



Local native indigenous edibles plants: Awareness and Consumption among the indigenous youth, Meghalaya

Dr. L. Dohtdong*, Daphibanbet Byrsat, and Badapjinieit Rhang*****

*Assistant Professor, *MSc Nutrition and Dietetics, and ***BA Nutrition and Health Education
Department of Nutrition and Dietetics, Martin Luther Christian University, Shillong

Abstract

Local native wild plants have sustained humanity for ages. They not only form a part of the food system but has a cultural history which are linked to people's local identity, pride and tradition. They not only ensure food and livelihood security for common people and a community but also forms a sustainable environmentally management system.

The food system of every community aims to remove hunger and ensure therapeutic care. Traditional food amongst the indigenous communities which are rooted to historical continuity is important as they contribute to food and nutrition security. Studies reveal that traditional food are nutrient dense and have medicinal-nutritional significance which can prevent malnutrition and other non-nutritional disorders. With urbanization, globalization and lifestyle transitioning, the traditional knowledge and information on the significance of traditional food are diminishing among the young indigenous generation in Meghalaya. Thus, a cross sectional study was undertaken to document the knowledge of indigenous youth on the medicinal purpose of traditional food. A total of sixty native plants and fruits was documented which form an important part of their food system. In conclusion, there is a need to retain, preserved and document the therapeutic contribution of the indigenous plants and fruits of Meghalaya, which would be resourceful for therapeutic care and instill among policy maker to include them for health and nutritional security.

Keyword: Indigenous plants, Knowledge, Consumption, Food.

Introduction

Indigenous people are the primary guardians of ancestral ecological knowledge with a distinctive culture, unique language, diverse knowledge system and beliefs, and possess invaluable knowledge of practices for the sustainable management of natural resources (Gosart, 2012). As a source of food, nourishment and livelihood, native and wild edible plants and fruits have been an integral part of the food system of indigenous people. When in season, they are not only available in abundance but in varieties. They also supply a good amount of nutrition which helps in fighting against micronutrient deficiency disease (Kayang, H, 2007).

Local indigenous foods are those food which are available locally, cultivated and consumed since generation, having environmental, social and cultural contribution to the food system (Kuhnlein and Receveur, 1996). They plays a significant role in contributing to the nutritional value, enhancing the diversity of the diet, and through food-based interventions can help in ensuring food and nutrition security for a sustainable livelihood. Bersamin et al., 2019, stated that local indigenous food not only improves the nutritional status, but foster the mental well-being, and the overall collective health of the community. However, over the past few decade, the consumption of such food are becoming unpopular and declining as a result of climatic changes, socioeconomic pressures and lifestyle transitioning which brought a shifting the dietary habits.

Meghalaya is one of the northeastern state in India, with 86.1% of the population belonging to the indigenous community, the Khasi, Jaintia and Garo community (Census 2011; Nongrum and Dohtdong, 2018). As reported by the Meghalaya Diversity Board, (2020), Meghalaya is blessed with rich biodiversity, medicinal and aromatic plants and diverse flora and fauna which are native to the state. For the indigenous people inhabiting Meghalaya, the local native plants and fruits forms an important source of food as they can easily avail them from the local market or forage from the forest. These local plants not only serve as food but they have long historical medical purposes (The Meghalayan, 2022). However, with modernization, change in the climate, and the upgrading of the food market system for convenience and processed food, there is a transitioning in the food habits and lifestyle among young adults. This has lead to reduce physical work hour, more screen time and increased consumption of convenience food with a decline in the knowledge on local foods and their usage and consumption habits.

Objectives

The objective of the study is to explore the knowledge, availability and consumption of native plants and fruits.

Materials and Methods

The present study was conducted among indigenous youth in the age group of 18 to 35 years residing in localities which are mostly habituated by the Khasi, the Bhoi and the Lyngngam communities as shown in Table 1.

