

# TRADITIONAL FOOD SYSTEM AND DIET INTAKE PATTERN OF THE BORO KACHARI TRIBE OF ASSAM, INDIA

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## Abstract

This paper studies the traditional food system of the Boro Kachari tribe of Kamrup and Goalpara district of Assam, India. Agriculture is the primary occupation of the Boro Kachari tribe. In addition to the paddy cultivation, they also cultivate other food items that include varieties of pulses, vegetables, fruits, roots and tubers, both for consumption and business. The meal pattern of the Boro Kachari tribe is three meals a day i.e. *breakfast*, *lunch* and *dinner*. Like other tribes of Assam, Rice is their staple food and is usually savoured by a non-vegetarian dish like fish or pork. The Boro women folk prepare a number of traditional mouth watering delicious cuisines. A total of more than 82 leafy green vegetables, vegetables and root & tubers have been found in the study that are consumed by Boro Kachari tribe round the year. The tribe also consumed 11 species of edible insects or their products. Degradation of the environment, lack of traditional knowledge among the young generation, increased availability of conventional foodstuffs, rapid population growth have collectively affect diversity, abundance and use of traditional food items. Through this paper, a small effort has been made in providing written record about the traditional foods and diet intake pattern of the Boro Kachari tribe.

## Keywords

Traditional food system, diet intake pattern, leafy vegetables, roots and tubers, edible insects.

## INTRODUCTION

The food and diet of the different ethnic has unique traditional food habits, which varies from one cultural group to another. Traditional foods may be defined as those foods which originate from local plant or animal resources through gathering and harvesting and these foods also bear cultural meaning (Earle L, 2002). Traditional food system of indigenous tribes contains treasures of knowledge that have evolved over generations through continuous interactions of their cultures with local ecosystem (Kuhnlein, 2009). Many factors affect the food habits and these may include culture, geographical location, the health and lifestyle of an individual, their religion, social, and economic factors among other things (Bellisle, 2012). The food patterns of a particular community are directly influenced by local concepts and traditions. Availability of foodstuffs also directly influences the dietary habits of people. Besides these, economic structure of the respective places also determines the dietary practices of the region, because purchasing power plays an important role in deciding the food stuffs bought for eating. Easily available foodstuffs first become a part of the diet of any region. The traditional food stuff of the Bodo Kachari, which is the largest schedule tribe of Northeast region is very exceptional and considered healthy and nutritious. Traditional foods besides being considered healthy are also palatable, at least the majority of them. Most of the indigenous groups living in both developed and developing countries are now subjected to life style and nutritional transition phase, causing severe threat to indigenous food system. A neglect of traditional food (TF) systems is related to nutrition transition marked by an increased consumption of unhealthy processed foods and significant lifestyle changes such as inadequate time for meal preparation (Bhurosy et al, 2016). It is observed that due to rapid development and modernization, the dietary pattern of people is fast changing and is posing threat to both traditional foods and the traditional knowledge required for traditional maintenance of the food system (Bhat, 2012). At the same time, indigenous people face potential loss of this knowledge due to lack of use by younger generation of the society and gradual loss of elder people who know the best use of these knowledge soon. In this paper, an attempt has been made to study the traditional food system and diet intake pattern of the Boro Kachari tribe of Kamrup and Goalpara district of Assam, India.

The Boro Kachari tribe is the largest tribe not only of Assam but also of Northeast India. They are mainly concentrated in the districts of Kokrajhar, Bongaigaon, Baska, Chirang, Udalguri, Darrang, Sonitpur, Kamrup and Goalpara. Besides these, they are also scattered over in some parts of Karbi Anglong, Marigaon, Golaghat and Dhemaji district of Assam. In Goalpara district they are mostly concentrated in the villages of Dudhnoi, Rangjuli, Matia and Lakhipur revenue circles. Racially and ethnically, they belong to Indo-Mongoloid racial stock and speak language of Tibeto-Burman linguistic group. More than ninety per cent of the people are engaged in agriculture for their source of livelihood and practiced all kinds of cultivation and farming. Besides paddy cultivation, they also cultivate pulses, vegetables, banana, pineapple, ginger, areca nut, etc. for both consumption and business purposes. Pig and poultry farming, silk worm rearing are also not rare among the tribe.

## RESEARCH METHODS AND METHODOLOGY:

The study was carried out in Goalpara and Kamrup districts of Assam, covering six villages, predominantly inhabited by the Boro Kachari tribe. The data were collected through a combination of tools and techniques of questionnaire, focused groups and interview. Ethno botanical survey with respect to ethnic foods was carried out during June-July, 2016. The region was frequently visited to assess the traditional knowledge of wild edible plants, fruits, insects, birds, etc. Frequent interactions and discussion with local villagers, housewives and children

were carried out. Live specimen and photographs were shown to them for local identification. The food items were preserved and identified with the help of available scientific literature. In this regard, help from internet were also taken to confirm the identification process. Focused group discussion will be adopted to discuss complex issues like processing variation, methodology of traditional foods preparation, sources of collection of indigenous materials, etc.

