian food, prepared using tamarind juice as a base, with a variety of spices. Rasam, with all its ingredients medicinally claimed for various ailments, is a functional food.

Idli, is a popular steam cooked traditional Indian food prepared from a wet ground Fermented batter of rice and black gram dhal (in the ratio of 3:1) by steaming in a mold. It is Famous for its soft, spongy texture, desirable sour taste and characteristic aroma. (Nisha *et.al.,* 2005*)*

Dosa is another fermented dish like idli mainly found in the south Indian region. It is a highly seasoned pancake, contains rice and black gram as primary ingredients.

Nannari Sharbat is a traditional herbal beverage prepared using the roots of Decalepishamiltonii. In Ayurveda the plant is called Ananthamula. Beverage is used in summer time for thirst Quenching and it acts as a hepatoprotective agent, which is good for stomach health, (*et al* Preetam sarkar).

2.4 Health and Nutritional aspects of traditional food

2.4.1 Health and nutritional advantages of traditional food

Lactic acid bacteria (LAB) are a large group of closely related bacteria with similar characteristics, such as the production of lactic acid, the end product of fermentation. LAB species include Lactobacillus, Lactococcus, Streptococcus and Leuconostoc species. LAB fermentation is a traditional cooking method in Africa. Some traditionally fermented foods in Africa include maize porridge, alcoholic beverages and dairy products. One of the most important reasons to practice LAB fermentation is to increase the taste of food and improve the quality of food by increasing the availability of proteins and vitamins. In addition, LAB provides food with a preservative and detoxifying effect. With regular consumption, LAB-fermented foods strengthen the immune system and strengthen the body in the fight against pathogenic bacterial infections. Thus, LAB fermentation is not only of great economic importance, but also contributes to human health in Africa.

Nutrition/food security is a complex issue that is affected by the food security situation in countries. However, for many developing countries, increasing national agricultural production alone cannot improve food security. Food production must be actively combined with the evaluation, selection, domestication and use of underutilized or wild edible plants of local or

regional importance to effectively increase food security. By improving the link between production and use, the diversity of traditional crops can be ensured.

Traditional food plants are important if Combined well with staples (cereals), they can provide food nutrients that are essential to the body consisting of carbohydrates from cereal grains, fibre, vitamins and minerals from vegetables, fat from nuts and oil crops and proteins from beans, mophane worms, meat and fish (all sources). Research has proved that indigenous foods play an important role in the lives of the rural population. They are a source of food, medicine, building materials, fuel, and furniture and transport material. They are also an important source of fodder defor animals.The rural population can sell the products from traditional food plants and cereals to the urban areas for income generation. These important factors indicate the need for their study, domestication, especially those with commercial potential. Traditional food plants are always present during drought or non-drought years. Therefore, their domestication and use is important for nutrition security.This kind of survey should be encouraged to enable us make scientific (fortification) decision on the improvement of the foods around us for better nutrition security.

Rasala, a dahi-based milk product with good nutritional and medicinal properties has been found effective against blood disorders, burning sensation and thirst (Warrier Ja Sudhakaran, *et al* 2006). Karkkidakarunnu kanji, a traditional herbal mixture,Proved useful to cleanse the body and soul,To nourish the whole body and strengthen the immune system Asha *et al.* (2006). An outstanding Culinary Pulse made from curd in Kerala had health promoting and therapeutic Properties along with the nutritional value of fermented milk products (Shifa *et al* , 2006*).* Vijayakrishnan *et al (*2007*)* showed the excellent medicinal value of Kerala sadya and reported that the combination of pepper, cumin and curd in Kalani, an addition to traditionalSadya, offered protection against the three Ayurvedic doshas. The sour cheese used in Kalan was known to be good for digestion, and pepper and caraway seeds prevented gastritis and acted as an antimucoagent .

Lalithambika *et al* (2007*)* showed the importance of kanji, an Ayurvedic traditional food of Kerala, especially in diseased countries because it is easy to digest. Sharon e*t.al. (*2006) showed the nutritional value of puttu, Ada and idiyappam. These are traditional Kerala breakfasts with high protein, carbohydrate and energy density. Paal Kanji, a traditional cereal and milk-based Kerala delicacy, is rich in protein, phosphorus, vitamin C, thiamin, riboflavin, iron, calcium, choline, copper, manganese\ and magnesium and is highly digestible (Achuthan *and* Emmanuel, *et al (*2006). Chendamuria, a traditional banana delicacy of South Kerala, has been found to contain high nutritional value of milk proteins, milk solids and potassium and has laxative properties (Sudhakaran, *et al* 2006*).* Aneena and Indira *et al (*2007*)* reported the nutritional value of coffee prepared with traditional foods viz. Putu, laddu, ada and rice bran as main ingredients and showed that the foods are high in B-complex vitamins, fiber and calcium. And iron.

Traditional supplementary foods consumed by lactating women of Gujarat namely wheat, Rab, budh gond ka soonthad high energy, protein and fibre respectively Mulimani et.al., (2001).

The authors also indicated superior nutritional quality of kotta and battisaladu. Gupta *et.al.,* (2003) Observed high calcium, iron, zinc, copper and phosphorus in ajwain followed by gondpanjiri, Kangni andhalwathe traditional foods consumed by lactating women of India. The authors also Indicated better protein and starch digestibility in traditional supplementary foods.

2.4.2 Impact of dietary transition on health and disease

The development of agriculture and food systems, the resulting increase in food availability and changes in eating habits, together with economic development and the urbanization of developing societies, cause adverse effects on health. The composition of the usual diet has changed and is characterized by an increase in the consumption of fats, mainly saturated fats and sugars of animal origin. In an increasingly urbanized environment, concomitant lifestyle changes reduce physical activity, which contributes to overweight and obesity. The nature of these changes is summarized by the term ―nutrition change‖, which follows the demographic and epidemiological changes of these countries together with economic development. The current burden of malnutrition in developing countries is thus compounded by the negative effects of dietary changes, especially the increase in obesity and non-communicable diseases. This double burden of malnutrition increases the health and economic burden of developing societies.

In developing countries, obesity, diabetes, cardiovascular disease and cancer have increased as a result of urbanization and socioeconomic changes (Albala *et al.,* 2001 and Popkin *et.al.,* 2001*).* Jimaima *et al* (2001) reported an increase in the consumption of introduced foods and an increased prevalence of diabetes among indigenous peoples. The authors also showed an increase in the incidence and prevalence of non-communicable diseases due to deviations from traditional food consumption and traditional lifestyles. *Lako et al* (2001*)* also found an increase in the incidence and prevalence of non-communicable diseases among Fijians due to drastic changes in diet and deviation from traditional food consumption patterns and traditional lifestyles.

The current dietary shift in Asia is part of demographic/nutritional/epidemiological shift associated with development and urbanization. Diet change is characterized by a change from a relatively monotonously varied diet to an industrial diet that tends to be more varied, with more processed foods, more animal foods, more added sugar and fat, and often more alcohol. This is accompanied by a change in the structure of work and free time to a decrease in physical activity, which leads to a rapid increase in the number of obese and obese people. The accompanying epidemiological change is characterized by a shift from endemic deficiencies and infectious diseases to chronic diseases such as obesity, adult-onset diabetes, hypertension, stroke, hyperlipidemia, coronary artery disease, and cancer. Obesity is a major public health problem in Asia today. Obesity is a problem for the urban poor and the rich, and the urban poor have other predisposing factors associated with low birth weight Schmidhuber *et al* (2004) observed a change to a diet characterized by a change to high calorie, saturated fat and cholesterol intake. Demigne e*t.al*.(2004*)* observed a significant reduction in potassium intake when consuming a Western diet compared to a traditional diet. *Seshadri et al* (2005*)* also showed the presence of high sodium

content in processed foods compared to their natural counterparts and its health implications. Subbulakshmi *et al. (*2005*)* highlighted nutritional problems due to consumption of processed, prepared and ready-to-eat foods among career women due to their heavy lifting and lack of time to prepare traditional foods.

Common infectious and parasitic diseases such as malaria and the HIV/AIDS pandemic remain major unsolved health problems in many developing countries, and emerging noncommunicable diseases related to diet and lifestyle have increased over the past two decades, resulting in a doubling of the disease burden. Load and has a negative impact on the already overburdened health services in these countries.

The modern diet is of very recent origin. Early humans were hunters and gatherers for millions of years before they learned to use fire for cooking. Only a few thousand years ago, the agricultural production of grain, meat and dairy products increased the consumption of starch, saturated fatty acids and lactose. The most obvious changes occurred in the second half of the 19th century, when increased production of fat and sugar completely changed nutrition.