Table 1: Selection of study area

District	Block	Village
East Khasi Hills	Myllichem	Myllichem
West Khasi Hills	Nongstoin	Nongpyndeng
Ri Bhoi	Bhoirymbong	Nongrim Nongladaw

The study area were purposively chosen as it is a suitable place for gathering information on the availability, consumption and promotion of local plants and fruits, as the localities are nearby to the community or clan forest, and the mostly seek destination for family outing and travelling.

Result & Discussion

A total of 120 youth participated in the study in which information on the knowledge, availability and consumption and usage of native plants and fruits was obtained through interview method using standardized questionnaire.

I. Background information of participants

The background information of the participants such as their age, religion, education and occupation is presented in Table 2.

Table 2: Background profile of participants (n=120)

Characteristic	Frequency	Percentage
Age		
18	14	11
19	18	15
20	16	13
21	15	13
22	18	15
23	13	11
24	11	9
25	15	13
Religion		
Traditional belief	47	39
Christian	73	61
Education		
Lower Primary	0	0
Primary	4	3
Secondary	8	7
Higher Secondary	17	14
Graduate	91	76
Occupation		

Students	56	47
Government sector	11	9
Private sector	24	20
Unemployed	29	24

All the participants for the study were in the age group of 18 to 25 years with equal distribution of male and female. It can be observed from the table that majority of the youth were Christian. In terms of education, 47% were still pursuing their education mostly in the graduate level; while the remaining 53% were either working in private or government sector or were unemployed.

II. Knowledge on identification of native plants and fruits

Not all native indigenous plants and fruits are edible as some can be poisonous as they might or contain harmful toxins which can harm the human body. For this study, the knowledge of indigenous youth on the native plants and fruits in regards to their identification and availability was seek and is shown in Table 3 and Table 4.

Table 3: Knowledge on the identification of the native plants and fruits

Identification	Frequency	Percentage
Generation	59	49
Community knowledge	32	27
Not aware	29	24

In regards to the identification of native plants and fruits, 96% of the participants were able to identify them. With 49% reporting that the information on their purity for consumption and usage has been passed on to them from their parents and elderly relatives. Additionally, 27% said it was through community knowledge as the residents in the community are consuming the available native plants and fruits, since they consider them safe for consumption. While only few of them were not able to identify the native plants and fruits.

III. Knowledge on availability of native plants and fruits

The forest of Meghalaya provides a large numbers of edible plants which contribute to the diet of people living near the forest or rural areas (Blah and Joshi, 2013). However, the accessibility of wild edible plants is limited and not easily available due to various compounding factors such as deforestation for a shift in agriculture practices and modernization, which has led to climate change; and a transitional shift of indigenous food practice towards “market food” to support the basic right for food of every human being with the uprising of population.

Table 4: Knowledge on the availability of the native plants and fruits

Availability	Frequency	Percentage
Local market	34	28
Local home garden	28	23
Forest	43	36
Others	15	13

From the data collected pertaining to the knowledge of the participants on the availability of the native plants and fruits, it can be seen that forest was the common place where such plants and fruits are often forage (36%), followed by the local community market (28%), local home garden (23%) and in few agriculture land (13%).

IV. Consumption of native plants and fruits

The wild edible plants are available in various ecosystem and agro-ecosystem, and they play a crucial role in the food systems to meet the nutritional needs of the body. As per Meghalaya State Medicinal Plants Board (MSMPB) there are 834 medicinal plant species that have been reported and they are used in many ways by different tribes inhabiting the states for traditional health care practices (The Meghalayan, 2022).

From the interview conducted and through the information received from the participants pertaining to the commonly consumed native plants and fruits, a total of sixty native plants and fruits were recorded with twenty eight local plants and thirty two local fruits. The taxonomical identification of the sixty native plants and fruits was determined, using secondary sources and literature such as the Botanical Survey of India, Indian Food Composition Table, Bio-Resource Developmental Centre and research article (Table-5).

