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Ethnic uses of some wetland plants by the *Bodo* community in Udalgiri district of Assam, India

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Abstract

The Udalguri district which is situated in north of Brhamhaputra valley, Assam is inhabited by many tribal communities such as Boro, Rabha, Garo, etc., among these Boro tribe has largest population with distinct culture of their own. They are mainly agriculturist and wholly/partially dependent on plant resources that collected from diverse natural bodies. The present investigation of the Ethnical uses of aquatic plants growing throughout the Udalguri District was carried out among Boro community. Ethnical data were collected through interview with elderly people of the area. The result revealed that 36 wetland plants under 34 genera and 24 families were under used by the Boro community for food(21 species), fodder(4 species), conventional medicine(13 species), and other miscellaneous uses (8 species). Out of the total taxa, 22 species are Dicotyledons under 20 genera and 16 families and 14 species are Monocotyledons under 13 genera and 7 families. Conservation of wetland and wetland plants is suggested.

Key words: Wetland, *Boro* tribe, Udalguri district, Ethnic uses.

INTRODUCTION

Almost all freshwater bodies and wetlands are rich sources of human sustenance and culture. Wetland and aquatic plants provide bio-resources for direct economic use as well as play important ecological role in the ecosystem function (Body 1974). In many provinces in India, local inhabitants traditionally use wetland plants in their day to day life for food, fodder and medicines or for making different types of household products or for art works for sustenance. A significant number of wetland plants can be considered as bio-resources. There are major and minor plant resources harvested from the wetlands of rural India. All these have significant socio-economic value.

The Bodos are the largest tribal community of North East India with distinct culture of their own. This community is economically backward and cultivation and/or wage labour is their primary occupation. Collection of plant resources is their seasonal (secondary) occupation. The community uses diverse wild plants for their day to day life requirement. In Udalguri district, Boro *et al*, enumerated the wild vegetables of the same community, but information on ethnical uses of wetland plants is not well documented.

In the present communication, an attempt has been made to collect information on the ethnical uses of wetland plants available in Udalguri district.

Study area

Udalguri district (26°46'N – 26°77' N latitude & 92°08'E – 95°15' E longitude) in Bramhaputra valley of Assam was newly created in 2003 and covers an area of 1985.69 sq km. It is bounded by Bhutan on the North, Sonitpur district on the East, Darrang district on the South and Baksa district on the West. This region is also a part of eastern buffer zone of Manas Biosphere reserve. Many wetlands such as beels, swamps, marshes, water reservoirs and ponds are distributed in the district.

MATERIALS AND METHODS

Field survey and Documentation

For the present study, wetland areas of the district were visited extensively throughout the district to collect information on the ethnic uses of the wetland plants. The elderly people of Boro community were identified and interviewed during study period to collect information about the plants and uses. The data collected was confirmed by discussion with respondents and also compared with existing literatures (Baruah *at al* 1984; Borthakur 1996; Sarkar *et al* 2008 & Boro *et al* 2011). The referred plant specimens were collected during field study and then processed, dried and herbarium specimens were prepared (Jain & Rao 1977). The specimens were identified with the help of the different published floras including *Flora of Assam* (Kanjilal *et al* 1934-40; Bor 1940), *Flora of British India* (Hooker 1872 - 1897), and *Assam's Flora (Present status of Vascular plants)* (Chowdhury 2005).

The plants are enumerated alphabetically as per their botanical names along with family, local Boro names, plant part(s) collected and ethnic uses. Voucher specimens of the collected plant species were deposited in the Herbarium of the Department of Botany, Gauhati University, Assam.

RESULTS AND DISCUSSION

In this present study the aquatic plants of different places e.g. River banks, Ponds, Pools, beels, swamps, and marshes have been studied. This study provides information on 36 wetland plant species under 33 genera and 23 families. Of these 22 species are Dicotyledons under 20 genera and 16 families and 14 species are Monocotyledons under 13 genera and 7 families (Table1 & 2).

It is observed that, 22 wetland species are used as food, 14 as conventional medicine, 7 as both food and medicine, 4 as fodder, 2 as fish toxicant, 1 for local alkalis(*khar*) preparation, 1 as flavouring food and 6 for miscellaneous purpose. Most of the wetland food plants are used as leafy vegetable.