Consumption of market food and decreased consumption of traditional food, coupled With decreased physical activity, resulted in increased incidence of obesity and its correlated Diseases like diabetes, heart disease and dental caries. Kuhnlein *et al (*2003*)* indicated that in Addition to obesity and other associated diseases, increased consumption of industrially Processed foods lead to poor intake of micronutrients

South Indian food is mainly based on Idli and dosa enhances probiotic activity. Indian Traditional rasam has high antipyretic, hypoglycemic (Preethikaa *and* Brundha *et al* , 2018) and reduces Hypertension (Alleyne *et al.*, 2005*).* Some Indian foods are proven to cure cancer also (Brundha a*nd* Pathmashri, *et al* 2019*).* Food especially made from beet root is proven to have a significant effect on haemoglobin value. Doctor check-ups also suggest eating healthy food improves the health of The patient in many ways (Varshini *and* Brundha, *et al* 2020*),* (Timothy, Samyuktha *and* Brundha,*et al* 2019*).* Inclusion of clove to food has a beneficiary effect on teeth.

2.5 key challenges in the production and use of traditional foods

Traditional foods (TFP) play an important role in increasing the value of food production and promoting economic and social development in many countries.

North African countries have a rich tradition of food technology, and many traditional foods of animal or plant origin are still consumed and highly valued. In fact, these foods play an important role in the economy and food security of these countries. However, they are still mostly produced in households under poor sanitary conditions and marketed informally. Thus, they are excluded from official control according to national regulatory standards. Therefore, their consumption is thought to pose a threat to public health, although such a risk has never been scientifically assessed due to the lack of consumption patterns, epidemiological data, and appropriate monitoring programs. The scarcity of scientific studies on the prevalence of hazards

in this particular food group makes science-based risk assessments or profiling studies difficult. This review briefly describes the technologies of the most popular traditional animal and plant foods in North Africa and discusses the potential microbiological risks associated with their consumption and the food safety problems they cause. The review also aims to alert stakeholders, including decision makers in North African countries, to the urgent need to assess or profile the health risks associated with their consumption and take the necessary measures to reduce those risks.

North African countries have a rich tradition of food technology, and many traditional foods of animal or plant origin are still widely consumed and appreciated. In fact, these foods play an important role in the economy and food security of these countries. However, they are still mostly produced in households under poor sanitary conditions and marketed informally. Thus, they are excluded from official control according to national regulatory standards. Therefore, their consumption is thought to pose a threat to public health, although such a risk has never been scientifically assessed due to the lack of consumption patterns, epidemiological data, and appropriate monitoring programs.

Traditional foods reflect cultural heritage and have left their mark on modern eating habits. They are key factors in the eating habits of different countries and therefore important for an accurate assessment of the eating habits of the population. However, this information is missing from most current national food composition databases.

Indigenous and traditional foods and food systems were found to disappear, leading to Significant loss and threat to personal health and security at the regional and international level (Kuhnlein *et al* , 2003). Diaz *et al (*2005) stated that substitution of traditional foods not only led to a Loss of production of traditional and culturally appropriate food, but also led to loss of Traditional knowledge related to food production

Urbanisation an globalisation enhance access to no traditional foods due to changing Prices and production practices, as well as trade and marketing practices (Lang, 1999*;* Evans *et Al.,* 2003 *and* Chopra*, et al.,* 2002*).*

Foreign investment had contributed to the rise of fast food restaurants and western-style Supermarkets, which also influenced consumer food choices by offering greater variety, Quality, convenience and competitive prices in high-value added foods *(*Regmi *and* Gehlar 2001; Reardon, *et al.*,2003)

2.6 Future scope of Traditional foods

Nanotechnology is the new frontier in transforming the conventional agriculture and food industry into an emerging form of food industry. Innovations in nanofoods, nanosensors, nanopackaging, nanofertilizers, and nanopesticides are recent major advances in nanoscience and technology. Nanoscience-based technology has a vibrant impact on food quality, food safety, and aspects of food packaging, including nanofood drug delivery, nanonutrients, and health-enhancing

foods. Application of nanotechnology facilitates food preservation, nutrition improvement and safe delivery of trace elements.In the food industry of the 20th century, nanotechnology processing is a new frontier that has a significant impact on improving nutritional quality, nutritional value, food safety and nano content of functional food. In addition, the added value of various durable nanoscale materials facilitates the targeted delivery of nutritional ingredients and the treatment of obesity and comorbidities. Recent developments in improving the taste of healthy foods using nanomaterials have opened up a whole new field of research and development in the field of food nanoscience. However, there is no comprehensive overview of the promises of nanotechnology in the food industry in the current literature. Thus, an attempt is made here to cover this remaining gap in the literature highlighting the new frontier of nanotechnology and their future in food technology to promote better health. After a brief introduction, the promise of nanotechnology has transformed the food industry in the 21st century. Then, recent and important examples discuss the use and application of nanomaterials in foods to achieve certain health benefits. A detailed overview is also provided discussing the role of nanoprocessing in the delivery of nutrients in the treatment of obesity and comorbidities. The second part of the work focuses on improving the taste and food safety of healthy foods to meet the growing demands of consumers. In addition, marketed products and public acceptance of nanotechnologically designed foods and future perspectives are discussed here.

Growing population and global warming pose a direct threat to global food security (Linder *et al* 2019*)*. This has led to a critical reassessment of the food supply chain from producers to consumers to increase the overall efficiency of food production, storage and transportation. Consequently, much botanical research aims to increase production through new, high-yielding varieties of crops, fruits and vegetables that are better adapted to changing climatic conditions. However, there is still much room to improve food safety by minimizing food waste and waste recovery, valorizing by-products, improving nutritional value and extending shelf life. This is where fermentation emerges as a cost-effective, versatile and well-proven technology that extends the shelf life of foods and increases their nutritional value.

Bioactive compounds refer to secondary metabolites extracted from plants, fungi, microbes or animals. In addition to pharmacological or toxicological effects on organisms that lead to benefits in the food and pharmaceutical industries, the discovery of new properties of such compounds has led to a diversification of their applications from cosmetics and functionalized biomaterials to bioremediation and alternative fuels. Traditional time-consuming and solvent-intensive extraction methods are increasingly replaced by green solvents such as ionic liquids, supercritical fluids and deep eutectic solvents, as well as unconventional extraction methods supported by microwaves, pulsed electric fields, enzymes, ultrasound or pressureTraditional foods that were used as seasonal and festive food or in religious ceremonies rather than as a staple food have become popular as a delicacy *(*Shin,*et al* 1999).According to Hollingsworth *et al* (2000*),* one in seven dollars spent in the next decade will be spent on ethnic food. The author also predicted that food manufacturers will compete for market share in the fastest growing ethnic cuisines such

as Thai, Caribbean, Mediterranean and Indian.According to Parpia *et al* (2004), the value of traditional processed foods accounts for almost 75 percent of processed foods in the Indian market. Since traditional food has been considered a competitive Product due to its unique materials and production techniques, efforts to export it are increasing Today (Shin,*et al* 2004). The Indian traditional food market has grown rapidly over the past Five to eight years, and large-scale production and preservation of traditional foods has become notable due to the suitability of these products for domestic consumption, export and the interest of international companies. (Dipali and Rodrigues *et al* 2006). With rapid urbanization and the development of traditional food production technologies, traditional convenience foods and ready-to-serve foods sometimes flooded the market (Manjula *et al.,* 2006).

Under present circumstances, conventional breeding techniques are not sufficient. Innovation in plant breeding is critical in managing agricultural challenges and achieving Sustainable crop production. Novel plant breeding techniques, involving a series of developments from genome editing techniques to speed breeding and the integration of omics technology, offer Relevant, versatile, cost-effective, and less time-consuming ways of achieving precision in plant Breeding. Opportunities to edit agriculturally significant genes now exist as a result of new genome Editing techniques. (Fiaz *et al.* 2021).

The food industry seeks development of new products that follow modern trends and Traditional method and are able to conquer today‘s consumers, while at the same time maintaining the identity of specific products, valued as traditional.(Raquel *et al.,* 2021*)*

3. MATERIALS 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 Idukki

3.3.2. Documentation of traditional foods in Idukki.

3.3.3. Preparation of selected traditional foods in Idukki.

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

3.1. Locality of the study

Idukki district of kerala was purposely selected for the study. Idukki is home to a large forest reserve, with over half of the district being covered by forests. Urban areas have a high population density, while villages have a low population density. Idukki is famous for being the spice garden of Kerala. Idukki's cuisine bursts with flavors that reflect the hard work and determination of the farmers in the hilly Kerala district. The unique dishes from Idukki are known for their spicy and sour flavors, showcasing the region's rich agricultural heritage. Beef is the most popular meat that takes a major position on the dining tables in Idukki. Tapioca is also very popular here and it can be combined with varietyof dishes. The following localities were namely selected:

Table 1: Localities of the Study

Sl. No	Localities Selected
1.	Kulamavu
2.	Kattapana
3.	Chathurangapara
4.	Anaviratty

3.2. Selection of sample

People 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 categorised based on the communities they represent. A total of 20 people, belonging to different communities like Hindus, Muslims and Christians were selected.

Table 2 : Distribution of respondents selected for the study

Sl. No	Christians	Muslims	Hindus	Total
1.	8	5	7	20

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 Idukki.

