



Wild Edible Fruits of Goalpara District, Assam: Diversity, Ethno botanical Uses and Nutritional Importance

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Abstract

Since time immemorial, wild edible fruits have played an indispensable role in supplementing the diet and healthcare of rural and tribal communities. The present study documents the diversity, ethnobotanical uses, modes of consumption, nutritional significance and seasonal availability of wild edible fruits used by local communities in Goalpara district, Assam, India. Extensive field surveys were conducted across different seasons and plant specimens were identified using standard scientific literature. Results revealed a total of 34 wild edible fruit species belonging to 27 genera and 21 plant families, with Rutaceae, Myrtaceae, Moraceae, Arecaceae and Clusiaceae being the most dominant families. The documented fruits are rich sources of essential minerals, carbohydrates, dietary fibre, vitamin C and bioactive compounds. Most fruits were consumed raw, while others were cooked or processed into chutneys and pickles. Many species were also utilized for their ethnomedicinal properties, particularly in treating digestive ailments and metabolic disorders. The study highlights the importance of conserving wild edible fruits and preserving indigenous knowledge for sustainable food security and human welfare.

Keywords: Assam, Food security, Nutritional value, Seasonal availability, Traditional knowledge, Wild edible fruits.

Introduction

Assam, located in the northeastern region of India, is recognized as one of the major biodiversity hotspots of the country due to its varied physiography, favorable climate and rich forest cover. The state supports a wide range of wild plant genetic resources that are closely associated with the livelihood, food habits and traditional knowledge systems of indigenous and rural communities. Among these resources, wild edible fruits constitute an important yet underexplored component of plant biodiversity.

Wild edible fruits of Assam are distributed across forests, village commons, riverbanks and shifting cultivation areas and are traditionally consumed either fresh or in processed forms such as pickles, chutneys, fermented products and beverages. Some wild fruits are good appetizers and digesters. Pickles, wine, jams, juice and salted fruits are the preserved products of wild edible fruits and are locally used [1]. These fruits belong to diverse plant families including Moraceae, Myrtaceae, Rutaceae, Anacardiaceae, Euphorbiaceae and Clusiaceae, reflecting the floristic richness of the region [2, 3]. Species such as *Dillenia indica*, *Garcinia pedunculata*, *Baccaurea ramiflora*, *Syzygium cumini*, *Flacourtia jangomas* and *Ziziphus* spp. are widely used by different communities of Assam for both nutritional and medicinal purposes [4].

Nutritionally, wild edible fruits are rich sources of essential vitamins, minerals, sugar, dietary fiber and bioactive compounds such as phenolics and antioxidants [4, 7]. In addition to their nutritional value, many of these fruits possess therapeutic properties and are traditionally employed in olden days to treat various disorders, including intestinal ailments, diabetes, anemia, bronchitis, asthma, cough, toxemia, diarrhea, cold, acidity, jaundice, cancer, colitis, hiccup, poisoning and dysentery [8]. According to Narzary et al. [9], the consumption of wild edible fruits can lessen the risk of several problems relating to the heart, kidneys, nerves, blood pressure, diabetes etc. Consumption of wild fruits reduces the risk of several diseases like diabetes, cancer, coronary heart disease and neurodegenerative ailment as reported by Brahma et al. [10]. Adequate intake of fruits and vegetables can prevent non-communicable diseases such as diabetes, atherosclerosis and cancers [11].

Thus, wild edible fruits play a dual role in addressing nutritional security and primary healthcare, particularly in rural and tribal areas. There have been several reports on wild edible fruits [4], [12], [16]. Documentation of indigenous knowledge on therapeutic and nutritional properties of wild edible fruits through ethno botanical studies is important for the conservation and utilization of biological resources [17]. There has been very few documentation on wild edible fruits from Goalpara district as the traditional knowledge is passed down to generation verbally by the ancestors and thus, information regarding various valuable ethno-botanical plants is forgotten. The district is inhabited by diverse ethnic communities and tribes, most of who depend on agriculture for their livelihood. Rural people rely heavily on plant resources for subsistence, food security and healthcare. Edible fruit plants play a vital role in sustaining agriculture-based social systems and serve as an important life-support resource, with significant economic, cultural, medicinal and nutritional value for rural communities. Wild edible fruits of this region are not only consumed but are also sold in local markets. Systematic documentation and scientific evaluation of wild edible fruits are therefore essential for their conservation and sustainable utilization. Such studies can contribute to biodiversity conservation, value addition and livelihood enhancement, while also supporting national and global goals related to food security and sustainable development.

