

Aquatic angiosperm of BTC area, Assam, with reference to their traditional uses

Namita Deka and Nilakshee Devi

Department of Botany, Gauhati University, Guwahati, Assam

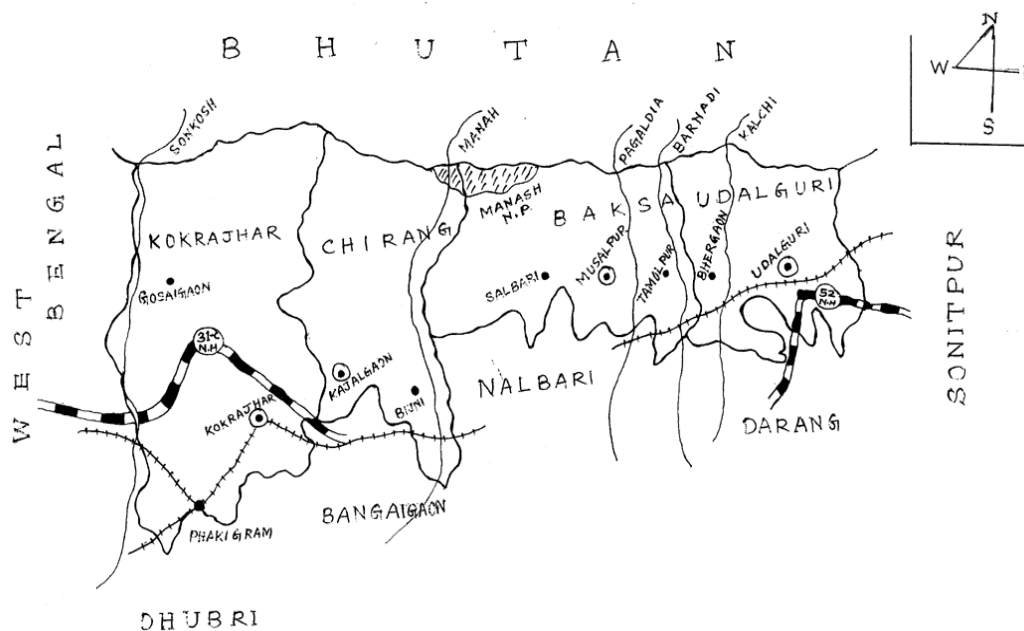
ABSTRACT

The diversity of aquatic plants of BTC area is quite rich due to presence of a large number of perennial water bodies. The study has reported the presence of 126 aquatic species which are used for various purpose by the tribal and non-tribal communities inhabiting there in. These plants belong to 89 genera and 48 families. Among these plants, 78 species belong to dicot and 48 to monocot. The food value, medicinal value and other uses of plants are reported. The habitat categorization of plants is also done.

Key words: Aquatic, Angiosperm, BTC, Bodo

INTRODUCTION

Assam being a part of Eastern Himalayas is rich in biodiversity. Assam is also quite rich in aquatic angiospermic flora. But this rich flora has not received much attention, with the result that our knowledge on this group is far from completion which is again based on a few sporadic publications. Aquatic vegetation is well observed in rivers, lake, marshy places, paddy fields, ponds, swamps, beels, ditches, jheels etc. Aquatic plants spend part of their life cycle in water or their seeds germinate in water phase or in substrate of water body[1]. The importance of these plants are of great significance among the tribal and non tribal people of BTC area [2]. They use these plants as food, medicine, dye, fire wood, for ritual purpose, Bodoland Territorial Council (BTC) Area which is located in the north bank of river Brahmaputra in Assam. The region is inhabited predominantly by Bodo speaking ethnic group. BTC includes four districts namely Baksa, Chirang, Udalguri and Kokrajhar. At present Kokrajhar town serves as the head quarter of Bodoland. The area under these four districts has been estimated as Kokrajhar 3169.2 SqKm., Chirang 1069.96 Sq.Km., Baksa 3056.89 SqKm and Udalguri 1673.93 SqKm. The geographic boundary of BTC lies between 26⁰7/12''N to 26⁰47/50''N latitude and 89⁰47/40''E to 92⁰18/30''E longitude and is situated at the North Western part of Assam. The provisional geographic area of BTC is 8795 SqKm. Many perennial water reservoirs such as rivers, beels, jheels and swamps are observed in these districts. Again monsoonal rains make ponds, ditches, puddles in plain areas and form temporary marshy depressions in and around reserve forests, paddy fields etc. All these provide an ideal luxuriant growth of hydrophytic plants which are categorized into free floating, rooted floating, rooted submerged, rooted emergent, freely submerged and wetland hydrophytes[3]. The rivers flowing over the area are Beki, Manas, Pahumara, Balti, Aai, Champabati, Gourang, Pagladia, Puthimari, Baralia etc. There are many beels in this area like Daula Beel, Barkharua , Thekrai Beel, Garhchorajhar Beel, Raisinglajhar Beel, Charan Beel, Deepalai Beel etc.