3.3.2. Documentation of traditional foods in Idukki.

3.3.3. Preparation of selected traditional foods in Idukki.

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

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

We gathered information about the traditional foods and food habits of each community at the study locations. This information included details about religious customs, festivals, special occasions, the ingredients used, and how the foods were prepared. We collected this information through questionnaires that asked about these topics. The samples also interviewed to learn more about their childhood memories, such as the traditional foods they ate, the celebrations they enjoyed, the special dishes they had during those events and the meals they had while in school.

3.3.2. Documentation of traditional foods in Idukki

We identified the details of various traditional foods from different communities through questionnaires and interviews. A list of these traditional foods is provided in a table. We also collected detailed information on how these traditional foods are prepared. We documented the preparation process using both photographs and written descriptions.

Table 3 : Different traditional foods.

Sl. No	Different traditional foods
1.	Kootu puzhukku
2.	Asiad (Elllum kappayum)
3.	Ela ada
4.	Vadi snack
5.	Kairali Thali
6.	Kallapam
7.	Chicken kumbacha
8.	Kumbilapppam
9.	Tharivattu snack
10.	Idiyirachi
11.	Kaligadakkaa
12.	Ellikutty kozhi
13.	Pal koova
14.	Pidi kozhi
15.	Kappa Meen curry
16.	Pazhankanji
17.	Arikoon thoran
18.	Chakka puzhuk
19.	Chathurapaayar thoran
20.	Pal kolkata

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

Table 4 : Selected Traditional foods

Sl. No	Selected traditional foods
1.	Asiad (Ellum kappayum)
2.	Chathurapayar thoran
3.	Kootu puzhuk
4.	Arikoon thoran
5.	Idiyirachi
6.	Vadi snack
7.	Ellikutty kozhi
8.	Kallapam
9.	Pidi kozhi
10.	Tharivattu snack

3.3.3Preparation of selected traditional foods in Idukki

3.3.3.1 Ellum kappayum

Ingredients:

- Kappa (Tapioca): 100 grams
- Bone-in beef: 70 grams
- Onion: 25g thinly sliced and halved
- Ginger & Garlic: 5g finely chopped
- Curry leaves: A few
- Turmeric powder: ¼ tsp
- Chilli powder: ¼ tsp
- Coriander powder: ¼ tsp
- Garam masala powder: ½ tsp
- Pepper powder: 1/4 tsp
- Salt: To taste
- Water: ¼ Cup
-

Preparation

- Pressure cook the marinated beef pieces adding 1/4 cup water for 4 – 5 whistles or until done. Set aside.

- Coarsely grind the grated coconut adding 1/4 tsp turmeric powder, 2 small cloves of garlic. 3 – 4 shallots and 2 – 3 green chilies.

- Cook the tapioca pieces in enough water to cover them, adding salt and turmeric powder. When tapioca is done, switch off and drain the water completely. Transfer it back to the pot and add the grated coconut mixture. Cover and cook for a minute. Mash everything well. Set aside until ready to use.

- Heat coconut oil in a pan and add the onion, little salt, ginger, garlic and curry leaves. When onion turns light brown, bring down the heat to low and add turmeric powder, chilly powder, pepper powder and garam masala powder. Cook for 1 – 2 minutes and add the prepared meat with gravy. Cook for 3 – 4 minutes until the gravy is thick and add to the mashed tapioca along with a few curry leaves. Mix well. Taste check for salt

- Heat 1 – 2 tsp coconut oil in a small pan. Splutter mustards and fry dry red chilies. Add a few curry leaves and sliced shallots and saute until the shallots turn golden brown. Pour this over the prepared kappa / tapioca biriyani. Mix well. Serve hot.

3.3.3.2 Chathurapayar thoran

Ingredients

- Winged beans: 150 grams, chopped
- Grated coconut: 1/2 cup
- Shallots: 2, thinly sliced
- Green chilies: 25g finely chopped
- Garlic: 1 clove, minced
- Mustard seeds: ¼ teaspoon
- Curry leaves: a handful
- Turmeric powder: 1/4 teaspoon
- Red chili powder: ¼ teaspoon
- Coconut oil: ¼ tablespoon
- Salt: to taste

Preparation

- Wash the winged beans thoroughly and chop them into small pieces.

- Grate the coconut and keep it aside thinly slice the shallots, finely chop the green chilies, and mince the garlic.

- Heat coconut oil in a pan or kadai over medium heat. Add mustard seeds and let them splutter. Optionally, add cumin seeds and sauté for a few seconds until fragrant. Add sliced shallots, minced garlic, and curry leaves. Sauté until the shallots turn golden brown.

- Add the chopped winged beans to the pan. Mix well and sauté for a couple of minutes. Pour a little water (about 1/4 cup) into the pan. Cover and cook the winged beans until they are almost tender. Stir occasionally and add more water if needed.

- Continue to cook uncovered for a few more minutes until any excess moisture evaporates, and the Winged Beans Thoran is dry.

- Taste and adjust the seasoning if necessary.

- Once done, remove from heat and serve hot as a delicious side dish with rice or roti

3.3.3.3 Kootu Puzhukku

Ingredients

- Kaachil / Taro:30g Cubed
- Chembu / Colocasia: 30g Cubed
- Chena / Suran: 30g Cubed
- Koorka / Chinese potato: 30g Cubed
- Madhura Kizhangu/ Sweet potato: 20g Cup Cubed
- Nana Kizhangu: 20 g Cubed
- Raw plantain: 20g cup
- Van payar / Red cow peas: 15g cup
- Turmeric: ¼ Tsp
- Salt: To taste
- Curry leaves: A few
- Chili Powder: ¼ Tsp
- Grated Coconut: 30g loosely packed
- Garlic: 1-2 Cloves
- Cumin Seeds: 1/4 tsp
- Curry Leaves: A few
- Coconut oil: ¼ Tsp

Preparation

- Soak the cow peas overnight. Drain, dry roast and pressure cook it until soft – about 2 whistles. Set aside.

- Cut the tubers into large cubes. If using pre-cut vegetables ensure that all are cut into roughly equal size pieces. Cut raw plantain into slightly smaller pieces. Add all the vegetables into the pressure cooker, along with turmeric, curry leaves, chili powder and half the salt. Add enough water to barely cover the vegetables. Pressure cook for just 1 whistle.

- Grind the coconut with garlic and cumin seeds into a rough paste adding 1 to 2 tbsp of water as necessary.

- Open the cooker and and check the vegetables – they must be cooked and firm. There should be just a little water at the bottom, but not a lot. If there is excess moisture cook with the lid open to evaporate most of the water. Add the cooked beans along with the coconut paste. Stir and adjust salt as needed. Turn the heat on to medium and bring the mix to a slow simmer – stirring a few times to prevent the mix from sticking to the bottom. Cook on low heat for a few minutes until the raw smell of garlic fades

- Turn off the heat. Crush a few curry leaves by hand and place on top of the puzhukku. Drizzle a little coconut oil on top and cover with the lid. Keep covered till serving.

3.3.3.4 Ari koon thoran

Ingredients

- Ari koon: 150 gms
- Onion: 30g
- Green chilies: 1 Small
- Curry leaves: little
- Turmeric: ½ tsp
- Finely Scraped Coconut: 25 g
- Oil: as required
- Mustard: little
- Salt: To taste

Preparation

- Wash the mushrooms under running water rinsing properly and immediately drain. If there are stubborn dirt or stain, remove it with knife. Chop the mushrooms into thin slices (stems also can be used) and keep aside. Chop the onions finely into squares, chop the green chilies into rounds and keep aside. Heat a pan and pour little oil. Pop the mustards and add curry leaves. Then add the chopped onion and chilies.

- Sauté for some time till it is limp. Add the turmeric powder and sauté. Then add the finely scraped coconut and fry on high flame, stirring continuously for some time, till the coconut is dry. Finally add the mushrooms and stir and cook on high flame

- The mushrooms need very less cooking time so be careful not to lose any flavors by overcooking! Transfer to a serving plate and enjoy with hot rice.

3.3.3.5 Idiyirachi

Ingredients

- Beef: 100 g
- Coconut oil: 1 – 2 tsp
- Ginger: 2 tsp, crushed or finely chopped
- Garlic: 2 tsp, crushed or finely chopped
- Curry leaves: 1 sprig
- Crushed red chilies: 1 – 1.5 tsp or as required to taste
- Salt: To taste

Preparation

- Heat coconut oil in a kadai/non-stick pan over medium-high heat.
- Add shredded beef, ginger, garlic, curry leaves, little salt and stir continuously until beef is browned.
- Add crushed chilli flakes and continue to stir-fry for a few more minutes until beef turns crisp mix well.
- Cook for a minute and switch off. Serve hot.