Table 5: Identification of native plants and fruits

Local Names	Scientific Names	Common Name
Local plants		
<i>Dienglapong</i>	<i>Ficus hispida</i>	Roxburgh fig
<i>Duhaniakhlaw, kynbat ksuid</i>	<i>Eryngrum foetidum</i>	Wild coriander
<i>Khmut sim, jhur kthang</i>	<i>Lactuca Laevigata</i>	-
<i>Kynbatdkhiew</i>	<i>Oxalis corniculata</i>	-
<i>Jabuit</i>	<i>Polygonum muricatum</i>	Knotweed
<i>Jadasaw</i>	<i>Amaranthus viridus</i>	-
<i>Jahynwet</i>	<i>Brunella vulgaris</i>	-
<i>Jajewmaw, Diengjajew</i>	<i>Begonia roxburghii</i>	-
<i>Jalangiar</i>	<i>Sonchus olcoraceus</i>	Sow thistle
<i>Jalynnong</i>	<i>Polygonum chinense</i>	-
<i>Jamahek, Diengsoh karbam</i>	<i>Dillenia indica</i>	Indian catmon, Elephant apple
<i>Jamyrdoh</i>	<i>Houttuynia cordata</i>	Chameleon plant
<i>Jarain</i>	<i>Fagopyrum esculentum</i>	Buckwheat
<i>Jarem/ Sia-long</i>	<i>Clerodendron colebrookianum</i>	-
<i>Jarsong</i>	<i>Hibiscus sabdariffa</i>	-
<i>Jakyphuh</i>	<i>Polygonum Alatum</i>	-
<i>Jalong</i>	<i>Veronia altissimi folia</i>	Tall ironweed
<i>Jatalo, Kynbatjyrm</i>	<i>Eupatorium adenophorum</i>	Crofton weed
<i>Jatira</i>	<i>Coridals sibiricus</i>	Water celery
<i>Jaut</i>	<i>Allium schoenifolium</i>	Wild garlic
<i>Khlein syiar</i>	<i>Centilla asiatica</i>	Centella
<i>Thylliejmasi, thylliansang</i>	<i>Ficus cunea</i>	-
<i>Tyrkhang lieh</i>	<i>Cheilanthes albomarginata</i>	Fern
<i>Tyrkhang</i>	<i>Diplazium esculentum</i>	Fern
<i>Tyrsimkhleng, Tympiah khiew</i>	<i>Commelina diffusa</i>	Climbing day flower
<i>Skhorblang</i>	<i>Plantago major</i>	Water celery
<i>Slaweng, wangdop</i>	<i>Colocasia esculenta</i>	Colocasia, Yam leave
<i>Sohngang hati</i>	<i>Solanum torvum</i>	-
<i>Sying maw</i>	<i>Polygonatum oppositifolium</i>	-
Local fruits		
<i>Sohbel/sohmynthit</i>	<i>Aegle marmelos L</i>	Monkey fruit
<i>Sohiong</i>	<i>Prunus nepalensis</i>	Prunes
<i>Sohkhan, sohjaioar</i>	<i>Actinidia callosa</i>	-
<i>Sohkjit</i>	<i>Leucosceptrum canum</i>	-
<i>Sohkwit</i>	<i>Citrus macroptera</i>	-
<i>Sohkymphor</i>	<i>Citrus latipes</i>	Khasi Papeda
<i>Sohlang, Sohlangksew</i>	<i>Viburnum foetidum</i>	Wild berry
<i>Sohliang, Sohphailing</i>	<i>Gynocardia odorata</i>	-
<i>Sohlyngdkhur</i>	<i>Morus australis</i>	-
<i>Sohmatan, Sohmynreng, Sohmon</i>	<i>Meyna laxiflora</i>	-
<i>Sohma, sohmluh</i>	<i>Rhus chinensis</i>	Nutgail tree
<i>Sohniamtra</i>	<i>Citrus reticulate</i>	Khasi mandarin
<i>Sohniariang</i>	<i>Citrus sinensis</i>	-
<i>Sohot heh</i>	<i>Castanea sativa</i>	-
<i>Sohot rit, sohstap</i>	<i>Castanopsis indica</i>	-
<i>Sohphie</i>	<i>Myrica esculenta</i>	Bay berry
<i>Sohphie nam</i>	<i>Myrica nagi</i>	-
<i>Sohphlang</i>	<i>Flemingia procumbens</i>	-
<i>Sohpdok</i>	<i>Physalis peruviana</i>	Cape gooseberry
<i>Sohphoh Khasi</i>	<i>Docynia indica</i>	-
<i>Sohphoh heh</i>	<i>Docynia hookeriana</i>	-
<i>Sohphoh nongkhlaw</i>	<i>Pyrus communis</i>	-
<i>Sohpru, Sohparu, Sohprew</i>	<i>Rubus ellipticus</i>	Himalayan raspberry
<i>Sohkhawiong</i>	<i>Rubus niveus</i>	-
<i>Sohramdieng</i>	<i>Baccaurea sapida</i>	-
<i>Sohshang</i>	<i>Elaeagnus latifolia</i>	Silver berry
<i>Sohshang khlur, sohblor</i>	<i>Elaeagnus pyrifomis</i>	-
<i>Sohshan</i>	<i>Duchesnea indica</i>	-