MAP OF
BODOLAND TERRITORIAL COUNCIL

MATERIALS AND METHODS

The specimens have been collected at their vegetative, flowering and fruiting stages at regular intervals covering all the seasons of the year. Herbarium Sheets (42cmX28cm) have been prepared following the procedures of [4]. Plants have been identified by comparing Voucher specimens with the collection of herbarium sheets of Botanical Department of Gauhati University, Kanjilal Herbarium, Shillong, CNH and by using different floras and monographs of [5, 6, 7, 8, 9, 10 and 11]. Families have been presented following [12] with slight modification. The local uses of plant species of the areas have been analyzed as per the process suggested by [13 and 14] and verified with [2 and 15]. Habitat Study and ecological categorization of the identified specimens have also been done.

RESULTS AND DISCUSSION

The aquatic and marshland vegetation of BTC area is quite rich. It shows high diversity due to presence of a large number of different kind of water bodies. The present study reveals the occurrence of 126 aquatic angiosperms belonging to 89 genera and 48 families. Among these families 32 belong to dicotyledonous and 16 belong to monocotyledonous plants. Regarding habitat categories, 85 species are wetland hydrophyte, 13 rooted emergent, 9 free floating, 12 rooted floating, 4 rooted submerged and 3 freely submerged. The wetland hydrophytes are the most dominating and grow on the peripheral areas of the wetlands. The 5 most representing families are Asteraceae(13 species), Polygonaceae(11 sps), Cyperaceae(8 species), Scrophulariaceae(8 species) and Commelinaceae(7 species). Many species are consumed by local people, some utilized for medicinal purpose and some for other purpose. E.g. tender shoot of *Ipomoea aquatica* are used as leafy vegetables, whereas dried stem of *I. fistulosa* is used as fire wood. Again local people consider *Utricularia*, *Najas*, *Eichhornia* as good manure for paddy fields. Some species like *Eriocaulon septangulare* which is endemic to western ghats has been recorded from this area. The submerged species *Myriophyllum indicum* is endemic to India. Some rare species collected from the area are *Nelumbo nucifera*, *Euryale ferox*, *Trapa natans* L. var. *bispinosa*. *Rotala* sps are also considered to be endemic. The orchid *Spiranthes cernua* is available in the wetlands of BTC area. The seeds of *Hygroryza aristata* can be cooked as rice during starvation.

Table1: Number of water bodies surveyed in BTC area

Sl. No.	Type of water bodies	No. of water bodies
1	Wetlands	20
2	Ponds	50
3	Rivers	7
4	Ephemeral	50

