

Ethno-medicinal uses of Asteraceae in Barak Valley, Assam

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SUMMARY

The North Eastern region in general and Assam in particular is known for the rich floristic diversity. Therefore, in the present study the first attempt to make an inventory and analysis of the different species of the Asteraceae family and extensive surveys were carried out during 2008-2010 in the Barak Valley or South Assam of North East India. The study represented a total of 34 species and 32 genera of Asteraceae family of Angiosperms. Species like *Ageratum conyzoides*, *Spilanthes paniculata*, *Xanthium strumarium*, *Mikania micrantha*, *Eclipta prostrata* and *Chromolaena odorata* are the most common weeds in the fields of the study area. Though, most of the species are weeds but rural and tribal people utilized them as medicines mostly in minor cuts and wounds. Some of the species of this family grow abundantly well in Barak Valley, but no research has been conducted on these valuable plants. It requires immediate ethno-ecological study for the cultivation and conservation of plants of Asteraceae in Barak valley as well in North east India. Conservation activities should be concerned with all medicinally important species. There is a greater need to combine ethno-botanical information with ecological studies of Asteraceae.

Key Words : Asteraceae, Ethno-medicine, Weeds, Barak Valley, Assam

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Asteraceae or the Aster family of Angiosperms, formerly known as Compositae, features plants with flower heads made up of many tiny flowers arranged in a central disc, with outer petals giving the overall inflorescence its disc-like shape. Asteraceae is one of the largest families of vascular plants represented by 30,000 species and over 1100 genera all over the world. In India, there are 900 species under 167 genera. The North Eastern region in general and Assam in particular is known for the rich floristic diversity. IUCN has recognized India as one of the world's 17 mega diversity countries and within the country this region or north east India deserves the special mention for being one of the richest areas in plant endemism. On the basis of availability of a number of primitive terrestrial angiosperms, Takhtajan

(1969) considered this region as the cradle of flowering plants. Utility of a vast majority of plant species still remain unexplored, because most part of the area are still without communication and inhabited mostly by backward ethnic community. The "*Flora of Assam*" by Kanjilal *et al.*, 1934-1940 is the most important contribution which paid special attention to woody or arborescent plants; and casually made references to herbaceous plants and described 3431 species including a few varieties. Over the years a good number of district level explorations and collections have been made in this valley especially by Botanical Survey of India, ERC, Shillong; Assam University, Silchar; Gauhati University, Guwahati and North Eastern Hill University, Shillong. Despite all these efforts, the floristic data-base of Assam and North Eastern Regions still remains incomplete. The exact number of species occurring in the Barak valley region is uncertain due to lack of inadequate exploration. Some of the district level floristic studies include Malakar (1995), Das (2007), Das (2009) and Sharma *et al.* (2002) So far, there is no published record of Asteraceae from Barak Valley of Assam. Therefore, in the present study the first attempt to make an inventory and analysis of the different

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species of the Asteraceae family and extensive surveys were carried out during 2008-2010 in the study area.

Geographically Barak Valley region, situated in the Southern part of Assam of North East India, covers an area of 6922 sq. km. and comprises of three districts, viz., Cachar, Karimganj and Hailakandi. The Barak valley region is surrounded by N.C. Hill district of Assam and the Jaintia Hills of the state of Meghalaya on the north, Manipur state in the east, Mizoram state in the South and Tripura state and the Sylhet district of Bangladesh on west. The area is located within 24° 82' and 25° 82' N Latitude and 92° 15' and 93° 15' East longitude with an altitude of 26 – 27 m above MSL. Barak valley is a heterogeneous composed of high hills, low lands and plains. On the north, east and south it is girdled by ranges of forested hills. The peaks of the Bhuban range on the eastern frontier covers a considerable area having peaks over 900 m above MSL. While the high lands are with tea plantations, the lower level lands are used for paddy cultivation. The river Barak flows from east to west through the central plain land of the valley. A number of its tributaries like Jiri, Chiri, Madhura and Jatinga flow towards the North and Sonai, Dholeswari and Katakhal towards South. This valley has provided habitat for a number of ethnic groups who are mostly located in rural areas, Punjis and reserve forests. Some of the dominant Ethnic groups of the region are Dimasa, Jaintea, Kuki, Rongmai Naga, Hmar etc.

