

Wild edible wetland plants from Lakhimpur district of Assam, India

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Abstract

Wetlands are rich in biodiversity. On shore people are much dependent on the wetland resources for their food in terms of both flora and fauna throughout the year, especially in the time of scarcity or high prices of commercial vegetables, these plants as alternate or emergency food source. These plants are very nutritious and build their good health. In addition, these also contribute to the economy of the villagers. The present paper deals with 55 species of wild edible plants recorded from wetlands in Lakhimpur district of Assam.

Key words: Wetland, wild edible plants, Lakhimpur, Assam

INTRODUCTION

Biodiversity has significant role in context with the mankind and its health. It maintains the energy cycle in the nature. One of the aspects of biodiversity is food service to the organisms including human. The people of biodiversity rich areas used to have good intake of nutrition and thus possess good physique. Wild vegetables thus being part of biodiversity is a gift to mankind. With its high nutrients contents wild vegetables contribute to the diet of rural people who rely on it.

North-east India is one of the components of the world mega-biodiversity. It has rich diversity of flora and fauna. Different kinds of ecosystem are its characteristics. Apart from that the region is rich in traditions which are followed by different tribes inhabiting in this region. These traditions are somehow the way to the eco-friendly sustainable livelihood. People of native regions follow mountains, rivers, forests, swamps etc to collect plants following their traditions for generation after generation. Plants and uses of plant-parts are part of their rich traditional knowledge. Since their first arrival in the region they are having wild plants as their food. Therefore wild plants are an integral part of the traditions of North-east people. India whose major population lives in rural area extracts a lot from wetlands for consumption and income. Low lying swamps, marshes and basins which are occasionally densely vegetated with commercial reeds, sedges and other emergent macrophytes are often exploited by the rural people for subsistence (Ghosh 2005). In India, totally there are 67429 wetlands covering an area of 4.1 million hectare (Anonymous 1990). These wetlands are very active in monsoon. Some noteworthy work on aquatic plants has been done by Muencher (1944), Cook (1996), Fasset (1940), Biswas & Calder (1937), Subramanyam (1962), Rao & Verma 1970, 1974, Gogoi & Borthakur (2002), Barooah & Mahanta (2006), and Rasingam (2010). On wild vegetables of north east India works have been done by Arora (1990), Bora & Pandey (1996), Borthakur (1996), Chakraborty (2002), Kar & Borthakur (2007), and Borah & Sarkar (2008).

The study area:

The Lakhimpur district representing a geographical area of 2,977 km situated at latitude 26°48' - 27°53' N and longitude 93°42' - 94°20' E. It is on the northern part of Brahmaputra valley and is conspicuous by the presence of many rivers like Subansiri, Ranga, mighty Brahmaputra and its tributaries. The district is bounded on the north, north east and north-west by Arunachal Pradesh; on the south by river Brahmaputra along with the river island Majuli; on the west by Sonitpur district and on the east by Dibrugarh district. It is a highly humid tropical area. It has varying elevations ranging from 35 m to 140 m. Hence the climate varies from region to region of the district. The plain areas are hot and less humid whereas the foothill regions are cool and humid. The rainy season starts from June and end in October. The mean rainfall annually is 300 cm Therefore problem of the flood affects the livelihood of the people every year.

The total wetland area in the district is 27307 ha. that includes 458 small wetlands (<2.25 ha.). The percentage of wetland area occupied by river or stream, Ox-bow lakes ,lake/pond, waterlogged- natural is 89.34 %, 3.8 %, 2.39 %, 1.92 % (SAC 2010) The district is significant with a bird sanctuary called *Bordoi Bam Bird Sanctuary*. Pleasant climate with high rainfall and tropical humidity favours luxuriant growth of macrophytes.

There are different tribes like Mishings, Bodos, Deoris, Sonowal Kachari, Tai Khamti, Lalung, Hajongs inhabiting the region with their diverse culture and traditions (Singh 1993). They have unique food habits with innumerable recipes which are prepared by using different wild plants. They can economically exploit the plant resources.