The diet survey was conducted in the families of the selected villages through the oral questionnaire method. For diet survey, particularly, 24 hour recall method for 3 days in a sample of 30-50 household was adopted. Random sampling procedure was adopted to assess the food and nutrient intakes of all the selected individuals who had taken meals on those three days. The respondent is asked to recall and report all foods and beverages consumed in the previous 24 hours. To determine the consumption level of the people, a brief list of data and information is prepared on the basis of number of the members of the family, occupation, total consumption of food stuffs by the family on the previous day, consumption of vegetables and fruits, consumption of milk, sugar, molasses, etc., dietary habits, methods of cooking, availability of food, and economic, social, religious factors and customs.

## RESULT AND DISCUSSION

**Table No 1: Distribution of respondents by occupation**

Occupation	Number of families	Percentage
Cultivation	234	78
Business	21	7
Manual works	9	3
Government service	15	5
Private service	12	4
Self-employed	9	3
Total	300	100

Table 1 reveals that out of 300 respondents, 78 per cent of the families are primarily dependent on the agricultural practices. The rest 22 per cent of are engaged in business activities, government and private services, wage labours, and business activities. The study has found that the majority of the Boro Kachari families are primarily dependent on agricultural activities. Thus, the whole livelihood of this tribe, including the food system is primarily based on agriculture.

**Table No 2: Meal pattern of the Boro Kachari families**

Meals	Type of Meals	Number of families	Percentage
<b>Breakfast</b>	<b>Rice</b>	295	98.33
	<b>Chapatti</b>	5	2.77
<b>Lunch</b>	<b>Rice</b>	300	100
<b>Dinner</b>	<b>Rice</b>	300	100.00

Table No 2 shows that 98.33 per cent of the families eats rice (boiled), while only 2.77 per cent eats chapatti (roti) in their breakfast. The table also shows that 100 per cent of the families' intake rice in their lunch and dinner. Thus, the above table clearly reveals that rice is the staple food of the tribe. Very rarely, they used to take chapatti, prepared by atta bought from markets.

The table no 3 has found that a total of 82 vegetables (leafy green vegetables, vegetables and root & tubers) are consumed by Boro Kacharis along with rice. The table indicates that wide varieties of leafy vegetables are consumed by the Boro Kachari tribe. The most common leafy vegetables of Boro Kachari kitchen is the Rossale plants (Sc.name: *Hibiscus sabdariffa*; Ass.Name: Tenga mora; Bd. Name: Mesta tenga ). Other common vegetables eaten by the Boro Kachari are Mustard green ( Sc.Name: *Brassica juncea* (L.Name: Lai Xaak), Green Amarnath (Sc.Name: *Amaranth viridis*; L.Name: Khuduna), Malabar spinach ( Sc.Name: *Basella alba*; L.Name: Maifrai), Asiatic penny wort (Sc. Name: *Centella asiatic*; Ass: Manimuni;Bd: Monbir), Sichuan pepper (Sc.Name: *Zanthoxylum spp*; L.Name: Mejenga), Skunk vine ( Sc.Name: *Paedenia foetida*; L.Name: Khibi Lewa), Sorel leaf (Sc.Name: *Rumex acetos*; L.Name: Suka xaak), Amarnath leaves ( Sc.Name: *Amaranth caudatus*; L.Name:Datha), Sessile joyseed (Sc.Name: *Alternanthera sessilis*;L.Name: Mati Kanduri), White goose foot (Sc.Name: *Chenopodium album*; L.Name Jhilmil), Yam leaves( Sc.name: *Colocasia*;L.Name:Thaso), Heart leaves (Sc.Name: *Houttuynia cordata*; Ass: Musondori; Bd: Maisundri), Curry leaf (Sc.Name: *Murraya koenigii*; L.Name: Naroxinghor paat), *Antidesma acidum* (L.N: Lapha xaikho),

Table 3: Vegetables used by Boro Kachari tribe of Goalpara and South Kamrup, Assam