The Boro people traditionally use various wild plants for various purposes such as Medicine, food, fodder, fuel, culture and other miscellaneous purposes. They are generally dependent on aquatic plant resources for their day to day common ailments. A total of 14 aquatic plants are commonly used for curing more than 10 diseases. Most of the plants species are used to cure skin diseases, dysentery, ear problems, toothache, boils, antiseptic nerve problems and ulcers (Table 1 & 2). It is also observed that out of 10 families, Araceae has highest number of species that are used as conventional medicine by the Boro people in the study area.

Table 1. Dicotyledonous wetland plants used by the ethnic people of the Udalgiri district of Assam

Name of Plants	Bodo name	Collected part(s)	Ethnic Uses
Aeschynomene indica Linnaeus [Fabaceae]; *Boro – 431*	*Khunkha laiphang*	Pith	For making toys and artificial flowers; decorative
Alternanthera philoxeroides Griseback [Amaranthaceae]; *Boro – 30*	*Dwi-galdeb*	Tender shoot	Cooked as leafy vegetable
Alternanthera sessilis (Linnaeus) R. Brown *ex* DC. [Amaranthaceae]; *Boro – 192*	*Ha-galdeb*	Tender shoot	Eaten as leafy vegetable
Bacopa monnieri (Linnaeus) Pennell [Scrophulariaceae]; *Boro – 157*	*Thiphu/Bramhi*	Tender shoot	Leaf and shoot extract taken to treat liver complain and prolong illness
Centella asiatica (Linnaeus) Urban [Apiaceae]; *Boro – 67*	*Geder manamuni*	Whole plant	As green vegetable; a tonic and in skin diseases
Ceratophyllum demersum Linnaeus [Ceratophyllaceae]; *Boro – 430*	*Khar*	Leaf	Cooling agent against treatment in boils.
Drymaria diandra Blume [Caryophyllaceae]; *Boro – 80*	*Thunthini*	Whole plant	Eaten as leafy vegetable
Eclipta prostata (Linnaeus) Linnaeus [Asteraceae]; *Boro – 428*	*Daojwla*	Leaf & flower	Flower extract used in inflammation of jaws, bones and caries; crushed leaves and fronds as fish poison
Enydra fluctuans Loureiro [Asteraceae]; *Boro – 432*	*Elachi*	Shoot	As vegetable as well as in nervous & skin diseases
Hydrocotyle sibthorpioides Lamark [Apiaceae]; *Boro – 68*	*Fisa manamuni*	Leaf	As a tonic for good health
Ipomoea aquatica Forsskål [Convolvulaceae]; *Boro – 125*	*Kolmow*	Leaf & shoot	Eaten as green vegetable
Lindernia rotundifolia (Linnaeus) Alston [Scrophulariaceae]; *Boro – 427*	*Gwdwi mosla*	Tender shoot	As leafy vegetable as well as chutney
Ludwigia adsendens (Linnaeus) Hara [Onagraceae]; *Boro – 425*	*Thaljuria*	Leaf	For curing ulcers and skin diseases
Nelumbo nucifera Gaertener [Nelumbonaceae]; *Boro – 211*	*Thoblo bibar*	Carpel & Torus	As vegetable
Nymphaea rubra Roxburgh *ex* Andrews [Nymphaeaceae]; *Boro – 188*	*Thoblo bibar*	Petiole, flower & rhizome	Boiled and consumed
Nymphaea nouchali Burman *f.* [Nymphaeaceae]; *Boro – 423*	*Thoblo bibar*	Petiole & rhizome	Petiole taken as supplementary vegetables. Powdered rhizomes used in diarrhea
Nymphoides indica (Linnaeus) O. Kuntze [Menyanthaceae]; *Boro – 421*	*Puduhagra*	Petioles & stolon.	Eaten as vegetables.
Oenanthe javanica (Blume) DC. [Apiaceae]; *Boro – 50*	*Thondor*	Whole plant	Used as vegetable.
Persicaria hydropiper (Linnaeus) Spach [Polygonaceae]; *Boro – 420*	*Bishagra*	Leaf & shoot	Leaves as fish toxicant. Shoot used to relieve toothache.
Sphenoclea zeylanica Gaertner [Sphenocleaceae]; *Boro – 55*	*Sibi maigong*	Tender shoot	As Leafy vegetable
Stellaria media (Linnaeus)Villars [Caryophyllaceae]; *Boro – 86*	*Jabsri*	Whole plant	Taken as leafy vegetables
Trapa natans Linnaeus var. ***quadrispinosa*** (Roxburgh) Makino [Trapaceae]; *Boro – 200*	*Singra*	Fruit	Fruits edible, nuts used in diarrhea