Materials and Methods

The study was conducted during 2024-2025 across different seasons through field surveys in Dhupdhara, Goalpara district, Assam. Villages including Jotigaon, Hirapara, Samagaon, Bengdoba and Dumapara were selected. Dhupdhara was chosen because of its diverse ethnic population possessing rich traditional knowledge of wild edible fruits. Photographs of all collected wild edible fruits were taken. Questionnaires were prepared for the collection of data such as local name, time of availability, ethnobotanical uses and their mode of uses. People from diverse communities, i.e. Bodo, Rabha, Hashong and plant sellers in the markets were interacted. The wild fruit plants were identified with the help of local people and referring relevant scientific literatures which includes Hooker [18]; Cooke [19]; Singh and Karthikeyan [20], Singh et al. [21] and Yadav and Sardesai [22]. The data on wild fruits collected are arranged alphabetically with their local name, scientific name, family, availability time, ethno botanical uses and nutritional value are shown in Table 1.

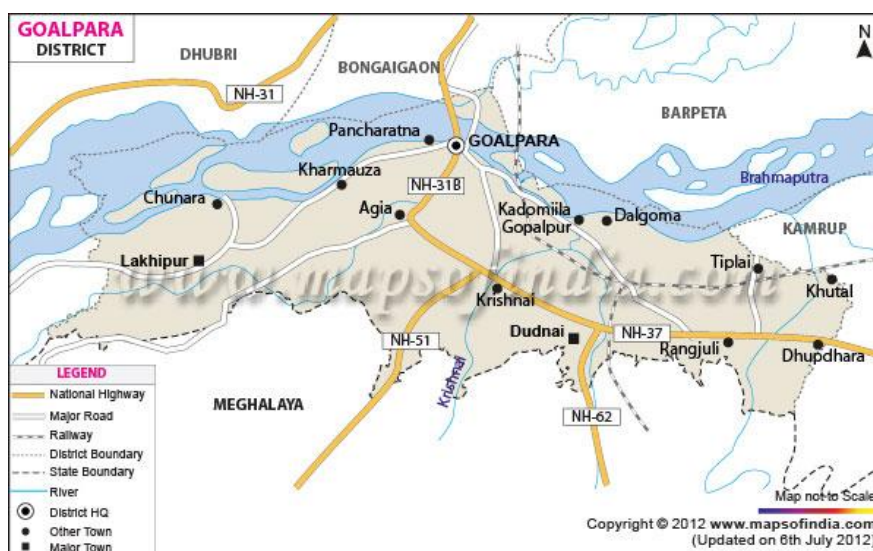


Fig 1: Map of Goalpara District showing the study area (Dhupdhara) (Source Google).

Results and Discussion

The present investigation recorded 34 wild edible fruit species distributed across 27 genera and 21 plant families (Table 1), reflecting considerable taxonomic and functional diversity in the study area. Families such as Rutaceae, Myrtaceae, Moraceae, Arecaceae and Clusiaceae were the most represented, consistent with earlier ethnobotanical studies in Assam where similar families dominated wild edible fruit assemblages [7], [23]. This floristic pattern indicates not only ecological abundance but also cultural preference for certain fruit-bearing taxa among local communities.

The documented fruits exhibited a wide range of ethnobotanical uses, with many species traditionally used for the management of digestive disorders, dysentery, diarrhea, diabetes, gastric ailments and respiratory conditions. Species such as *Aegle marmelos*, *Dillenia indica*, *Garcinia pedunculata* and *Syzygium cumini* were frequently cited, paralleling reports from Assam where these taxa were similarly used as food–medicine resources [7], [24]. This overlap underscores the food–medicine continuum characteristic of tribal and rural food systems in the region.

In terms of the mode of consumption, the majority of species were consumed raw, while others were processed into chutneys, pickles, juices and cooked dishes. The use of cooked or processed forms for sour or astringent fruits (*Garcinia* spp., *Dillenia indica*) aligns with findings from earlier northeast India studies, suggesting shared cultural strategies to enhance palatability and extend shelf life [7], [25].