3.3.3.6 Vadi

Ingredients

- Semolina (roasted rava): 1/2 cup
- Refined wheat flour (maida): 1/2 cup
- Vegetable oil - 2 tsp
- Cumin seeds (jeera): 1/2 tsp
- Sesame seeds (til): 1/2 tsp
- Salt: a pinch
- Sugar: 2 tsp
- Lemon juice: 2 tsp
- Coconut oil: for frying

Preparation:

- In a bowl, add the rava, maida, vegetable oil, jeera, til and salt. Mix well.

- Knead into a smooth soft dough using enough water and keep aside for 10 minutes.
- Divide the dough into two equal parts. Roll the dough into round shapes and with a knife cut them into stripes.

- Now, heat the coconut oil in a kadhai and deep fry the sticks. Fry till they turn brown and stop sizzling.

- Drain the excess oil. Add lemon juice and mix well.

- In a pan, heat the sugar in 1/2 cup of water. Let it boil till the sugar melts completely.

- Put all the fried sticks together into the sugar syrup, and give them a light toss (so that they don‘t break) till each of them are coated in syrup.

3.3.3.7 Ellikutty Kozhi

Ingredients:

- 125 grams of chicken, cut into pieces
- 1 tablespoon of coconut oil
- 1 sprig of curry leaves
- 1/2 onion, finely chopped
- 1/2 green chili,slit
- 1/2 teaspoon of ginger-garlic paste
- 1/2 teaspoon of red chili powder
- 1/4 teaspoon of turmeric powder
- Salt to taste
- Fresh coriander leaves for garnish

Preparation:

- Place the chicken pieces in a bowl and some oil into it. Add the ginger garlic paste, green chilli, chopped onion and curry leaves into it, then add the red chilli powder and turmeric powder.

- Mix well and coat the chicken well with the masala.

- Fill the chicken pieces in the bamboo log. After filling bamboo logs we stuff the end parts with banana leaves. So that that pressure and steam remains while cooking.

- The charcoal grill is ready and we keep it inside that.

- Almost will take half hour to cook well.

- After half an hour, we can open the bamboo log. The well-cooked hot chicken dish is ready. Garnish the dish with fresh coriander leaves.

3.3.3.8 Kallappam (Steamed Rice cake)

Ingredients

- Raw rice / Idly rice: 1/4 kg (Soaked for 5 hours)
- Coconut: 1 small coconut
- Sugar: 10 tbsp
- Sweet toddy: ¾ bottle
- Cardamom: 5 (Powdered)
- Salt

Preparation:

- Set aside 2 tbsp of rice.

- Grind drained rice and coconut adding some toddy to a smooth paste.

- The batter should be medium thick.

- Grind the set aside 2 tbsp rice adding water. Do not add toddy or coconut.

- If the mixture is thick, add water and loosen it.
- Heat this mixture and thicken it stirring continuously.

- Switch off and let it cool. Add a few spoons of the batter and pulse it a couple of times in the mixer.

- Add this to the batter and mix well and add sugar and mix well.

- Adjust the consistency of the batter by adding toddy / water.

- Add salt and mix well.

- Cover and keep the batter aside in a warm spot for 7-8 hours for fermentation.

- Once fermented, add cardamom powder and mix well.

- Grease a plate with coconut oil. Transfer the batter to the plate. Do not fill more than half of the plate. Cover and bring water to boil in a steamer. Transfer the plate to steamer.

- Cook on high heat for 10 minutes.

3.3.3.9 Pidi Kozhi Curry

Ingredients

To make the balls:

- Roasted rice flour: 1/2 cup
- Water (as required)
- Cumin seeds: 1/4 tsp
- Scrapped coconut: 2 tbsp
- 2 shallots: crushed
- Salt
- Curry leaves

Preparation:

- Combine rice flour, scrapped coconut and keep it aside. Boil sufficient water along with cumin seeds, crushed shallots and salt. Off the flame once the water is well boiled.

- By adding water little by little to the rice flour prepare a smooth dough. Use a wooden spatula to mix it and later once the temperature of the water has reduced use your hands to make the dough smooth.

- Make small ball and keep it aside. Reserve a small quantity of dough for final thickness.

- To a wide kadai add water (as in the balls need to be sunk in water – at the same time do not add too much of water around 1.5 cups of water is sufficient) along with some cumin seeds, salt and get to a boil. Add in the prepared balls and cook it for a min of 5 mins., on high flame do not stir as the balls will tend to break.

- After 5 min. the balls will be semi cooked. Gently with a help of spatula mix the balls and add 1 more glass of water and cook the remaining.

- Add some water (1/2 cup of water) to the reserved dough and dilute it along with that add in some scrapped coconut (1 tbsp) and combine everything together.

- Add in the mix to the balls and stir it well as this mixture is the thickening agent. Off the flame once the whole Pidi is thickened and well cooked. Finally add in some curry leaves.

To make Kozhi curry:

Ingredients

- Chicken: 150 grams (cut into small to medium pieces)
- 1 large onion
- Ginger-garlic paste: as required
- Curry leaves: good amount
- 1/2 tbsp coriander powder
- 1/4 tbsp Kashmiri red chili powder
- 1/2 tbsp of Chicken masala powder

- 1/4 tsp Turmeric powder
- 1/2 tbsp Pepper corns + 1/4 tsp Fennel seeds (freshly crushed)
- Coconut oil -3 tbsp +1 tbsp
- Salt
- For final Tempering: 2 small onions (sliced)+ 2Dry red chili +1 green chillies and curry leaves + Coconut oil

Preparation:

- To a wide kadai add the spice powders – Kashmiri chili powder, coriander powder, Turmeric powder, Chicken masala and roast it until the spice powders turn slight dark brown. Maintain the flame on low. Once done remove and keep it aside. This is where the curry gets it dark brown colour.

- To the same kadai add in 3 tbsp of coconut oil and the crushed ginger, garlic and curry leaves. Cook for a min of 4-5 mins., on medium low until the onions turn soft and brown.

- Add in the roasted spice powder cook for 2 mins., until the oil starts separating from the kadai then the chicken pieces and combine everything together. Cover and cook for 10 mins(stir in between). Finally the crushed pepper and fennel seeds, curry leaves.

- Cover and cook the chicken by adding 2 cups of boiling water add in some salt as well. The gravy should be semi thin as when the chicken curry sits for some time it will thicken up.

- To a small pan add coconut oil along with it add shallots, red chilis and green chilies add to the prepared chicken curry. Serve it hot with Pidi .

3.3.3.10 Tharivattu

Ingredients

- Semolina / White Rawa: 1/2 cup
- Grated coconut: 1/4 cup
- Sugar: 1/4 cup

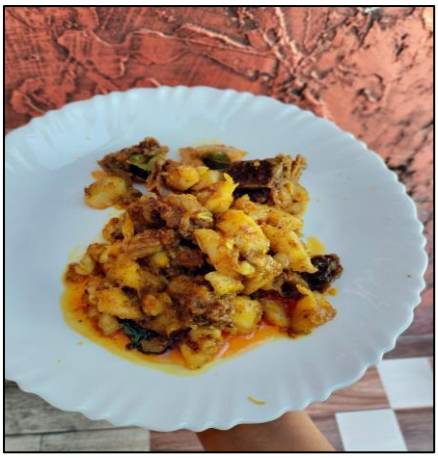
(add more or less according to your sweetness)

- Cardamom: 3 crushed

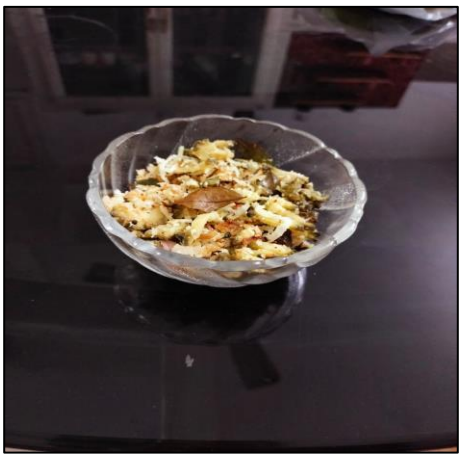
- Salt: a pinch
- Ghee: 1 tsp
- Hot water: 3 to 4 tbsp
- Black sesame seeds: 1 tsp
- Jeera: 1/4 tsp

Preparation

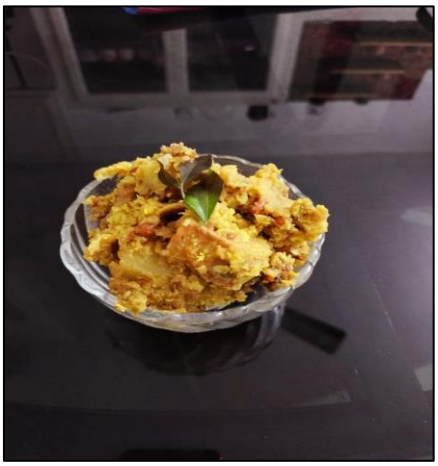
- Take a pan add the semolina, salt, coconut, jeera, sesame seeds and ghee mix well.
- In low flame fry till sooji is roasted well and changes it's colour, switch off the stove.
- Add the cardamom powder and sugar mix well till the sugar is slightly melted and combined.
- Pour water little by little till the sooji is slightly wet, do not add too much water as they will become sticky and lumpy.
- Grease a small cup with ghee add few spoons of the mixture and press well then immediately invert onto a plate to get the shape.