Sl.No.	Botanical name	English name	Vernacular name
1	Abelmoschus esculentas.	Ladies finger	Bhendi (Ass)
2.	Agaricus biosporus	Mushroom	Kaatphula (Ass) Nikhum (Bd)
3.	Alocasia macrorrhiza	Yam	Kola Kochu (Ass)Thaso (Bd)
4.	Alocasia indica	Giant taro	Maan Kochu(Ass)
5.	Alocasia odora	Night scented lily	Dudh Kochu (Ass)
6.	Alpinia allughas	Sessile joyseed	Tora Gojali (Ass) Tharai (Bd)
7.	Alternanthera sessilis	Amaranth leaves	Mati kanduri (Ass)
8.	Amaranth caudatus	Amaranth leaves	Moricha (Ass)Datha (Bd)
9.	Amaranthus viridus	Green amaranth	Khutura (Ass) Khuduna (Bd)
10.	Amorphophallus paeoniifolius	Elephant foot yam	Wool kochu (Ass) Alodhar (Bd)
11.	Antidesma acidum	Margosa leaves	Lapha xaak (Ass)Lapha saikho (Bd)
12.	Azadirachta indica	Indian lilac	Neem paat (Ass)
13.	Bacopa monnieri	Water hyssop	Brahmi xaak (Ass)
14.	Bambusa balcooa Roxb.	Bamboo spp	Bhaluka bah(Ass)
15.	Bambusa tulda Roxb	Bamboo spp	Jati bah (Ass)
16.	Bassella alba	Malabar spinach	Ranga puroi (Ass)Maifrai (bd)
17.	Bauhinia veriegata	Mountain ebony	Kharmang (Bd)
18.	Benincasa hispida	White gourd	Kumura (Ass)
19.	Bidens pilosa	Cobbler peg	Deumeubei (Bd)
20.	Boerhavia diffusa	Red spiderling	Purnanava (Ass)Laije (Bd)
21.	Brassica juncea	Mustard green	Bondha Kobi (Ass)
22.	Brassica oleracia boxtrytis	Cauliflower	Phul kobi (Ass)
23.	Brassica oleracia capitata gr.	Cabbage	Bandha kobi (Ass)
24.	Brassica oleracia gongylodes	Knol knol	Ulkobi (Ass)
25.	Cajanus cajan	Pigeon pea	Rahor dial (Ass)
26.	Calamus tenuis	Rattan palm	Bet gaas(Ass)Garla bitha (Bd)
27.	Canna indica	Canana lily	-
28.	Canica papaya	Papaya	Amita (Ass) Madhuphal (Bd)
29.	Centella asiatica	Asiatic pennywort	Manimuni (Ass) Monbir (Bd)
30.	Chenopodium album	White goosefoot	Jhilmil(Ass)
31.	Clerodendrum colebrookianum	East Indian glory bower	Nephaphu (Ass) Lukhna biphang (Bd)
32.	Colocasia leaves	Yam leaves	Kochu paat (Ass)
33.	Costus speciosus	Crepe ginger	Jam lakhuti (Ass) Burhi thokon (Bd)
34.	Cucumis sativas	Cucumber	Teoh (Ass) Thaiheng (Bd)
35.	Cucurbita maxima	Pumpkin	Ronga lao (Ass) Jagannath (Bd)
36.	Daucus carota	Carrot	Gajor (Ass)
37.	Dioscorea alata L	Purple yam	Wool Kochu (Ass)
38.	Dillemia indicalinna vera	Elephant apple	Oao tanga (Ass) Thaigiri (Bd)
39.	Diplezium asperum	Fern	Dhekia xaak (Ass)
40.	Drymaria cordata	Kissing cousin chickweed	Laijabori (Ass) Jabshri (Bd)
41.	Enhydra fluctuans L	Helench	Helochi xaak
42.	Eryngium foetidum	Long coriander	Maan dhoniya (Ass)
43.	Garcinia mangostama	Mango steen	Thekera (Ass)
44.	Habiscus subdariffa	Roselle plant	Tengamora(Ass) Mesta tenga(Bd)
45.	Hottuynia cordata	Heart leaf	Mosundori (Ass) Maisundri (Bd)
46.	Ipomoea aquatic	Water spinach	Kolmao (Ass) Mande kharmang(Bd)
47.	Ipomoea batatas	Sweet potato	Meetha aloo (Ass)
48.	Lablab purpureus	Indian bean	Urohi
49.	Lagemaria siceraria	Bottle gourd	Jati Lao
50.	Lens culinaris	Lentil	Mosur mah
51.	Leucas aspera Spreng	Thumbai	Duron bon
52.	Luffa acutangula	Ridge gourd	Jika
53.	Luffa aegyptiaea	Sponge gourd	Bhool
54.	Manihot utillissima	Manioc	Satmul
55.	Mentha arvensis	Mint	Podina
56.	Momordica charantia	Bitter gourd	Tita kerela (Ass)
57.	Momordica dioica	Teasle gourd	Bhaat kerela (Ass)
58.	Moringa oleifera	Drumstick	Sajina (Ass)
59.	Morus speedus	Mulberry	Noni (Ass)