Geologically, the Barak Valley region as a whole is younger than the Brahmaputra Valley. It is entirely alluvial zone and is composed of pebbles, sand, silt, clay and sometimes a mixture of sand and clay containing decomposed vegetable matter. Formation of laterite and stony profile at places are common. The rocks in this area are predominantly sand and clay shell. The soil in general has dark brown to yellowish brown and mainly redder sub-surface. Variability does exist depending on the level of degradation, type of vegetation etc.

MATERIALS AND METHODS

To enumerate the species of the study area, intensive field visits were undertaken at monthly intervals throughout the year during 2008 to 2010. A substantive amount of species have been collected from the study area and critically studied them in their natural habitats, their vegetation, flowering and fruiting stage etc. The observation were noted in the field note book, with special reference to their habit and habitats, their height, colour of flowers and fruit, place of collection, dates and native uses of if any. The collected specimens were pressed, dried and after poisoning the species were mounted on the herbarium sheets. Herbarium methods and techniques were followed as suggested by Jain and Rao (1977). For authentic identification of the collected specimens, Flora of Assam

(Kanjilal and Bar, 1934-1940) and Flora of British India (Hooker, 1872-1897) were consulted and finally confirmed by consulting experts and Herbarium of Botanical Survey of India, ERC., Shillong. All the specimens collected were deposited in the Herbarium of Cachar College Botany Department, Silchar, Assam.

RESULTS AND DISCUSSION

Collected plants are enumerated in a tabular form (Table 1) arranging alphabetically, correct scientific name with author citation, flowering time and fruiting time, parts used and status and ethno-medicinal uses. The ethno-medicinal values of the plants are based on the information obtained from the tribal viz., Dimasa, Rongmai, Jaintia and Kuki of Barak valley.

Altogether 35 species belonging to 33 genera were found in the study area during the survey period and the study revealed that Barak valley of Assam was rich in Asteraceous vegetation which dominates other phanerogams and the survey showed that most of the genera were represented by only one or two species.

Species like *Ageratum conyzoides*, *Spilanthes paniculata*, *Xanthium straudmanium*, *Mikania micrantha*, *Eclipta prostrata* and *Chromolaena odorata* is the most common weeds in the study area. Species of *Tagetes*, *Cosmos*, *Dahlia*, *Chrysanthemum* and *Helianthus* etc. being cultivated as seasonal and ornamental flower by the people and farmers of the area.

Though, many species were weedy but even some of these species were used as traditional remedies (mostly in minor cuts and wounds and skin diseases) and as traditional food (*Enhydra fluctuans*) by rural and tribal people.

Due to various anthropogenic activities such as construction of roads, urbanization and townships; the species-rich forests are experiencing threat of extinction both known and unknown. It is therefore, important that conservation strategy be directed more strongly to those areas which deserve protection and preservation. Emphasis should be given on study of the biodiversity especially the ethno-medicinal plants of the entire area. Conservation of RET species and their documentation through collection, identification, description and preservation from such unexplored areas need to be undertaken immediately.

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Table 1 : Botanical name, flowering and fruiting time, plants parts used, status and ethno-medicinal uses of different species