MATERIALS AND METHODS

The study area was explored thoroughly covering different seasons during 2009 to 2011 and detailed observation on the vegetation and flora was conducted. Local people inhabiting the regions were questioned about the wild plants and their consumption. Local markets were surveyed. Plants were collected and preserved according to the conventional herbarium techniques (Jain & Rao, 1977). Collected materials were identified with the help of standard literatures and confirmed in the Herbarium of Botanical Survey of India, Eastern circle, Shillong. The voucher specimens have been deposited in the herbarium of Botany Department of Gauhati University (GUBH).

RESULTS AND DISCUSSIONS

In the present study plants inhabiting both aquatic and the peripheral regions are taken into accounts which constitute the wetland-flora. Altogether 55 species from the wetlands of the Lakhimpur district belonging to 33 different families are found to be used by the local people as enumerated in Table 1. The family Araceae is dominating the list by having 5 species followed by Asteraceae with 4 species and Amaranthaceae with 4 species. The use of these wetlands plants is high during monsoon due to the luxuriant growth of plants during this season. Different parts of wild plants are used for the food which varies from plants to plants.

Table 1. Wild edible wetland plants from Lakhimpur district, Assam, India [KP = K. Pagag; As = Assamese; M = Mishing]

Scientific name [Family]; Voucher specimen	Vernacular name	Parts used	Uses
<i>Acorus calamus</i> Linnaeus [Acoraceae]; KP-173	Boch (As)	Rhizome	Juice of rhizome is drunk
<i>Achyranthes aspera</i> Linnaeus [Amaranthaceae]; KP-32	Obhot kata (As)	Leaves	Leaves eaten as vegetables
<i>Alocasia acuminata</i> Schott [Araceae]; KP-54	Kochu (As)	Tender leaves, petiole, tubers	Cooked in curry