60.	<i>Murraya koenigii</i>	Curry leaf	Naroxingho (Ass)
61.	<i>Musa spp.</i>	Banana stem	Kolposola(Ass)
62.	<i>Musa splendid</i>	Curry banana	Kas kol (Ass)
63.	<i>Nelumbo species</i>	Lotus	Padum phool (Ass)
64.	<i>Nyctanthes arbortristis</i>	Night flowering jasmine	Xewali phool(Ass)
64.	<i>Paedonia foetida</i>	Skunk vine	Bhedailota(Ass) Khibi lewa(Bd)
65.	<i>Pisus sativum</i>	Split pea	Motor maah(Ass)
66.	<i>Polygonum caespifosum</i>	Oriental lady's thumb	ModhyuXaleeng(Ass)
67.	<i>Portulaca oleracea</i>	Little hogweed	Malbhug Khutura (Ass)
68.	<i>Raphanus sativus</i>	Raddish	Mula (Ass)
69.	<i>Rumex acetosa</i>	Sorrel	Suka Xaak (Ass)
70.	<i>Sechium edule</i>	Chayote	Squas(Ass)
71.	<i>Solanum indicum</i>	Poison berry	Bhekuri tita (Ass) Kunthai (Bd)
72.	<i>Solanum melongena</i>	Egg plant	Bengena (Ass)
73.	<i>Solanum tuberosum</i>	Potato	Aloo (Ass)
74.	<i>Tamarindus indica</i>	Tamarind	Tateli (Ass)
75.	<i>Trapanatrum</i>	Water chestnut	Singra kata (Ass)
76.	<i>Trichosanthes cucumerina</i>	Snake gourd	Dhundhuli (Ass)
77.	<i>Trichosanthes dioica</i>	Pointed gourd	Potol(Ass)
78.	<i>Trigonella foenumgraecum</i>	Fenugreek greens	Methi Xaak (Ass)
79.	<i>Vigna mungo</i>	Urad beans	Matimah(Ass) Mati kalai (Bd)
80.	<i>Vigna unguiculata sesquipedalis</i>	Yard beans	Lesera (Ass)
81.	<i>Zanthoxylum piperitum</i>	Sichuan pepper	Mejenga (Ass)

N.B: (Ass), and (Bd) indicates local name in Assamese and Boro, respectively.

*Polygonum caespifosum* (L.Name : Modhu saleng), *Solanum indicum* (L.Name: Kunthai), *Leucas aspera* Spreng (L.Name Drone Xaak), *Ipomoea aquatica* (Eng: Water spinach;Ass : Kolmow Xaak; Bd: Mande maigong), *Calamus tenuis* (Ass: Bet Gaas, Bd: Garla bitha), *Bauhinia variegata* (L.Name; Kharmang), *Bidens pilosa* (L.Name : Deumeubei), *Boerhavia diffusa* (Bd: Laije), *Clerodendrum colebrookianum* (Ass: Nephaphu; Bd: Lakhna biphang), *Costus speciosus* (Ass: Jam Lakhuti; Bd: Burhi thokon), *Diplezium asperum* BI (Ass: Dhekia xaak), *Drymaria cordata* (Ass: Laijabori; Bd: Jabshri), *Nelumbo species* (Eng: Lotus; Ass: Kamal), etc. The most favoured pulses among them is *Vigna mungo* or black gram (Local name: Mati Kalai). *Dolichos biflorus* or Kulti (Local name: Kulti) is the other pulses which are locally grown for consumption. The other pulses occasionally eaten are *Lens culinaris* (Lentil), *Cajanus cajan* (Rahor dal), etc. that are bought from the markets. Salt and turmeric are used as condiments to increase the taste and delicacy.

The table also reveals the roots and tubers that are most commonly found its place in Boro Kachari diet. Beside potato, other roots and tubers they consumed are *Alocasia cuminata* (E.Name: Yam Bd: Thaso), *Alocasia indica* (Ass: Maan Kochu), *Alpinia nigra* (Bd: Tharai), *Amorphophallus paeoniifolius* (Ass: Wool kochu), *Ipomoea batatas* (E.Name: Sweet potato; L.N: Meetha aloo), *Dioscorea alata* L (Ass: Kath alu) etc. Other common vegetables are *Abelmoschus esculentas* (E.Name: Ladies finger; L.Name : Bhendi), *Benincasa hispida* (E.Name: White Gourd; L.Name: Kumura), *Brassica oleracea botrytis* (E.Name: Cauliflower; L.Name : Phul kobi), *Brassica oleracea* (E.Name: Cabbage; L.Name: Ul Kobi), *Cucumis sativus* (E.Name: Cucumber; L.Name: Teoh), *Cucurbita moschata* (E.Name: Pumpkin; L.Name: Jagannath), *Daucus carota* (E.Name: Carrot; L.Name: Gajor), *Lagemaria siceraria* (E.Name: Bottle gourd; L.Name: Jati Lao), *Luffa acutangula* (E.Name: Ridge gourd; L.Name: Jika), *Luffa aegyptiaca* (E.Name: Sponge gourd; L.Name: Bhoor) *Momordica charantia* (E.Name: Bitter gourd; L.Name: Bhaat Kerala), *Teasle gourd* (Sc. Name: *Momordica dioica*), *Pointed Gourd* (Sc. Name : *Trichosanthes dioica* ;L.Name: Potol), *Snake gourd* (Sc. Name : *Trichosanthes cucumerina* ;L.Name: Dhundhuli), *Drum stick* (Sc. Name: *Moringa oliefera*; L.Name: Sajina), *Curry banana* (Sc. Name: *Musa Splendid*; L.Name: Kas kol), *Split Pea* (Sc. Name: *Pisus sativum*; L.Name: Motor mah), *Raddish* (Sc. Name: *Raphanus sativus*;L.Name: Mula), *Chayote* (Sc. Name: *Sechium edule*;L.Name: Squas), *Brinjal* (Sc. Name: *Solanum melongena*;L.Name: Bengana), *Yard beans* (Sc.Name: *Vigna unguiculata sesquipedalis*, L.Name: Lasera), *Mushroom* (Sc.Name: *Agaricus biosporus*; L.Name: Nikhum), etc. Banana stem and bamboo shoot are two most important ingredients of Boro Kachari diets.