24	Solanaceae	<i>I. fistulosa</i> (Mart ex Choisy)Aust	Flowers as mild purgative, stem as fire wood	Wetland hydrophytes
25	Hydrophyllaceae	<i>Nicotiana plumbaginifolia</i> Viv.	Leaf paste applied on tongue swellings	Wetland hydrophytes
26	Scrophulariaceae	<i>Hydrolea zeylanica</i> (L.) Vahl	Leaves antiseptic	Wetland hydrophytes
		<i>Bacopa monnieri</i> (L.)Pennell	Edible as leafy vegetable	Rooted emergent
		<i>Limnophila heterophylla</i> (Roxb.)Bentham	Twig paste applied in hair	Rooted submerged
		<i>L. sessiliflora</i> (Benth.) Wett.	As organic fertilizer	Rooted emergent
		<i>L. crustacea</i> (L.)F.Muell.	Leaf crust used in jaundice, leucorrhoea	Wetland hydrophytes
		<i>L. dubia</i> (Linn.) Pennell	Twig paste in skin diseases	Wetland hydrophytes
		<i>L. pusilla</i> (Willd.)Bold.	As leafy vegetable	Wetland hydrophytes
		<i>L. rotundifolia</i> (L.)Alston	Leaf juice given to eat in dysentery of child	Wetland hydrophytes
		<i>L. ruellioides</i> (Colsm.)Pennell	Leaf juice in dysentery of child	Wetland hydrophytes
27	Verbanaceae	<i>Phyla nodiflora</i> (L.) Greene	Plants febrifuge, diuretic	Wetland hydrophytes
28	Lamiaceae	<i>Dysophylla stellata</i> (Lour.) Benth.	Whole plant in skin diseases	Rooted emergent
29	Lentibulariaceae	<i>Utricularia aurea</i> Lour.	Whole plant in prevention of diseases caused by mosquito	Freely submerged
30	Rubiaceae	<i>Oldenlandia corymbosa</i> L.	Leaf extract eaten in fever	Wetland hydrophytes
31	Campanulaceae	<i>Sphenoclea zeylanica</i> Gaertn	As leafy vegetable	Rooted emergent
32	Asteraceae	<i>Cotula hemisphaerica</i> (Roxb.)Wall. Ex Benth.	Leaf in inflammation	Wetland hydrophytes
		<i>Eclipta prostrata</i> L.	Leaf extract in liver disorder, scorpion sting & also as dye	Wetland hydrophytes
		<i>Enhydra fluctans</i> Lour.	As leafy vegetables and in hypertension	Rooted floating
		<i>Erechthites valerianaefolia</i> D.C	whole plant in malaria	Wetland hydrophytes
		<i>Gnaphalium indicum</i> L.	Twig paste as antidandruff	Wetland hydrophytes
		<i>G. polycaulon</i> Pers.	Leaf anti diabetic	Wetland hydrophytes
		<i>Grangea maderaspatana</i> (L.)Poir	Leaf used in burning	Wetland hydrophytes
		<i>Lactuca saligna</i> Linn.	Whole plant in abdominal diseases	Wetland hydrophytes
		<i>Mikania micrantha</i> Kunth	Leaf in insect bite	Wetland hydrophytes
		<i>Spilanthes paniculata</i> Wall.ex DC	As leafy vegetable	Wetland hydrophytes
		<i>Spilanthes acmella</i> Murr.	Root paste applied to control tooth ache	Wetland hydrophytes
		<i>Sonchus arvensis</i> Linn.	Roots in jaundice	Wetland hydrophytes
		<i>Wedelia chinensis</i> (Osbeck)Merr	Leaf hepatoprotective; in hair blackening.	Wetland hydrophytes
33	Alismataceae	<i>Sagittaria guayanensis</i> Humb.,Bonp.& Kunth	Tubers in gastric troubles	Rooted floating
		<i>S. sagittifolia</i> Linn.	Plants used to induce flow of lochia	Rooted emergent
34	Hydrocharitaceae	<i>Hydrilla verticillata</i> (L.f.)Royle	As organic fertilizer	Rooted submerged
		<i>Ottelia alismoides</i> (L.)Perso	Fruits edible, seed diuretic	Rooted submerged
		<i>Vallisneria spiralis</i> L.	As organic fertilizer	Rooted submerged
35	Najadaceae	<i>Najas indica</i> (Willd)Cham	as green fertilizer	freely submerged
36	Commelinaceae	<i>Amisophacelus axillaris</i> (L.) Rao et Kamathy	Whole plants in tympanites	Wetland hydrophyte
		<i>Commelina benghalensis</i> Linn.	Leaves applied in wounds and roots filtrate given to treat in liver troubles	Wetland hydrophyte
		<i>C. diffusa</i> Burm.f.	Stem mucilage applied in wounds	Wetland hydrophyte