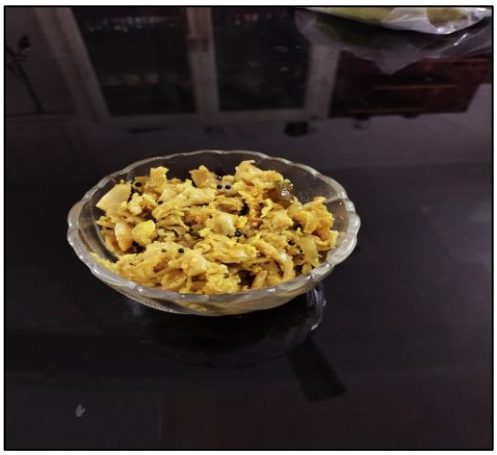
Ellum kappayum.



Chathura Payar thora



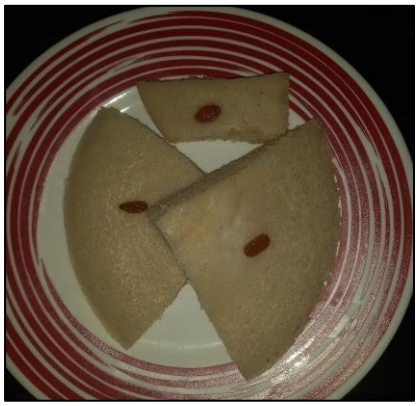
Kootu Puzhukku



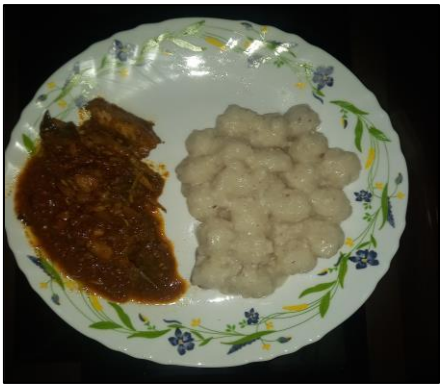
Ari koon thoran

Idiyirachi

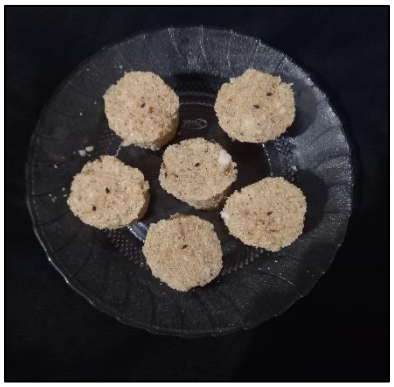
Plate 1: List of selected traditional foods



Kallappam.

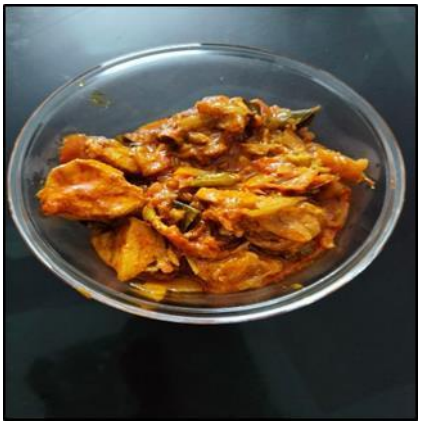


Pidi Kozhi Curry



Tharivattu

Vadi.



Ellikutty Kozhi

Plate 2: List of selected traditional foods

3.3.4 To develop a nutritive value of selected foods in Ernakulam

Based on the high nutritional content of each dish, we chose the following nutrients to analyse the nutritive value: iron, calcium, phosphorus, potassium, magnesium, sodium, zinc, energy, protein, fat, and carbs.

Energy

In order to maintain body temperature, grow and mend, and engage in physical activity, our bodies require energy. Foods and beverages, specifically carbs, protein, fat, and alcohol, are the main sources of energy. Fat, protein, and carbohydrates are necessary macronutrients, sometimes referred to as ―macros‖ since we require significant amounts of them in our diets (macro=big) in order to survive and function. Alcohol is not necessary for a healthy diet. Kilojoules (kJ) or calories are used to quantify energy (kcal).

1 kcal = 4.2 kilojoules.

The capacity to work or generate heat is called energy. In terms of nutrition, it refers to the energy that comes from food and drink, which our bodies need for respiration, blood circulation, and muscle movement, among other functions. Our muscle and liver cells store energy produced in the mitochondria of the cell, which is then easily accessible as glycogen. Adenosine triphosphate, a high-energy molecule, is the form in which the body stores the energy from the breakdown of food (ATP). Another name for ATP is energy currency.

Carbohydrates

The body uses carbohydrates as its primary energy source. They are the sugars, starches, and dietary fiber that occur in plant foods and dairy products. Sugar molecules make up carbohydrates, or ―carbs.‖ Carbohydrates are one of the three primary nutrients present in foods, along with proteins and fats. Meals and beverages. Glucose is produced by your body from the breakdown of carbs. The primary energy source for the cells, tissues, and organs in your body is glucose, sometimes known as blood sugar. Glucose can be used right away or stored for later use in the muscles and liver. Most recommendations state that an individual should get 45–65% of their daily calories from carbs.

Protein

Protein is present in almost every bodily tissue and part, including muscle, bone, skin, and hair. It is composed of the haemoglobin that carries oxygen in your blood and the enzymes that drive numerous chemical reactions. At least 10,000 distinct protein types are involved in You should remain true to who you are. Amino acids are the more than twenty fundamental building blocks that make up protein. Our bodies produce amino acids from scratch or by modifying other amino acids since we cannot store them. The nine amino acids that are considered essential must be obtained from diet: histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine,

tryptophan, and valine. Protein from food come from plant and animal sources such as : meat and fish , eggs , dairy products, seeds and nuts ,like beans and lentils.

Fat

In humans and many animals, fats function as both a source of energy and Energy reserves that exceed the body‘s immediate needs. Each gram of fat burning or metabolism releases about 9 foods (37 kJ = 8.8 kcal). Fats are also sources of essential fatty acids, which are essential nutritional requirements. Vitamins A, D, E and K are fat soluble, meaning they can only be digested, absorbed and transported by fat. Fats play an important role in maintaining healthy skin and hair, insulating body organs from shock, maintaining body temperature and promoting healthy cell function. Fat acts as a useful buffer against many diseases. When a certain substance chemical or biotic, reaches dangerous levels in the bloodstream, the body can effectively dilute –Or at least maintain a balance – the offending substances by storing them in new Necessary fat. It helps protect vital organs until harmful substances are Metabolized or removed from the body through, for example, excretion, urination, involuntary or Blood bleeding, sebum secretion and hair growth.

Micronutrients

Calcium

Calcium is the mineral most associated with healthy bones and teeth, although it also plays an important role in blood clotting, helps muscles contract, and regulates normal heart rhythm and nerve function. About 99% of the body‘s calcium is stored in the bones, and the remaining 1% is found in the blood, muscles and other tissues. The Recommended Dietary Allowance (RDA) for calcium for women aged 19-50 is 1,000 mg per day; for women 51+, 1200 mg.The RDA is 1000 mg for pregnant and lactating women. For men aged 19-70, the RDA is 1000 mg; for men aged 71+ years 1200 mg.

Potassium

Potassium is a mineral found in the foods we eat. It is also an electrolyte. Electrolytes \conduct electrical impulses throughout the body. Potassium plays a role in the functioning of the kidneys, heart, muscles and in the transmission of messages through the nervous system.

The US Dietary Reference Values indicate that there is insufficient evidence to establish a Recommended Dietary Allowance (RDA) for potassium. For females aged 14-18, the AI is 2,300 mg per day; for women 19+, 2600 mg. The AI of pregnant and lactating women varies between 2500 and 2900 depending on age. For men aged 14-18, the AI is 3000 mg; for men 19+, 3400 mg. It is estimated that the average daily intake of potassium for adults is about 2,320 mg for women.

Magnesium

An abundant mineral in the body, magnesium is found naturally in many foods, added to \other foods, available as a supplement, and in some medications (eg,antacids and laxatives). Magnesium is required for energy production, oxidative phosphorylation and glycolysis. It promotes the structural development of bone and is necessary for the synthesis of DNA, RNA and the antioxidant glutathione. For adults aged 19-51+, the Recommended Dietary Allowance (RDA) is 400-420 mg per day for men and 310-320 mg per day for women. Pregnancy requires about 350-360 mg per day and breastfeeding 310-320 mg.