The above table no 4 has found 28 numbers of edible fruits among the tribe. Some of the common edible fruits found among the Boro Kachari tribe are *Artocarpus heterophyllus* (E.Name: Jackfruit; Bd: Khantal), *Aegle marmelos* (E.Name: Wood apple, Ass: Bel), *Averrhoa caranbola* (Eng: Star fruit; Ass : Khordoi), *Annas comosus* (Eng: Pineapple; Ass: Mati Kathal), *Baccurea sapida* (Eng: Lanthal; Ass: Leteku), *Carica papaya* (Eng: Papaya; Bd: Madhuphol), *Citrus sinensis* (Eng: Orange; Ass: Kamala), *Citrus maximum* (Eng: Big citrus fruit; Ass: Rebab tenga), *Citrus lemon* (Eng: Assamese lemon ;Bd: Karji mikhi), *Emblia officials* (Eng: Indian gooseberry; Bd: Amlai), *Eugenia jamblana* (Eng: Java plum), *Flacourtica jangonus* (Eng: Governor's plum), *Musa paradisiaca* (Eng: Bananana; Bd: Thali), *Punica granatum*

Table No 4: Some of the local wild edible fruits of Boro Kachari tribe

Sl. No.	Botanical name	English name	Vernacular name
1.	Aegle marmelos	Wood apple	Bel (Ass)
2.	Annas comosus	Pineapple	Mati kathal (Ass)
3.	Anona reticulata	Custard apple	Atlos (Ass)
4.	Areca catechu	Arecanut	Tamul (Ass) Goya (Bd)
5.	Artocarpus heterophyllus	Jack fruit	Kathal (Ass) Kanthal (Bd)
6.	Averrhoa caranbola	Star apple	Kordoi (Ass)
7.	Baccurea sapida	Latkan	Leteku (Ass)
8.	Carica papaya	Papaya	Omita (Ass) Madhuphal (Bd)
9.	Citrus aurantifolia	Mexican lime	Gul nemu(Ass)
10.	Citrus indica	Indian wild orange	Jora tenga (Ass)
11.	Citrus sinensis	Orange	Kamala (Ass)
12.	Citrus lemon	Assamese lemon	Nemu tenga (Ass)
13.	Citrus maximum	Big citrus fruit	Karji Mikhi (Bd) Rabab tenga (Ass) Jambura tenga(Bd)
14.	Cocus nucifera	Coconut	Narikol (Ass)
15.	Dillenia indica linnvera	Elephant apple	Outenga (Ass) Thaigiri (Bd)
16.	Emblica officinalis	Indian gooseberry	Aam lakhi (Ass) Aamlai (Bd)
17.	Eugenia Jamblana	Java plum	Jamu (Ass)
18.	Flacourtia jangonus	Governor's plum	Poniol (Ass)
19.	Mangifera indica	Mango	Aam (Ass)Thaiju (Bd)
20.	Musa paradisiaca	Banana	Kol (Ass) Thali (Bd)
21.	Punica granatums	Pomegranate	Dalim (Ass)
22.	Prunus domestica	Plum	Nora bogori(Ass)
23.	Psidium guajava	Guava	Madhuriaam (Ass) Sumpreng (Bd)
24.	Garcinia cowa roxb	Cowa	Kuji thekera (Ass)
25.	Garcinia pedunculata Roxb	Garcinia	Bor thekera (Ass)
26.	Terminalia chebula	Yellow myrobalan	Silikha (Ass) Chilikha (Bd)
27.	Spondias pinnata	Wild mango	Amora (Ass)
28.	Syzygium jambos	Malabar plum	Golapi jamu (Ass)

(Eng:Pomegranate: Ass: Dalim), *Dillemia indica linnvera* (Eng:Elephant apple; Bd:Thaigiri), *Psidium guajava* (Eng: Guava; Bd: Supran), *Prunus domestica* (Eng:Plum), *Garcimeia cowaroxb* (Eng: Cowa; Ass: Kuji thekera), *Terminalia catappa* (Eng: Tropical almond;Ass: Silikha; Bd: Chilikha), *Spondias pinnata* (Eng : Wild Mango, Ass: Amra), *Morus alba* (Ass: Nuni; Bd: Bongphang rakhep), *Artocarpus incisa* (Eng: Bread fruit: Ass: Thekera), *Cocus nucifera* (Eng: Coconut: Ass: Narikol), *Mangifera indica* (Eng: Mango: Bd: Thaiju),etc.