		<i>C. obliqua</i> Buch.Ham	Stem mucilage in wounds	Wetland hydrophyte
		<i>Floscopa scandens</i> Lour.	Leaf sap applied to treat inflammation of eyes	Wetland hydrophyte
		<i>Murdannia nudiflora</i> (L.) Brenan	whole plant in bronchitis	Wetland hydrophyte
		<i>M.loriformis</i> (L.) Bruckner	Whole plants in cough, cold, inflammation	Wetland hydrophyte
37	Eriocaulaceae	<i>Eriocaulon septangulare</i> Linn.	Leaf and inflorescence applied in skin diseases	Rooted emergent
38	Pontederiaceae	<i>Eichhornia crassipes</i> (Mart) Solms (Buch-Ham.ex Meisn) Sojak	As organic fertilizer	Free floating
		<i>Monochoria hastata</i> (L.) Solms	Flowers edible	Rooted emergent
		<i>M. vaginalis</i> (Burm.f.) presler ex Kunth	Flowers edible	Rooted emergent
39	Arecaceae	<i>Calamus tenuis</i> Roxb.	Stem in furniture; fruit edible	Wetland hydrophyte
40	Acoraceae	<i>Acoras calamus</i> Linn.	Rizomes used as carminative, stimulant & as a tonic	Wetland hydrophyte
41	Araceae	<i>Amorphophalus campanulatus</i> Blume	Dried, boiled tuber edible	Wetland hydrophyte
		<i>Colocasia esculenta</i> (L.) Schott.	Rhizome, petiole, leaf edible as vegetables	Wetland hydrophyte
		<i>Lasia spinosa</i> (L.) Thw	Rhizome used in dysentery; tender shoot edible	Wetland hydrophyte
		<i>Peltandra virginica</i> (L.) Kunth	Rhizome used in dysentery	Rooted emergent
		<i>Pistia stratiotes</i> Linn.	leaves used in piles	Free floating
		<i>Typhonium trilobatum</i> (L.) Schott	Petiole edible as vegetable	Wetland hydrophyte
42	Lemnaceae	<i>Lemna minor</i> Linn.	As duck & fish food	Free floating
		<i>L. perpusilla</i> Torrey	As duck & fish food	Free floating
		<i>Spirodela polyrhiza</i> (L.)Sch.	As duck & fish food	Free floating
		<i>Wolffia punctata</i> Griseb	As duck & fish food	Free floating
43	Typhaceae	<i>Typha latifolia</i> Linn.	Leaf for weaving baskets, mats etc	Wetland hydrophyte
44	Cyperaceae	<i>Cyperus exaltatus</i> Retz.	As fodder	Wetland hydrophyte
		<i>C. difformis</i> Linn.	Root extract in fever, cold, cough	Wetland hydrophyte
		<i>C. distans</i> Linn. F	Root extract in fever, cold, cough	Wetland hydrophyte
		<i>C. iria</i> Linn.	Root extract in fever, cold, cough	Wetland hydrophyte
		<i>Eleocharis rostellata</i> (Tor.)Tor.	As fodder	Wetland hydrophyte
		<i>Fimbristylis miliacea</i> (L.) Vahl	Root extract in cold, cough	Wetland hydrophyte
		<i>Mariscus mentimus</i> Kunth.	As fodder	Wetland hydrophyte
		<i>Scirpus debilis</i> Pursh	Tubers in vomiting and dysentery	Wetland hydrophyte
45	Poaceae	<i>Hygroryza aristata</i> (Retz.) exNees. whight & Arn	Seeds cooked as rice	Free floating
		<i>Hymenachne assamica</i> (Hook.) Hitch.	As fodder	rooted emergent
		<i>Panicum miliaceum</i> Linn.	As fodder	Wetland hydrophyte
		<i>Urochloa platyphylla</i> (Munro ex C. Wright) Web	As fodder	Wetland hydrophyte
46	Zingiberaceae	<i>Alpinia galanga</i> (L.) Sw.	Seeds used as spice	Wetland hydrophyte
		<i>Hedychium coronarium</i> Koen ex Retz	Flowers used during bath	Wetland hydrophyte
47	Cannaceae	<i>Canna indica</i> var. <i>flava</i> (Ros. Ex Bak.) Nb Tan.	As ornamental plant	Wetland hydrophyte
		<i>Canna indica</i> var. <i>indica</i> L.	As ornamental plant	Wetland hydrophyte
48	Orchidaceae	<i>Spiranthes cernua</i> (L.)Rich.	Plant tea used as diuretic for urinary disorders	Wetland hydrophyte
		<i>Zeuxine affinis</i> (Lind.)Benth. ex Hook.f.	Rhizome in tuberculosis	Wetland hydrophyte

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