Sodium

Salt, also known as sodium chloride, is about 40% sodium and 60% chloride. It flavors foods and is used as a binder and stabilizer. It is also a food preservative because bacteria cannot grow in the presence of a large amount of salt. The human body needs a small amount of sodium to Conduct nerve impulses, contract and relax muscles, and maintain proper water and Mineral balance. It is estimated that we need about 500 mg of sodium per day for these vital functions. Adequate sodium intake (AI) guidelines have been established Based on the lowest levels of sodium intake used in randomized controlled trials that did not show a deficiency but also allowed for adequate consumption of nutrient-dense foods that naturally contain sodium. For males and females 14 years of age and older, and pregnant women, the AI is 1,500 milligrams per day.

Zinc

Zinc is a trace element, which means that the body only needs a small amount, but almost 100 enzymes are needed to carry out essential chemical reactions. It is an important player in creating DNA, cell growth, building proteins, healing damaged tissue and supporting a Healthy immune system. The Recommended Dietary Allowance (RDA) for adults over the age of 19 is 11 mg per day for men and 8 mg for women. Pregnancy and breastfeeding require slightly more 11 mg and 12 mg respectively. UL: Tolerable Upper Intake Level is the maximum daily amount that is unlikely to cause negative health effects. The UL for zinc is 40 mg per day for all men and women over 19 years of age

Iron

Iron is a mineral found naturally in many foods, added to some foods, and available as a supplement. Iron is an important part of hemoglobin, a protein found in erythrocytes (red blood cells) that carries oxygen from the lungs to the tissues. Dietary iron has two main forms: heme and non-heme. Plants and iron-fortified foods contain only non-heme iron,Meat, shellfish and poultry contain both heme and non-heme iron. Heme iron, which is formed when iron combines with protoporphyrin IX, accounts for approximately 10-15% of the total iron intake of the Western population. The required amount of iron is: 8.7 mg per day for men over 18 years of age.14.8 mg per day for women aged 19-50. 8.7 mg per day for women over 50 years of age..

Phosphorus

Phosphorus is a mineral that makes up 1% of a person‘s total weight. It is the second most abundant mineral in the body. It is found in every cell of the body. Most of the phosphorus in the body is found in bones and teeth. It plays an important role in how the body uses carbohydrates and fats. The body also needs it to make proteins for the growth, maintenance and repair of cells and tissues. Phosphorus also helps the body produce ATP, a molecule the body uses to store energy. The UL for phosphorus is 4,000 mg/day for adult men and women 19-70 years of age and 3,000 mg/day for adults over 71 years of age. The UL for pregnant and lactating women ages 14 to 50 is 3,500 and 4,000 mg.

4.RESULTS AND DISCUSSION

Results of the present study on –Documentation and nutritive evaluation of traditional foods of kerala – Ernakulam district‖ are presented in this chapter under the following headings:

4.1 Traditional food habits of different communities

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 calculation of traditional food items collected

4.1 Traditional food habits of different communities

Traditional eating habits of respondents from different communities, preference for traditional foods, reasons for recommendation, frequency of preparation of traditional foods, traditional foods prepared on special occasions, religious Festivals and rituals, frequency of preparation of traditional health foods and traditional kitchen tools and equipment used.

4.1.1 preference of traditional foods of different communities

The details regarding the preference for traditional foods among different communities are given in the table 5.

Table 5 : preference of traditional food by different communities

Communities (n)	Preferred	Not preferred
Christians (8)	5(62.5)	3(37.5)
Muslims (5)	3(60)	2(40)
Hindu (7)	7(100)	-

Numbers in parenthesis are percentage

It was found that all respondents of Hindus were preferred the traditional foods and only [62.5] percentage of Christians preferred traditional foods and only [60] percentage of Muslims Preferred these types of traditional foods.

4.1.2 Reasons for preference of traditional foods

The details regarding the reason for preference of traditional foods among different communities are given in table 6:

Table 6: Reasons for preference of traditional foods

Reasons	Christians [8]	Muslims [5]	Hindus [7]
Healthy	8(100)	5(100)	7(100)
Tasty	8(100)	5(100)	6(85)
No adulteration	5(62.5)	4(80)	6(85)
Less expensive	1(12.5)	1(20)	2(28.5)
Ingredients are locally produced	4(80)	2(40)	3(42.8)

Numbers in parenthesis are percentage

All respondents belong to Hindus preferred traditional foods because of its Health benefits. All respondents of Muslims and Christians are preferred traditional foods due to its taste and Health benefits. 85% of Hindus preferred due to its taste. 62.5 % of Christians, 80% of Muslims and 85% of Hindus preferred traditional foods as there was no Adulteration in it. Less expensive was one of the reasons for choosing traditional food for 12.5% Christians, 20% Muslims and 28.5% Hindus. 80% of Christians, 40% Muslims and 42.8% of Hindus are preferring it because of the Ingredients are locally available.

It was reported that all respondents belonging to the Hindus who gave preference to Traditional foods indicated that they preferred traditional foods because of their health benefits and All the Christians and Muslims preferred traditional foods since they are very tasty. Most of the respondents Who preferred traditional foods indicated that they preferred traditional foods since they are not Adulterated.

4.1.3 Frequency of preparation of traditional food items

The frequency of preparation of different traditional foods by the different communities for breakfast, lunch and snack are given in Table7

Table 7: frequency of preparation of traditional foods.

Frequency	Christians (8)	Muslims (5)	Hindus (7)
Daily	5 (62.5%)	3 (60%)	5 (71.42%)
Weekly thrice	1 (12.5%)	2 (40%)	2 (28.57)
Weekly twice	2 (25%)	0	0

Numbers in parenthesis are percentage.

From the table, it is evident that 62.5% of Christians prepared traditional food items daily, 12.5% of Christians weekly thrice and 25% of Christians weekly twice. 60% of Muslims who preferred traditional foods prepared traditional foods daily and 40% prepared them weekly thrice. All the Hindus who preferred traditional foods, prepared and consumed traditional food items on a daily basis.

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 was found to be as follows:

Table 8 : Frequency of preparation of traditional health foods.

Frequency	Christians (8)	Muslims (5)	Hindus (7)
Occasionally	4 (50%)	1 (20%)	5 (71.42%)
Never	4 (50%)	4 (80%)	2 (28.57%)

Numbers in parenthesis are percentage.

From the table, it is evident that 50% of the Christians who preferred traditional foods was found to prepare traditional health foods occasionally and the remaining 50% never prepared any. Likewise, 20% of the Muslims who preferred traditional food items prepared them occasionally and 80% did not prepare any traditional health food. 40% of the Hindus who preferred consuming traditional foods prepared traditional health foods occasionally and the remaining 28.57% never prepared any.

4.1.5 Traditional food items prepared on special occasions.

Traditional foods prepared during special occasions by different communities are detailed In the tables.

4.1.5.1Muslims

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.

Occasion	Items
Marriage	Pahari, neichoru, biriyani, meat preparations
5th and 7th day of Demise	Kurry kurukkal
40th day of demise	Ghee rice and beef curry
Birthday	Meals with non-vegetarian items
Muharram	Wheat verakiyathu
Ramadan	Pathiri, ghee rice, biriyani
Noyambu thura	Kuzhal pathiri, unnakkaya, niracha pathiri, biriyani, ghee rice

The Muslim community often emphasizes a range of dishes during wedding celebrations. Typically, the feast served to guests at a wedding would include dishes like neichoru, pathiri, beef curry or other meat dishes, and biriyani. Following the marriage, a variety of dishes such as unnakkaya, pazhamnirachathu, mutta mala, mutta surukka, mutta marichathu, kozhi nirachathu, valayappam, tharippola, pinjanathappam, kalathappam, and various types of pathiri are prepared for the puthiyapla (bridegroom) at the puthiyapla salkkaram event hosted at the bride's house.

The Muslim community traditionally shaves their baby's hair on the 40th day after birth, and on this occasion, raw meat is given to close family members. Celebrating birthdays was common among wealthier families, who would often include meat dishes in their celebratory meals.

At the time of a family member's passing, kanji or cooked rice, along with one or two vegetarian curries, were served. On the seventh or fifteenth day after the death, a unique porridge called kurry kurukkuka, made out of raw rice flour and jaggery syrup, was prepared. On the 40th day, gheerice and beef curry were cooked and shared with close relatives and family members.

During Noyambu thura, which marks the end of the daily fast during Ramadan, a selection of traditional dishes such as jeeraka kanji, thari kanji, kuzhal pathiri, unnakkaya, niracha pathiri, aleesa, and kalathappam were commonly made and enjoyed.

During the Ramadan festival, Muslims celebrated by having a big meal in their homes with dishes like pathiri, neichoru, and biriyani, along with beef or mutton curry. Fried snacks were also made and shared among friends, family, and neighbors. Paalayikkappam and wheat verakiyathu were traditional foods enjoyed during the Muharram celebration.

4.1.5.2 Christians

Traditional foods prepared in connection with special occasions of the Christian community are presented in Table 10 :

Table 10 : Traditional food items prepared by Christians on special occasions.