Table No 5: Some of the wild edible insects by the Boro Kachari

Sl. No.	Scientific name	English name	Boro name
1.	Anthera assamensis	Silk worm	Muga polu
2.	Apis dorsata	The giant honey bee	Borol
3.	Apis florae	Red dwarf honey bee	
4.	Apis mellefera indica	Honey bee	Moa
5.	Bombyx mori	Mulberry silkworm	Patpolu
6.	Lethocerus indica	Giant waterbug	Jebangkori
7.	Thermonectus sp.	Diving beetle	Tel poka
8.	Lethocerus sp.	Water beetle	Japi poka
9.	Oxya hylahyla	Grasshopper	Foring
10.	Gryllotalpa gryllotalpa	Cricket	Wichinga
11.	Myrmica rubra	Red ants	Aamloi
12.	Samia ricinii	Eri silkworm	Eri polu

The study has found that there are 12 species of edible insects among the Boro Kachari tribes. These edible insects are *Antheraca assamensis* (Muga Silkworm), *Philosmia ricini* (Eri silkworm), *Apis dorsata* Giant honey bee), *Apis florae* *Bombyx mori* (Mulberry silkworm), *Cybister confuses* (Diving Beatle), *Lethocerus indicus* (Water beetle), *Oxya hylahyla* (Grasshopper), *Acheta domestica* (Field crickets), *Myrmica rubra* (Red ants), *Vespa orientalis*, etc.

## Discussion

Agriculture is the primary occupation of the Boro Kachari tribe. In addition to the paddy cultivation, they also cultivate other food items that include varieties of pulses (mainly Bengal gram and Kulthi), vegetables, fruits, roots and tubers, both for consumption and business. Each and every family has a kitchen garden, where various kinds of vegetables, roots and tubers are grown for consumption. Besides these, as the villages are located mostly near forest areas, they collect (mostly by women) various uncultivated green leafy vegetables and wild fruits for consumption. These food items are rich sources of energy, protein, minerals and vitamins. Pig and poultry rearing are widely practiced by the Boro Kachari families. Fishing in nearby rivers, ponds and lake is very common scenario, because they are not only fond of fishes, but also of many insects found in water, including crab. Thus, the traditional food system of the Boro Kachari is mainly dependent on the agricultural products that they produced, the wild vegetables, roots and tubers they collected from nearby forest and areas, the meat and fishes they collected by rearing, hunting or by fishing. However, some of the food items are brought from the shops and market.

The study has found that very few families are habituated to drink morning tea, which is mainly black tea. Even the small children are used to take black tea. Though milk consumption is almost absent among the young and adults, it is provided to the children, where it is available. The meal intake pattern of the Boro Kachari tribe is three meals a day i.e. *breakfast*, *lunch* and *dinner*. Generally, the meal pattern begins with morning meal (breakfast), which is eaten in between 7am to 9am. The timing depends on the duties and functions of the family members and also on the livelihood of the families. The morning meal is very simple and consisted of rice, one or two vegetable curries or chutney. Fresh dal is very rarely prepared for morning meal. In many occasions, water soaked rice (Local Name: Paita bhaat) prepared from left over rice of previous night is eaten with salt and oil. This item is very popular among the young and adults. A very negligible section of the tribe sometimes used to supplement their breakfast with chapatti.

The mid-day meal or lunch of the Boro Kachari family comprises of a steaming platter of rice with curries, prepared from vegetables, roots and tubers, etc. Meat and fishes may not be regular items, but they eat once or twice in a week. Dal prepared from Bengal gram (Mati kalai) is their most favoured cuisine, which is generally prepared by boiling the pulses with water, salt and turmeric. However, they mostly prepared the dal with alkali. Another very popular recipe of this pulse is its preparation with fresh water *Snail* (Local name: Samuk). The fresh water snail is either purchased from markets or collect snail from rivers and ponds during rainy season.