Table 2. Monocotyledonous wetland plants used by the ethnic people of the Udalgiri district of Assam

Name of plants	Vernacular name (Bodo)	Collected part(s)	Ethnic uses
Acoras calamus Linnaeus [Acoraceae]; *Boro – 404*	*Boch laifang*	Leaf, rhizome	Fresh leaves to flavor cooked items; rhizomes as carminative, stimulant and tonic
Alocasia acuminata Schott [Araceae]; *Boro – 172*	*Thaso gwswm*	Leaf, petiole, sucker, rhizome	Cooked and taken as curry
Colocasia esculenta (Linnaeus) Schott [Araceae]; *Boro – 171*	*Thaso guphur*	Leaf, sucker, rhizome	Taken as curry. Rhizome as skin softener also used to cure ear pain
Eichhornia crassipes (Martius) Solms [Pontederiaceae]; *Boro – 273*	*Methuka*	Whole plant	In preparation of local Khar (alkali)
Hygroryza aristata Nees [Poaceae]; *Boro – 403*	*Hagra dadbla*	Whole plant	As a fodder
Lasia spinosa Thwaites [Araceae]; *Boro – 312*	*Sibru*	Shoot, rhizome	Tender shoot taken as vegetable; rhizome in dysentery
Monochoria hastata (Linnaeus) Solms [Pontederiaceae]; *Boro – 274*	*Methuka*	Flower	As vegetable
Monochoria vaginalis Presl [Pontederiaceae]; *Boro – 275*	*Methuka*	Flower	As vegetable
Ottelia alismoides (Linnaeus) Persoon [Hydrocharitaceae]; *Boro – 281*	*Panikela*	Fruit	Taken fresh or cook
Phragmites karka (Retzius) Trinius *ex* Steudel [Poaceae]; *Boro – 406*	*Batha hagra*	Leaf & shoot	Leaves as a fodder. Mature leaves and stems used in hut roofing as well as in the preparation of mat and hat
Saccharum spontaneum Linnaeus [Poaceae]; *Boro – 407*	*Khasi hagra*	Shoot	For thatching as well as fodder
Sagittaria sagitifolia Linnaeus [Alismataceae]; *Boro – 413*	*Thaso laojeng*	Tuber, leaf	Tuber edible; leaves as antiseptic in insect bite
Scirpus articulatus Linnaeus [Cyperaceae]; *Boro – 415*	*Lao Hagra*	Leaf	As a fodder
Typha latifolia Linnaeus [Typhaceae]; *Boro – 419*	*Mwiderhagra*	Leaf	Weaving baskets and mats

Aquatic plant resources provide some traditional occupation to the Boro people. This occupation may be seasonal or annual and provides some monetary income to them. The Local *Khar*(alkali) prepared from *Eichhornia crassipes* provide a good cash income during winter season. The wetland vegetable plants *Centella asiatica, Oenanthe javanica, Ipomoea aquatic, Sphenoclea zeylanica* and *Lindera rotundifolia* are sold in the daily local markets. The tender leaves, petiole, flowers, runners and rhizomes of *Alocasia acuminata* and *Colocasia esculenta* are most collected edible wetland plants round the year and very favorite food items among the Boro community. It is observed that among these wetland plants *Bacopa monnieri, Centella asiatica, Ipomoea aquatica, Lindera*

rotundifolia, Sphenoclea zeylanica, Acoras calamus, Alocasia acuminata, Colocasia esculenta are economically viable for cultivation and marketing for their high demand among local peoples. Another very important wetland plants among the tribe are *Phragmites karka* and *Saccharum spontaneum.* The mature leaves of these two plants are used in thatching of their houses and the culms are used in wall of hut and fencing.

The aquatic bioresources are not explored well in the past and presently the wetlands/ aquatic ecosystems are destroyed and/ or vanishing rapidly due to various reasons. Thus, the plant bioresources are depleting rapidly jeopardizing the livelihood of the poor wetland dependent people. Therefore, measures for conservation of wetlands and wetland resources should be taken up priority by different government and non-governmental organization for the benefit of humanity.

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