Occasion	Items
Betrothal, Marriage, birthday,baptism,Holy communion	Traditional Christian non vegetarian sadya like Beef stew, beef ularthiyathu, pulissery, neichoru, fish molly, vindaloo, mappas, biriyani, paachoru
Death	Vegetarian meals, kanji

7th day after demise	Vegetarian meals, Vegetable stew, appam, steamed banana
40th day after demise Annual remembrance day	Beef ularthiyathu, meen pattichathu, chicken mappas
Easter	Appam, beef stew, beef cutlet, meen pattichathu, beef ularthiyathu, pulissery
Christmas	Appam, beef stew, thaaraavu mappas, fish molly
25th day of religious _vratha‘	Inderiyappam
40th day of religious _vratha‘	Paachoru
Festivals related to Church (perunnal)	Appam, Beef stew

To begin the betrothal function, paachoru was the first dish served, followed by appam and stew. A traditional Christian sadya with non-vegetarian dishes was then served. The night before the wedding, a dinner consisting of rice and botti, varutharacha curry, and puzhukku with plantain, yam and kavath was a customary practice. On the day of the wedding, paachoru, a traditional breakfast item, was served alongside a meat curry. Families from lower-income backgrounds often served kanji and beef ularthu. It was also common among the Christian community to serve avilosu podi, achappam and kuzhalappam along with paachoru on the wedding day.

On the wedding day, a traditional dish known as paachoru was served for breakfast along with a meat curry. Families of lower income groups would serve kanji and beef ularthiyathu. It was common among the Christian community to also serve avilosu podi, achappam, and kuzhalappam along with paachoru on the wedding day. Achappam, kuzhalappam, vattayappam, vellayappam, avilosu podi, and avilosunda were also commonly made for special occasions such as engagements and weddings to treat guests.

After the funeral of a family member, kanji was served to the family and relatives along with cowpea thoran and uppilittathu as side dishes. On the 7th day, a simple vegetarian meal was served to close relatives. Christian communities refrained from consuming non-vegetarian items like curd, ghee, milk, egg, butter milk, and liquor until the 40th day following the death.

Special dishes like kozhukkatta and peecham pidi were prepared for Palm Sunday and Osana perunnal. On Maundy Thursday, a porridge called paalu kurukku made with rice flour, jaggery, and sugar was cooked. Good Friday featured pesaha kurukku, a similar dish without sugar. Easter day included vattayappam and appam. During Christmas celebrations, homemade vattayappam, muttayappam, and vettappam were common, along with a non-vegetarian feast. The 25th day of the religious observance of ambathu noyambu featured inderiyappam, a special dish made of rice flour, coconut, and seasonings. On the 40th day, chakkara paachoru was prepared. Church festivals involved a variety of dishes like vattayappam, achappam, kuzhalappam, thamukku, velichenna appam, kaliyadakka, and vettappam.

Christian dietary practices are heavily influenced by the culinary traditions brought by the Portuguese, Dutch, and British (Rajashekhar, 2005). Abraham (2007) found a similar culinary pattern in the Sadya meal of Syrian Christians in Kerala. Jacob (2004) noted that dishes like chicken curry with fried grated coconut, beef ularthu with coconut pieces, smoked kudampuli in fish curry, and the use of garlic, ginger, and curry leaves were prominent items in Christian wedding feasts.

4.1.5.3 Hindus

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

Occasion	**Items**
Annaprasam	Ada appam, aval and malar in jaggery syrup, sadya
Birthday	Ada, appam, sadya
Marriage ,Namakaranam, Upanayam	Sadya
Death	Adiyanthira sadya
Shradham	Shradha sadya, Shradha kanji, shradha puzhukku
Onam	Sadya, ada, varuthupperi
Karthika	Ada, appam

Temple festivals	Unniyappam, kinnathappam, murukku, avilosu podi
Vishu	Sadya, Vishu kanji, Vishu katta
Uthradam	Ada, non-vegetarian meals
Karkkidakam	Navadhanya kanji, cheeda, thavidu ada
Karkkidaka vavu	Ada
Ekadasi	Gothambu kanji, chama kanji
Navarathri	Aval, malar, ada

During special occasions like marriage, puberty ceremony, first rice feeding, and birthdays, the Ezhava community traditionally serves a meal called sadya. The sadya typically includes rice, pulinkary, kutherissery, erupuli, olan, injipuli, and pickle. However, during a funeral, family members fast until the cremation, after which they receive kanji or black tea from a neighboring house. On the sixteenth day after the death, a ceremony called adiyanthiram is held, where a sadya similar to the one served during marriage is prepared, but without items like papadam, plantains, and payasam.

The classic Kerala sadya, a famous vegetarian feast, is typically served at weddings, naming ceremonies, sacred thread ceremonies, first feedings of solid food to infants, and birthdays.

Kerala Brahmins prepared ada as an offering to thrikkakkarayappan to celebrate the prime festival Onam in Kerala. Other items like rice flakes, karolappam, puffed rice, banana, and kadali pazham were also kept as naivedyam for the God, and later distributed among family members. The traditional feast, sadya, was prepared from Atham onwards, with the most elaborate sadya on the day of thiruvonam. During the month of Karkkidakam, the Ezhava community made tamarind seed unda, jackfruit seed chuttathu, mango kernel flour ada, njavara kanji, and marunnu kanji.

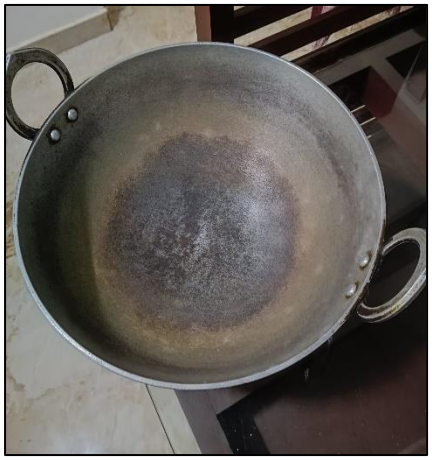
To mark Vishu, people usually make Vishu kanji or Vishu puzhukku with jackfruit as the main ingredient and have Sadya for lunch. Similarly, during Karthika, they make ada and appam as the special traditional dishes.

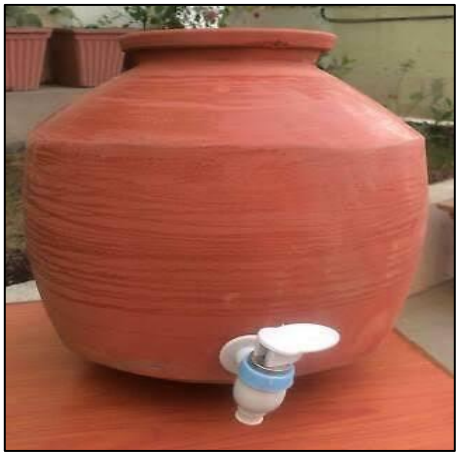
Hindus traditionally serve raw white rice known as kavyam during shradha sadya. Along with this, banana chips, bread fruit chips, and colocasia chips, all prepared without chillies, were also part of the meal. The dishes were cooked in brass or wooden vessels using ghee. Adapradhaman, made with jaggery and coconut milk, was always included in the shradha sadya. Appam and ada were commonly served at various Hindu festivities.

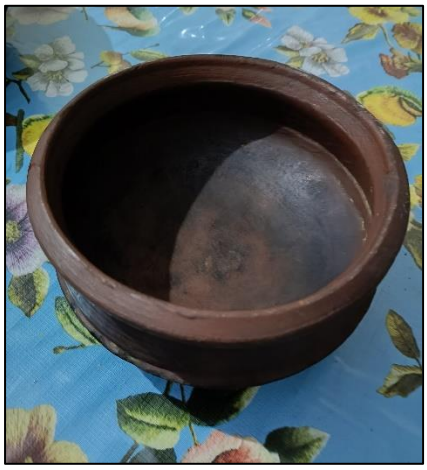
4.1.6 Traditional Kitchen Utensils

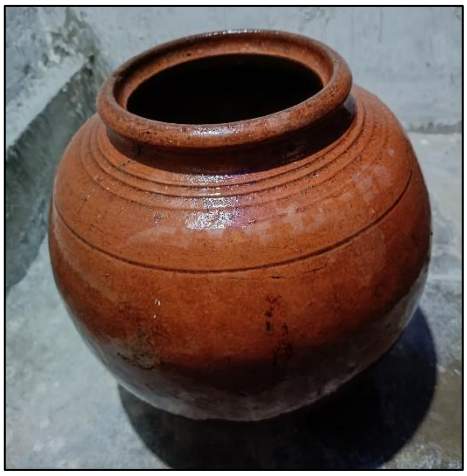
Table 12 : Traditional kitchen utensils and equipments