No Boro Kachari meal is complete without wild leafy vegetables. Green vegetables, roots and tubers, meat, fish, eggs, etc. were consumed in varying amount in their meals. A total of more than 80 leafy green vegetables, vegetables and root & tubers have been found in the study that are consumed by Boro Kachari tribe round the year. One of the most common leafy vegetables of Boro Kachari kitchen is the Rossale leaf (L.Name: *Mesta tenga*). Many delicious items are prepared from this plant. Generally the sour leaves of this plant are cooked with pork or fish by the women. Other common vegetables found in the dishes of Boro Kachari are Mustard green (L.Name: Lai Xaak), Green amaranth (L.Name: Khuduna), Malabar spinach (L.Name: Maifrai), Asiatic penny wort (L.Name: Monbir), Sichuan pepper (L.Name: Mejenga), P Skunk vine (L.Name: Khibi Lewa), Sorel leaf (L.Name: Suka xaak), Amaranth leaves (L.Name: Datha), Sessile joyseed (L.Name: Mati Kanduri), White goose foot (L.Name: Jhilmil), Colocasia leaves (L.Name: Thaso), Houttuynia cordata (Eng: Heart leaves: Maisundri), Curry leaf (L.Name: Naroxinghor paat), *Antidesma acidum* (L.N: Lapha xaikho), *Polygonum caespitosum* (L.Name: Modhu saleng), *Solanum indicum* (L.Name: Kunthai), *Leucas aspera* Spreng (L.Name: Drone Xaak), Water spinach (L.Name: Mande maigong), *Calamus tenuis* (L.Name: Garla bitha), *Bauhinia variegata* (L.Name: Kharmang), *Bidens pilosa* (L.Name: Deumeubei), *Boerhavia diffusa* (L. Name: Laije), *Clerodendrum colebrookianum* (L.Name: Lukhna biphang), *Costus speciosus* (L.Name: Burhi thokon), *Diplezium asperum* BI (L.Name: Dhekia xaak), *Drymaria cordata* (L.Name: Jabshri), *Nelumbo species* (L.Name: Kamal), etc. Though the study observed that pulses are not regular food items in the Boro Kachari diet, but it is also not uncommon. The most favoured pulses among them is *Vigna mungo* or black gram (Local name: Mati Kalai). Many of them cultivated black gram in their agricultural fields. *Dolichos biflorus* or Kulti (Local name: Kulti) is the other pulses which are locally grown for consumption. The other pulses occasionally eaten are *Lens culinaris* (Lentil), *Cajanus cajan* (Rahor dal), etc. that are bought from the markets. Salt and turmeric are used as condiments to increase the taste and delicacy. For cooking these vegetables, mustard oil is used. However, boiled items are also very common in the Boro Kachari diet.

Roots and tubers are also common food items of Boro Kachari diet. Beside potato, other roots and tubers they consumed are *Alocasia cuminata* (L.Name: Yam Bd: Thaso), *Alocasia indica* (L.Name: Maan Kochu), *Alpinia nigra* (L.Names: Tharai), *Amorphophallus paeoniifolius* (L.Name: Wool kochu), *Ipomoea batatas* (L.Name: Meetha aloo), *Dioscorea alata* (L.Name: Kath alu) etc. Other common vegetables are *Abelmoschus esculentus* (L.Name: Bhendi), *Benincasa hispida* (L.Name: Kumura), *Brassica oleracea boxtritis* (L.Name: Phul kobi), *Brassica oleracea* (L.Name: Ul Kobi), *Cucumis sativas* (L.Name: Teoh), *Cucurbita moschata* (L.Name: Jagannath), *Daucus carota* (L.Name: Gajor), *Lagemaria siceraria* (L.Name: Jati Lao), *Luffa acutangula* (L.Name: Jika), *Luffa aegyptiaca* (L.Name: Bhoool) *Momordica charantia* (L.Name: Bhaat Kerala), *Momordica dioica*, *Trichosanthes dioica* (L.Name: Potol), *Trichosanthes cucumerina* (L.Name: Dhundhuli), *Moringa oliefera* (L.Name: Sajina), *Musa Splendid* (L.Name: Kas kol), *Pisus sativum* (L.Name: Motor mah), *Raphanus sativus* (L.Name: Mula), *Sechium edule* (L.Name: Squas), *Solanum melongena* (L.Name: Bengana), *Vigna unguiculata sesquipedalis* (L.Name: Lasera), *Agaricus biosporus* (L.Name: Nikhum), etc. Banana stem and bamboo shoot are two most important ingredients of Boro Kachari diets. The young shoots of almost all species of bamboo are edible raw or cooked. They cooked the bamboo shoots by removing the tough protective sheath that is coated with tawny or red hairs.

The tribe consumed 11 species of edible insects or their products. Selection and acceptance of the edible species is a complex issues and govern by host of factors ( Ghosh et al, 2018). Some of the commonly eaten insects are *Antheraca assamensis* (Muga Silkworm), *Philosmia ricini* (Eri silkworm), *Bombyx mori* (Mulberry silkworm), *Cybister confuses* (Diving Beatle), *Lethocerus indicus* (Water beetle), *Oxya hylahyla* (Grasshopper), *Acheta domestica* (Field crickets), *Myrmica rubra* (Red ants), *Vespa orientalis*, etc. These insects are very rich in protein and many are sources of vitamins and minerals. They are consumed in various forms, like cooked, roasted, fried, and raw or mixed with other ingredients depending upon on the type of the insects. The study observed that Diving beetle, Water beetle, Eri Silk worm and Red ants are the most preferred and valuable food items of the Boro Kachari. Many species of these insects are sold in the village market. Red ants are generally eaten during Bohaag Bihu (Rongjali Baisakhu) in spring season. The grasshoppers are eaten by frying dry with salt after removing the wings. The *Lithocercus indica* has a great market value, costing more than Rs 400 per kg in the market. However, degradation of the environment, lack of traditional knowledge among the young generation, increased availability of conventional foodstuffs, rapid population growth have collectively affect diversity, abundance and use of edible insects among the tribe. Insects are not used by the tribe as emergency foodstuffs during food shortages, but used it as a planned part of the diet throughout the year when it is available. Similar findings were recorded by Rabha among the Rabha tribe of the same locality (Rabha, 2016).