<i>Sohshur</i>	<i>Pyrus pashia</i>	-
<i>Sohsullei</i>	<i>Antidesma bunius</i>	Wild cherry
<i>Sohthri</i>	<i>Calamus erectus</i>	-
<i>Sohpen</i>	<i>Eriosema sinense</i>	-

Most of the plants were identified using secondary source, however there are some fruits in which the common name were not found through secondary source. In regards to the consumption of the recorded native plants and fruits, it depends on the seasonal availability as shown in shown in Figure-1.

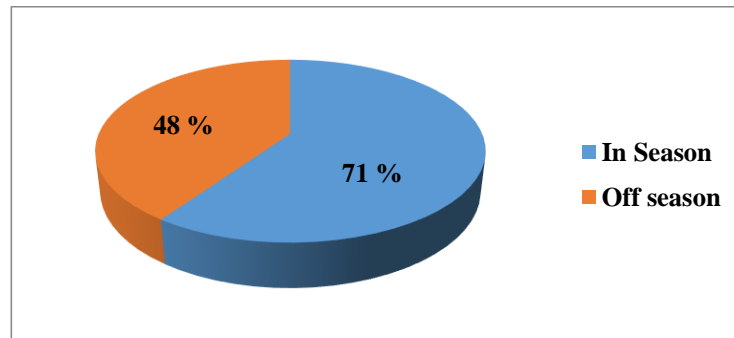


Figure1: Consumption of native plants and fruits

It can be seen that the consumption of the native plants and fruits is more when it is in season. The participants prefer to consume them in three forms, either eaten fresh as salad or whole foods or as a complimentary part of a dish; and as products such as powder, pickle, beverages; and fermented products. When in off season the consumption of such food is lower. However if consumed it is mostly in the fermented form or the one which was made into products.

From the twenty eight local plants identified by the participants, fifteen plants were commonly consumed in the local form as shown in Table-6.