The nutritional findings revealed that wild edible fruits are rich in vitamin C, dietary fibre, carbohydrates, minerals, antioxidants and organic acids. High vitamin and antioxidant contents in species such as *Phyllanthus emblica*, *Citrus* spp., *Psidium guajava*, and *Syzygium* spp. confirm earlier nutritional assessments conducted on Assam's wild fruits [7]. These nutrients are known to address micronutrient deficiencies and support immune function, particularly in rural and forest-dependent populations.

Analysis of seasonal availability indicated that most wild edible fruits became available during the monsoon and post-monsoon periods (June–October), corresponding to times of agricultural lean seasons when cultivated food access may be limited. This pattern has also been documented in wild fruit phenology studies from Karbi Anglong and the foothills of Assam, highlighting the role of wild fruits in buffering seasonal food insecurity [23], [25].

Overall, the results of the present study resonate with existing ethnobotanical literature from Assam and the broader northeastern region. The diversity of species, multifaceted uses and varied modes of consumption, nutritional richness and seasonal distribution collectively affirm the importance of wild edible fruits as significant components of traditional diets, local healthcare systems and food security strategies. These findings not only corroborate prior work but also extend regional understanding by providing an integrated dataset of ethnobotanical, nutritional and phonological attributes, supporting calls for their conservation, sustainable use and inclusion in nutrition policies.

Table 1: List of wild edible fruits documented in the study sites.

Sl. No.	Scientific Name	Local / Assamese Name	Family	Ethno- botanical uses	Mode of Consumption	Nutritional Findings	Seasonal Availability
1.	<i>Aegle marmelos</i> (L.) Corr. Serr.	Bael	Rutaceae	Dysentery, diarrhea, gastric disorders	Raw pulp, juice	Carbohydrates, fibre, calcium	March-June
2.	<i>Ananas comosus</i>	Anarokh	Bromeliaceae	Digestive aid, anti-inflammatory	Raw, juice, cooked	Vitamin C, manganese	May-August
3.	<i>Annona reticulata</i> L.	Atlas	Annonaceae	Antidiarrheal, tonic	Raw ripe fruit	Carbohydrates, vitamin B6, potassium	July-September
4.	<i>Artocarpus heterophyllus</i> Lamk.	Kothal	Moraceae	Energy source	Raw ripe fruit, cooked seeds	Carbohydrates, protein, fibre	April-July
5.	<i>Averrhoa bilimbi</i> L.	Kordoi	Oxalidaceae	Cough, stomach disorders	Raw, chutney, pickle	Vitamin C, organic acids	May-September
6.	<i>Baccaurea ramiflora</i> Lour.	Leteku	Phyllanthaceae	Constipation, stomach ache	Raw	Fibre, carbohydrates, vitamin C	June-August
7.	<i>Chrysalidocarpus lutescens</i> Wendl.	Geruka tamul	Arecaceae	General health tonic	Raw (limited use)	Minor carbohydrates	Year-round
8.	<i>Citrus aurantifolia</i> (Christen) Swingle	Gol nemu	Rutaceae	Cold, cough, indigestion	Juice, raw	Vitamin C, citric acid	July-October
9.	<i>Citrus maxima</i> (Burm.) Osbeck	Robab tenga	Rutaceae	Indigestion, vitamin deficiency	Raw, juice	Vitamin C, fibre	October-January
10.	<i>Coccinia grandis</i> (L.) Voigt	Kunduli	Cucurbitaceae	Diabetes, blood purification	Cooked vegetable	Fibre, iron, beta-carotene	June-September
11.	<i>Dillenia indica</i> L.	Outenga	Dilleniaceae	Dysentery, stomach disorders	Cooked curry, chutney	Fibre, vitamin C	July-October
12.	<i>Elaeagnus caudata</i> Schltdl.	Mirika tenga	Elaeagnaceae	Anti-diarrheal, digestive	Raw	Vitamin C, antioxidants	August-October
13.	<i>Elaeocarpus floribundus</i> Bl.	Jolphai	Elaeocarpaceae	Liver disorders, cooling agent	Raw	Fibre, minerals	August-November
14.	<i>Ficus racemosa</i> L.	Dimoru	Moraceae	Diabetes, digestive disorders	Raw, cooked	Calcium, fibre	June-September
15.	<i>Flacourtia jangomas</i> (Lour.) Raeusch.	Poniol	Salicaceae	Digestive, blood purification	Raw, pickle	Vitamin C, carbohydrates	August-October