Scientific name [Family]; Voucher specimen	Vernacular name	Parts used	Uses
<i>Alocasia cucullata</i> (Loureiro) G. Don [Araceae]; KP-67	<i>Boga kochu</i> (As)	Tubers	Eaten as vegetables
<i>Alocasia formicata</i> (Roxburgh) Schott [Araceae]; KP-82	<i>Bees kochu</i> (As)	Petioles, tubers	Cooked in curry
<i>Alocasia macrorrhiza</i> (Linnaeus) G. Don [Araceae]; KP-91	<i>Man kochu</i> (As)	Leaves, petioles	Cooked as vegetables
<i>Alpinia nigra</i> (Gaertner) B.L. Burt [Zingiberaceae]; KP-135	<i>Tora</i> (As)	Leaves	Steamed along with rice so that rice becomes flavoured with its aroma
<i>Alternanthera sessilis</i> (Linnaeus) R. Brown ex DC [Amaranthaceae]; KP-28	<i>Mati kanduri</i> (As)	Leaves, shoots	Eaten as vegetables or in curry
<i>Amaranthus spinosus</i> Linnaeus [Amaranthaceae]; KP-117	<i>Hati khutura</i> (As)	Leaves, shoots	Eaten fried or boiled
<i>Amaranthus viridis</i> Linnaeus [Amaranthaceae]; KP-61	<i>Khutura sak</i> (As)	Leaves, shoots	Eaten fried or boiled
<i>Cassia tora</i> Linnaeus [Caesalpiniaceae]; KP-62	<i>Soru medulua</i> (As)	Shoots	Eaten boiled
<i>Centella asiatica</i> (Linnaeus) Urban [Apiaceae]; KP-15	<i>Manimuni</i> (As)	Whole plants	Eaten boiled or fried
<i>Cleome viscosa</i> Linnaeus [Capparaceae]; KP-46	<i>Hulchul</i> (As)	Seeds	Dried, grinded and used as vegetable
<i>Colocasia esculenta</i> (Linnaeus) Schott [Araceae]; KP-42	<i>Kola kochu</i> (As)	Leaves, petioles, rhizomes	Eaten as curry with fish
<i>Commelina benghalensis</i> Linnaeus [Commelinaceae]; KP-29	<i>Kona simulu</i> (As)	Leaves, shoots	Eaten fried
<i>Cynodon dactylon</i> (Linnaeus) Persoon [Poaceae]; KP-25	<i>Dubari bon</i> (As)	Leaves, stem	Eaten in curry
<i>Cyperus rotundus</i> Linnaeus [Cyperaceae]; KP-36	<i>Keya bon</i> (As)	Rhizomes	Eaten boiled
<i>Diplazium esculentum</i> (Retzius) Swartz [Woodsiaceae]; KP-40	<i>Dhekiya</i> (As)	Fronds	Eaten fried or in curry
<i>Drymaria cordata</i> (Linnaeus) Willdenow ex Roemer & Schultes [Caryophyllaceae]; KP-122	<i>Lai jabori</i> (As)	Leaves, shoots	Eaten boiled
<i>Eclipta prostrata</i> (Linnaeus) Linnaeus [Asteraceae]; KP-127	<i>Kehraj</i> (As)	Leaves, shoots	Eaten fried with other vegetables
<i>Eichhornia crassipes</i> (Martius) Solms [Pontederiaceae]; KP-52	<i>Meteka</i> (As)	Flowers	Flowers used to prepare snacks
<i>Enydra fluctuans</i> Loureiro [Asteraceae]; KP-212	<i>Helonchi sak</i> (As)	Leaves	Eaten fried as vegetables
<i>Euphorbia hirta</i> Linnaeus [Euphorbiaceae]; KP-11	<i>Gakhiroti bon</i> (As)	Leaves, shoots	Eaten fried or boiled
<i>Hedyotis diffusa</i> Willdenow [Rubiaceae]; KP-16	<i>Bonjaluk</i> (As)	Leaves, shoots	Cooked as vegetables
<i>Hydrocotyle sibthorpioides</i> Lamarck [Apiaceae]; KP-119	<i>Horu manimoni</i> (As)	Leaves, shoots	Eaten in fish curry, chutney
<i>Hydrolea zeylanica</i> (Linnaeus) Vahl [Hydrophyllaceae]; KP-193	<i>Lehti bon</i> (As)	Shoots	Eaten as vegetables
<i>Ipomoea aquatica</i> Forsskål [Convolvulaceae]; KP-85	<i>Kolmou</i> (As)	Leaves, shoots	Eaten in fish curry
<i>Jussiaea repens</i> Linnaeus [Onagraceae]; KP-196	<i>Kesori ghah</i> (As)	Leaves	Eaten as vegetables
<i>Leucas plukenetii</i> (Roth) Sprengel [Lamiaceae]; KP-33	<i>Durun</i> (M)	Leaves, flowers	Eaten fried or boiled