Table 6- Forms of consumption of native plants and fruits

Name of wild ediblePlants	Parts used	Traditional preparation
<i>Dienglapong</i>	Tender leaves and fruits	Vegetable fry or soup and pickle
<i>Jadasaw</i>	Leaves	Curry
<i>Jatira</i>	Leave	Salad, Curry or Fry
<i>Jajewmaw</i>	Leaves	Curry
<i>Jamahek</i>	Leaves	Curry
<i>Jarem</i>	Tender leaves	Fried or boiled
<i>Jarain</i>	Leaves	Curry
<i>Jatalong</i>	Leaves	Fry
<i>Tyrkhang</i>	Leaves	Curry and fry
<i>Khlein syiar</i>	Leaves	Salad
<i>Khmut sim</i>	Leaves and flower	Salad
<i>Kynbatdkhiew</i>	Leaves	Curry
<i>Skhorblang</i>	Leaves	Chutney, salad
<i>Sohngang hati</i>	Fruit	Curry, salad, chutney
<i>Wangdop</i>	Leaves and stem	Curry

The participants were dependent on the family member such as their aunt, mother or grandmothers for the preparation of local dish, since they have limited information on the preparation techniques. When prepared the native plants were eaten either along with the main meals or as a side, complimentary dish. The participants reported that the fruits were mostly eaten in different ways depending on the kind of fruits if ripe or unripe. Mostly the fruits were either eaten as whole in the fresh form or eaten as chutney and pickles, or mixed in salad, and are made into juices.

Conclusion

The present study shows that, the indigenous youth still having information on the availability and the usage of native plants and fruits. For the knowledge on the identification of such foods, most of them rely on oral knowledge which is passed through generations, and collective information from the community. Foraging

such food from the forest and purchasing from the local weekly market are the main methods which can be available. While also, cultivating them in the local garden and agriculture land have benefited to the ease in availability of such food. The consumption of such food among them is not a common practice due to the unavailability and ignorance in the methods of preparation. The availability and the usage of such foods in the near future will be depleting if preservation, promotion, nutrient analysis and documentation on the plethora benefits of such foods to mankind for achieving overall sustainable growth and development is not considered. Thus, there is a need to preserve, cultivate and promote on consumption of such foods among youth and the younger generation, to preserve the food culture of the indigenous community; to build the nutritional profile of the community; and to improve livelihood through the cultivation and marketing such food to other regions.

References

1. Bersamin, A.Izumi, B.T. Nu, J. O'brien, D.M. and Paschall, M. 2019. Strengthening adolescents' connection to their traditional food system improves diet quality in remote Alaska Native communities: results from the NeqaElicarvigmun Pilot Study. *Translational behavioural medicine*, 9(5): 952-961. <https://doi.org/10.1093/tbm/ibz087>
2. Bio-Resource Developmental Centre, Wild Edible Fruits of Meghalaya.
3. Blah, M.M. and Joshi, S.R. 2013. Nutritional content evaluation of traditional recipes consumed by Ethnic communities of Meghalaya. *Indian Journal of Traditional Knowledge*, 12 (3): 498-505.
4. Census of India. 2011. Meghalaya profile, https://censusindia.gov.in/2011census/censusinfodashboard/stock/profiles/en/IND017_Meghalaya.pdf
5. Gosart. U. 2012. Indigenous Peoples: Attempts to Define, 87-116. DOI:10.13140/2.1.5065.3125
6. Kayang, H. 2007. Tribal knowledge on wild edibles plants of Meghalaya Northeast India. *Indian Journal of Traditional Knowledge*, 6(1): 177-181.
7. Kuhnlein, H.V. and Receveur, O. 1996. Dietary change and traditional food systems of indigenous peoples. *Annual review of nutrition*, 16: 417-442. <https://doi.org/10.1146/annurev.nu.16.070196.002221>
8. Meghalaya Biodiversity Board. 2020. Annual Report <https://megbiodiversity.nic.in>
9. The Meghalayan, 2022. Five medicinal plants in Meghalaya. The Meghalayan Bureau September 29, 2022 <https://themeghalayan.com/five-medicinal-plants-in-meghalaya/>
10. Nongrum, M.S., and Dohtdong, L. 2018. Changes in the consumption of traditional food among the Khasi and Jaintia people in rural Meghalaya, India. *International Journal of food and nutritional sciences*, 7(3): 105-110. <https://www.researchgate.net/publication/327051676>