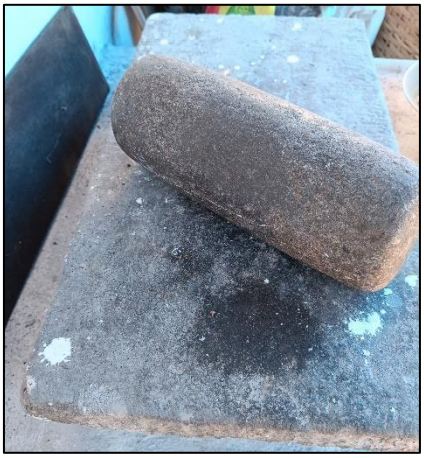
Sl. No	Utensils and Equipments	Purpose of Use
1.	Arakallu	For mashing and grinding
2.	Cheena chatti	Cooking and frying
3.	Kooja	For cooling water
4.	Bharani	For storage and fermentation
5.	Manchatti	For cooking
6.	Kal chatti	For preparing curries
7.	Chathakallu	For mashing











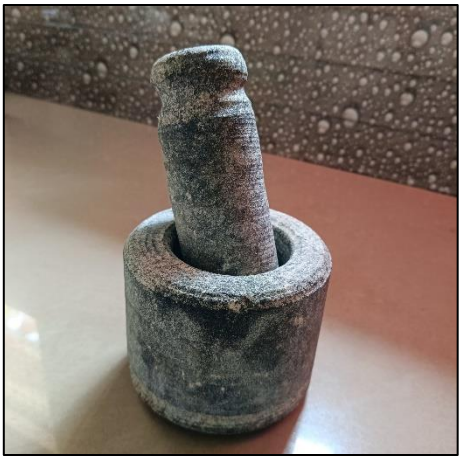


Plate 3: List of Traditional kitchen utensils and equipments

4.2 Nutritive value calculation of the traditional foods collected

Table 13. Nutritive value calculation of traditional food

Sl. No	Name of food	Energy (Kcal)	CHO (g)	Protein (g)	Fat (g)	Ca (mg)	K (mg)	P (mg)	Zn (mg)	Fe (mg)
1.	Asiad	202.74	20.2	17.26	5.17	35.25	553.9	201.4	2.35	1.66
2.	Chathurapayar thoran	165.67	9.34	6.81	10.93	193.18	537.08	88.47	1.1	6.46
3.	Kootu puzhuku	298.14	36.13	7.37	12.83	54.0	468.7	151.07	0.92	1.95
4.	Arikoon thoran	55.64	5.84	6.02	0.63	33.88	483.36	140.37	0.28	0.44
5.	Idiyirachi	157.25	-	22.6	7.38	5.86	3.66	215	3.56	2.3
6.	Vaadi snack	411.2	85.62	13.05	0.46	29.87	259.2	137.4	1.81	2.85
7.	Ellikutty Kozhi	258.34	10	28.76	12	38	539.8	225.73	1	1.5
8.	Kallapam	479.76	94.58	9.74	6.94	24	189.85	93	1.2	1.48
9.	Pidi kozhi curry	465.88	41.53	36.74	16.13	54	268.35	498.5	1.34	2.37
10.	Tharivattu snack	341.13	61.89	7.93	6.2	21.23	207.3	81.76	1.37	2.02

Macro nutrients and micro nutrients of 10 different traditional foods are mentioned here. Among these food items Kallapam has highest calorie (479.7 kcal) and the lowest one is Arikoon thoran (55.04 kcal). Almost all food items have sufficient amount of carbohydrates but the highest of these are Kallapam (94.58 g) and the lowest one is Arikoon thoran, Chathurapayar thoran and Ellikutty kozhi.

Highest protein content is noticed in Pidi kozhi curry (36.74g) and Ellikutty kozhi (28.76 g) and the lowest of these are in Chathurappayar thoran, Arikoon thoran and Tharivattu snack. Other traditional foods have a protein content between 6.02 to 36.74 g. As there are non-vegetable food

items ; so that all food items selected have enough amount of fat content present in it. Among these traditional foods the lowest fat content present in Vaadi snack and Arikoon thoran (0.46 and 0.63 g); and the highest is in Pidi kozhi curry (16.13 g).

Phosphorus content is mostly present in the Pidi kozhi curry (498.5 mg) and the lowest amount of it in Tharivattu snack (81.76 mg). Amount of zinc present in Idiyirachi is (3.56 mg). Another micronutrient is iron that mostly present among this food is in Chathurapayar thoran (6.46 mg). Lower amount is noticed in Arikoon thoran(0.44 mg).

5. SUMMARY AND CONCLUSION

The present study entitled – Documentation and Nutritive evaluation of traditional foods of kerala – idukki district was undertaken with the aim of identifying and collecting information on the regarding traditional foods and food habits of each community associated with relegious customs , festivals , special occasions, the ingredients and their methods of preperation. Idukki district was selected for the study Idukki is one of the 14 districts in the Indian state of Kerala in the southwest of the country. It is the largest district in Kerala and lies amid the Cardamom Hills of Western Ghats in Kerala. Idukki district contains two municipal towns – Kattappana and Thodupuzha, and five taluks.the respondents were categorised into different communities like Hindus , Muslims and Christians .

It was found that all respondents belong to Hindus preferred traditional foods because of its Health benefits. All respondents of Muslims and Christians are preferred traditional foods due to its taste and Health benefits. 85% of Hindus preferred due to its taste. 62.5 % of Christians, 80% of Muslims and 85% of Hindus preferred traditional foods as there was no Adulteration in it. Less expensive was one of the reasons for choosing traditional food for 12.5% Christians , 20% Muslims and 28.5% Hindus. 80% of Christians , 40% Muslims and 42.8% of Hindus are preferring it because of the Ingredients are locally available .It was reported that all respondents belonging to the Hindus who gave preference to Traditional foods indicated that they preferred traditional foods because of their health benefits and All the Christians and Muslims preferred traditional foods since they are very tasty. Most of the respondents Who preferred traditional foods indicated that they preferred traditional foods since they are not Adulterated. On collecting data on the frequency of preperation of traditional foods, it was found that that the majority of Christians (62.5%) cooked traditional foods every day, while 12.5% cooked them three times a week and 25% cooked them twice a week. Among Muslims who liked traditional foods, 60% cooked them daily and 40% cooked them three times a week. For Hindus, all those who preferred traditional foods cooked and ate them daily . On collecting the data of frequency of traditional health foods shows that half of the Christians who enjoy traditional foods sometimes make traditional health foods, while the other half never do. Similarly, 20% of the Muslims who like traditional dishes occasionally prepare traditional health foods, with the majority of 80% not doing so. Among Hindus who prefer traditional foods, 40% occasionally prepare traditional health foods, while 28.57% never do.

Since traditional eating customs were highly varied and these foods had a close relationship to religious and cultural traditions, it was also necessary to examine the eating habits of various populations on holidays, festivals, and ceremonies. The significant customary foods of Muslims on Special events included pinjanathappam, neichoru, beef curry kalathappam, pazham nirachathu, mutta mala, mutta surukka, mutta nirachathu, kozhi nirachathu, valayappam, tharippola, pinjanathappam, and many kinds of pathiri. Hindus traditionally consumed sadya, Vishu kanji, cheeda, ada, aval, unniyappam, murukku, and Vishu katta on special occasions. Traditionally, Christians would eat appam, beef stew, mappas, fish molly, vindaloo, paachoru, .

Hence, it can be concluded that even though there is a rich treasure of diversified traditional foods in idukki many of them are undergoing several changes. Transition and modification occurred in the traditional food habits and d pattern. In the present study, the documentation of traditional foods was done with an aim to protect these items from endangered, future work could be conducted to document, replicate and popularize rhe traditional foods of Idukki.

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APPENDIX

SEMI STRUCTURED INTERVIEW SCHEDULE TO ELICIT INFORMATION REGARDING TRADITIONAL FOODS OF IDUKKI

The following pattern of questions were used a Questionnaire to collect information on traditional foods recipes from various respondents of different communities which included Hindus, Christians and Muslims. The district in which interview took place was Idukki.

Questionnaire for Traditional Recipe

1.Name:

2. Age:

3. Sex: Male/ Female

4. Mostly used traditional preparations for breakfast?

…….

5.Mostly used food item for lunch/ dinner?

……

6. What are the snack that were used during your childhood?

……

7.What is the traditional recipe that you know or followed till now?

Snack/ Beverage/Others

8.How to prepare it?

……

……

……

……

……

9.Traditional food item used for special occasions?

……

10. Do you use any traditional food items for health care?

Yes/No

11. If yes, what is it? …….

12. How often do you prepare traditional healthy food?

(Occasionally/Never)

13. How do you keep seasonal food for long period without getting spoilage?

……..

14. What were the different dry products used for lunch/dinner?

[papads/vattals/vadakams/kondattams/others]

15. Do you make it from home?

Yes/ No

16. Do you had any traditional kitchen utensils/equipment‘s now?

…….

17. Are you using it now? If no, give reason.

……

18. Which type of food do you prefer mostly?

(Traditional/Non-traditional)

19. Major reasons for preferring traditional food?

(Healthy/Tasty/No adulteration/Less expensive/Ingredients are locally produced)

20. How often do you prepare the traditional food?

(Daily/Weekly thrice/Weekly twice)