Scientific name [Family]; Voucher specimen	Vernacular name	Parts used	Uses
<i>Ludwigia adscendens</i> (Linnaeus) H. Hara [Onagraceae]; KP-189	Pani khutura (As)	Leaves, shoots	Eaten fried
<i>Marsilea minuta</i> Linnaeus [Marsileaceae]; KP-209	Pani tengeshi (As)	Leaves, petioles	Eaten fried or boiled
<i>Melastoma malabathricum</i> Linnaeus [Melastomataceae]; KP-49	Phutkola (As)	Leaves	Eaten in curry
<i>Monochoria hastata</i> (Linnaeus) Solms [Pontederiaceae]; KP-204	Bhat meteka (As)	Flowers	Eaten as vegetables
<i>Monochoria vaginalis</i> (Burman) Presler [Pontederiaceae]; KP-214	Bhat meteka (As)	Flowers	Eaten as vegetable
<i>Nelumbo nucifera</i> Gaertner [Nelumbonaceae]; KP-261	Podum (As)	Petioles, seeds	Seeds eaten raw or cooked
<i>Nepentia oleracea</i> Loureiro [Fabaceae]; KP-316	Ikathepi (Mani)	Leaves, shoots	Eaten in curry of Chitala fish
<i>Nymphaea alba</i> Linnaeus [Nymphaeaceae]; KP-274	Boga bhet (As)	Fruits, petioles	Seeds eaten raw or cooked
<i>Nymphaea rubra</i> Roxburgh [Nymphaeaceae]; KP-218	Ronga bhet (As)	Fruits, petioles	Seeds eaten raw or cooked.
<i>Nymphoides hydrophyllum</i> Kuntze [Menyanthaceae]; KP-177	Panikola (As)	Seeds	Eaten raw or cooked
<i>Oenanthe javanica</i> (Blume) DC. [Apiaceae]; KP-264	Pan tarori (As)	Leaves, shoots	Eaten as vegetables
<i>Ottelia alismoides</i> (Linnaeus) Persoon [Hydrocharitaceae]; KP-330	Panikola (As)	Fruits	Eaten raw or cooked
<i>Oxalis corniculata</i> Linnaeus [Oxalidaceae]; KP-03	Tengeshi (As)	Leaves, shoots	Eaten fried or boiled
<i>Oxalis debilis</i> Humboldt, Bonpland & Kunth [Oxalidaceae]; KP-05	Tengeshi (As)	Leaves	Eaten fried or boiled
<i>Persicaria chinensis</i> (Linnaeus) Nakai [Polygonaceae]; KP-243	Behu (As)	Leaves, shoots	Eaten in curry
<i>Persicaria glabra</i> (Willdenow) Gomez de la Maza [Polygonaceae]; KP-178	Bonriya ghehu (As)	Leaves, shoots	Eaten as vegetable
<i>Physalis minima</i> Linnaeus [Solanaceae]; KP-07	Pokmou (As)	Seeds	Eaten raw
<i>Persicaria orientalis</i> (Linnaeus) Assenov [Polygonaceae]; KP-200	Taktir oing (M)	Leaves, shoots	Eaten as vegetables
<i>Scoparia dulcis</i> Linnaeus [Scrophulariaceae]; KP-09	Modhu mehari (As)	Leaves, shoots	Eaten fried
<i>Solanum indicum</i> Linnaeus [Solanaceae]; KP-20	Bhekuri (As)	Fruits	Fruits are eaten raw
<i>Solanum torvum</i> Swartz [Solanaceae]; KP-30	Hati bhekuri (As)	Fruits	Eaten raw
<i>Spilanthes paniculata</i> Wallich ex. DC. [Asteraceae]; KP-12	Marshang (M)	Flowers, Leaves, Shoots	Eaten in chicken curry with spice pepper
<i>Stellaria media</i> (Linnaeus) Villars [Caryophyllaceae]; KP-44	Morolia (As)	Leaves, shoots	Eaten in curry
<i>Trapa natans</i> var. <i>bispinosa</i> (Roxburgh) Makino [Trapaceae]; KP-211	Shingori (As)	Seeds	Eaten roasted or cooked
<i>Typha angustata</i> Bory & Chaubard [Typhaceae]; KP-340	Hati ghanh (As)	Shoots, rhizome	Eaten raw or cooked
<i>Xanthium strumarium</i> Linnaeus [Asteraceae]; KP-72	Ogara (As)	Leaves, shoots	Eaten in fish curry

CONCLUSION

The role of wetlands and wetland-plants in the livelihood of human is significant. Indigenous people obtain numerous services from wetlands and these uses can play a significant role in the coming years with increasing problem of food security. Thus wetlands provide an alternative source or solution to the soaring food crisis and inflation. It will be also helpful in drawing out policies for the conservation and sustainable development in wetland areas. Therefore the documentation of wetland plants as wild vegetables is very much important.

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