| Botanical name | Flowering and fruiting time | Parts used | Status and Ethno-medicinal uses |
|---|------------------------------------|-------------|--|
| <i>Ageratum conyzoides</i> L. | Jan. to April and June to December | Leaves | Weeds and leaves are used as in minor cuts wounds |
| <i>Artemesia maritima</i> L. | Jan. to March | Whole plant | Used as ritual |
| <i>Biden pilosa</i> L. | September to January | – | Weeds |
| <i>Blumea lacera</i> (Burm.f.) DC. | Dec. to Feb. | Leave | Leaves in stomach disorder |
| <i>Calendula officinalis</i> L. | November to March | – | Cultivated as garden and seasonal flower |
| <i>Chromolaena odorata</i> (L.)R. King and H. Robins. | November to January | Leaves | Weeds, and Leaf paste is applied locally in toothache and also to healing cut injury |
| Syn.: <i>Eupatorium odoratum</i> L. | | | |
| <i>Chrysanthemum coronarium</i> L. | November to March | – | Cultivated as seasonal flower in garden |
| <i>Conyza bonariensis</i> (L.) Cronq. | Feb. to Sep. | Leaves | Leaves are used in stomachache |
| <i>Cosmos bipinnatus</i> Cav. | November to March | – | Cultivated as garden and seasonal flower |
| <i>Crassocephalum crepidioides</i> (Benth.) S. Moore Syn. <i>Gynura crapedioides</i> Benth. | Sep. to Nov. | – | Found in road sides |
| <i>Dahlia pinnata</i> Cav. | November to March | – | Cultivated as garden and seasonal flower |
| <i>Dichrocephala latifolia</i> DC. Syn.: <i>D integrifolia</i> (L.f.) Kuntze | September to December | – | Weeds |
| <i>Eclipta prostrata</i> L. | July to September and March to May | Stems | Weeds and root and stems are used as medicines |
| <i>Elephantopus scaber</i> L. | June to August | Roots | Weeds and roots are used as abscess |
| <i>Enhydra fluctuans</i> L. | July to September and March to May | Leaves | Weeds and also used as vegetables |
| <i>Erechthites valeranaefolia</i> DC | Throughout the year. | – | Weeds |
| <i>Erigeron asterioides</i> (L.)Pers | September to December | Whole plant | Whole plant is used as medicine |
| <i>Gnaphalium indicum auct. non L.</i> | February to March. | – | Weeds |
| <i>Helianthus annuus</i> L. | Nov. to March | Whole plant | Whole plant as medicine and seeds yield oil |
| <i>Inula indica</i> L. | March to February | – | Found in hilly slopes |
| <i>Lagascea mollis</i> Cav. | Nov. to March | – | Weeds |
| <i>Mikania scandens auct. non Willd.</i> Syn. <i>M. micrantha</i> Kunth ex H.B.K. | November to January | Leaves | Weeds and the crushed leaves are applied in minor cuts |
| <i>Parthenium hysterophorus</i> L. | Almost throughout the year | – | Weeds |
| <i>S. asper</i> L. | Nov to March | – | Found in road sides |
| <i>Siegesbeckia orientalis</i> L. | July to September | Leaves | Whole plant is used in skin diseases. |
| <i>Sonchus. arvensis</i> L. | Nov. to March | Leaves | Leaves juice used in fever |
| <i>Spilanthes paniculata</i> Wall. Ex Dc. Syn. <i>S. acmella auct.non</i> (L) Murr. | Throughout the year | Leaves | Weeds and leaf paste is applied locally in toothache. |
| <i>Tagetes petula</i> L. | Nov. to March | Leaves | Used as to stop bleeding in minor cut and cultivated as garden and seasonal flower |
| <i>Tridax procumbens</i> L. | Almost throughout the year | Whole plant | Weeds and leaves are used to stop bleeding in minor cuts and wounds |
| <i>V. divergens</i> Benth. | Nov. to April | – | Weeds |
| <i>Vernonia cinerea</i> (L.) Less | Nov. to Feb. | Whole plant | Weeds and whole plant is used as medicine (Menstrual, disorder) |
| <i>Wedelia chinensis</i> (Osborne) Merr. | Mar. to Sep. | Leaves | leaf paste used in cuts wounds |
| <i>Xanthium stramarium</i> L. | November to January. | Whole plant | Weeds and leaves are used as medicine in skin diseases |
| <i>Zinnia elegans</i> Jacq. | Nov. to March | – | Cultivated as garden seasonal flower |

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