During the survey 99 per cent of the respondents revealed that they are non-vegetarians. The Boro women folk prepare a number of traditional mouth watering delicious cuisines. Infact most of the members of the respondents have developed preferences for various kinds of non-vegetarian dishes. It was observed that though chicken and mutton are eaten by the respondents, pork is their favourite item. They prepared pork deliciously in varied ways. They often prepared the pork with bamboo shoot, sometimes with Mustard green, Bamboo stem, Rosale plants. In Boro Kachari kitchen, the meat is mostly prepared either with alkali or with rice powder or with both alkali and rice powder. Dried pork is almost common item among the Boro Kachari, which they prepared by drying and smoking the meat in a typical traditional way. They first boiled the pork with water and the same is then dried in fire. Other wild meats consumed by the tribe are birds, crabs, rabbits, deer, frogs, etc. The Boro women are expert in preparation of certain exceptional dishes like *Oma bedor* (a fried wasted or steward or stewed pork); *Onla* (a gravy made from rice powder and slices of bamboo shoots cooked lightly with kharwi and spices); *Narzi* (a bitter gravy made of dried jute leaves) etc. The fish is another important food ingredient among the Boro Kachari. *Napham* or *Sidhal* is the most favourite fish culinary of the tribe. It is a fermented fish-based product prepared mostly by the Bodo tribe and one of their very important and favorite dishes (Narzary et al, 2016). This item is prepared by roasting small fishes over fire and then dried fishes are crushed into powder which kept in the air tight bamboo pipe. This item is generally used as chutney and other dishes are also prepared, mostly with alkali. The processing and preparation of the ethnic foods not only demonstrate creativity and treasure of food heritage but also their incremental learning to sustain the life and ecosystem as a whole (Sing & Sing, 2007).

Most of the male folk are fond of the conventional drink, called *Zumai*. These dishes are not only tasty, but also rich in nutrients which are very essential for perfect body maintenance. Rice beer, locally known as *zu/ jumai/jonga* is an integral part of the life of Boro Kachari tribe. No social function, whether it is a festival or marriage or any other functions, can imagine without rice beer. However, a section of the followers of the Brahma dharma do not use rice beer in their social functions. Besides being used in social functions and ceremonies, many of them are habituated with the rice beer as daily drink. Most of the women are expert in preparing the beer by their own traditional technique. The main variety of rice used for rice beer is the *Bora rice* belonging to the *Sali* variety. The fermented juice is highly aromatic, alcoholic and sweet with property of hallucinations. Besides rice beer, another traditional liquor called as *Kathuwa* is very popular among the Boro Kachari tribe. This liquor is prepared by traditional fermentation and distillation process. In this technique, rice is cooked with least amount of water and then mixed with the rice cake as described above and kept for 3-5 days. The cooked rice is locally called as *Jugli*. After this step, *jugli* is allowed to go through a local distillation process. This drink (*Kathuwa*) is very strong and generally drinks with water. Rice beer and *Kathuwa* is not only a drink for intoxication or for merry making, but it has socio-religious significance. These are always considered as a sacred drink and are offered sacredly to the supernatural beings or ancestors in socio-religious occasions. Sometimes, these drinks are sometimes acts as a cohesive force among the community members to act unitedly in performing social duties.

Study has observed that over the years, due to modernization and development the Boro society has also undergone tremendous changes affecting their day today lifestyles. The increased interaction with other diverse ethnic groups, the process of urbanization, various changes in crop pattern, easy availability of modern commercial foods, environmental deterioration of flora and fauna etc have brought changes in the traditional food and intake pattern of the Boro tribe and led to the gradual decline in use of these foods. A shift away from the traditional food system generally means a decrease in consumption of locally grown agricultural items and uncultivated (wild) vegetable and plants foods, fish, domesticated animals etc and simultaneous increase in consumption of industrially processed foods. In this context, the study of food system of the indigenous communities should be an area of recent interest among the researchers (Singh and Jain, 1995; Kulhein and Recevur, 1996; Pieroni, 2001).

## CONCLUSION

The traditional food of this Boro Kachari is very exceptional and considered healthy and nutritious. Therefore, it is necessary to study the traditional food system of the tribe and to analyze the nutrient and non-nutrient composition of traditional food is essential. There is also need to study the traditional foods with a view to enrich and improve our diet and at the same time perpetuate important elements of our cultural importance. Unfortunately, traditional foods are threatened with extinction due to altered lifestyles. Forward looking approach is required to address the problems face by the tribe in protecting their traditional food system.

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