16.	<i>Garcinia pedunculata</i> Roxb.	Borthekera	Clusiaceae	Gastric problems, obesity	Cooked curry	Hydroxycitric acid, fibre	June-September
17.	<i>Garcinia xanthochymus</i> Hook. f.	Tepor tenga	Clusiaceae	Dysentery, stomach ailments	Cooked, pickle	Vitamin C, antioxidants	July-September
18.	<i>Hibiscus sabdariffa</i> L.	Tenga mora (Mesta)	Malvaceae	Hypertension, liver disorders	Juice, cooked calyx	Vitamin C, anthocyanins	October-December
19.	<i>Lantana camara</i> L.	Gu-phul	Verbenaceae	Wound healing, skin infections	Limited medicinal use	Minor nutrients	Year-round
20.	<i>Melastoma malabathricum</i> L.	Futkola	Melastomataceae	Diarrhea, wound healing	Raw	Vitamin C, antioxidants	July-September
21.	<i>Meyna spinosa</i> Roxb. ex Link	Kutkura	Rubiaceae	Digestive disorders	Raw	Fibre, carbohydrates	August-October
22.	<i>Musa balbisiana</i> Colla	Vim kol	Musaceae	Diarrhea, energy supplement	Raw, cooked	Carbohydrates, potassium	Year-round
23.	<i>Nymphaea nouchali</i> Burm. f.	Boga bhet	Nymphaeaceae	Cooling agent, urinary disorders	Cooked rhizome, seeds	Starch, fibre	June-September
24.	<i>Phyllanthus emblica</i> L.	Amlokhi	Phyllanthaceae	Immunity booster, diabetes	Raw, dried	Vitamin C, antioxidants	October-January
25.	<i>Phoenix sylvestris</i> (L.) Roxb.	Bon khejur	Arecaceae	Digestive tonic, cooling agent	Raw sap, fruit	Sugars, minerals	February-May
26.	<i>Psidium guajava</i> L.	Modhurium	Myrtaceae	Diarrhea, dysentery	Raw	Vitamin C, fibre	August-December
27.	<i>Pinanga gracilis</i> Bl.	Mamoi / Mumai tamul	Arecaceae	General health tonic	Raw	Minor carbohydrates	Year-round
28.	<i>Solanum indicum</i> L.	Tita bhekuri	Solanaceae	Diabetes	Cooked	Fibre, alkaloids	July-October
29.	<i>Spondias pinnata</i> (L.f.) Kurz	Omora	Anacardiaceae	Dysentery, stomach disorders	Raw, chutney	Vitamin C, fibre	May-July
30.	<i>Syzygium cumini</i> (L.) Skeels	Kola jamu	Myrtaceae	Diabetes, digestive aid	Raw	Iron, antioxidants	June-August
31.	<i>Syzygium aqueum</i> (Burm.f.) Alston	Bogi jamuk	Myrtaceae	Cooling agent, hydration	Raw	Water, vitamin C	June-August
32.	<i>Tamarindus indica</i> L.	Teteli	Fabaceae	Laxative, digestive	Raw pulp, curry	Tartaric acid, minerals	January-April
33.	<i>Terminalia chebula</i> Retz.	Silikha	Combretaceae	Constipation, digestive tonic	Dried fruit	Tannins, antioxidants	October-January
34.	<i>Ziziphus mauritiana</i> Lam.	Bogori	Rhamnaceae	Blood purification, digestion	Raw	Vitamin C, sugars	December-March

Conclusion

The present study records 34 wild edible fruit species belonging to 21 plant families, highlighting their ethno botanical, nutritional and seasonal significance in Assam. These fruits serve as an important food and medicine resources, commonly used to treat digestive ailments, diabetes and common health problems. Most species are consumed raw or in processed forms such as chutneys and pickles. Nutritionally, they are rich in vitamins, dietary fibre, minerals and antioxidants. Their availability mainly during monsoon and post-monsoon seasons supports food and nutritional security, emphasizing the need for their conservation and sustainable use.

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Conflict of Interest: Author declare that there is no conflict of interest.

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