

Biodiversity of Aquatic Flora in Jamtara District of Jharkhand With Reference to Asteraceae Family

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ABSTRACT

The present paper deals about range of aquatic vegetation with reference to Asteraceae family in Jamtara district of Jharkhand state. Aquatic plants, which have been regarded as water loving plants form footing of limnetic habitat, occupying different ecological niche in aquatic environment. The present work deals about 6 aquatic plants of Asteraceae family under 6 genera out of which five are marginal and one emersed plant. The samples were collected and identified as per BSI guidelines and their taxonomic study was done which includes citation of botanical names, local names, families and important vegetative and floral characters along with their local and therapeutic use.

Keywords : Aquatic plants, Asteraceae, Jamtara, Water loving, Biodiversity.

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INTRODUCTION

Biodiversity or biological diversity refers to totality of genes, species and ecosystem of a region. It includes all life forms with their manifold variety that occurs on the earth. It encompasses not only ecosystems population and species but the different subunits of species, each possessing unique characteristic attributes.

There is great diversity of life in nature. Biodiversity is the variety and variability of all animals, plants and microbes found in all kinds of habitat on earth. Organisms differ from each other due to different genetic makeup. Diversity of organisms can be seen at the species level, genetic level and community or ecosystem level. All these are interrelated because living organisms interact with each other in many different ways playing variety of role both for ecosystem and human welfare. It is important not only for aesthetic and cultural values but it is the foundation of ecological balance and other

ecosystem services. It makes the environment a self-sustaining and self-regulating system. Biodiversity is the foundation of ecosystem services and it may be regarded as the sauce of life. It is crucial for the functioning of ecosystems like oxygen, food, fresh water, fertile soil, medicines, shelter, protection from storms and floods, stable climate and recreation.

Aquatic plants can be regarded as hydrophytes occupying different ecological niche in aquatic environment. They grow and complete their major part of life in water. Various water bodies like ponds, pools, ditches, streams, lakes and rivers are dominated with varieties of water loving plant species constituting the primary producers of aquatic ecosystem. Aquatic flora is important to other kinds of biotic components in aquatic habitat by converting solar energy into chemical energy by the process of photosynthesis. Water bodies can have living status as they support various life forms ranging from microscopic phytoplankton to higher angiospermic vascular plants.

According to Cook (1996), "Aquatic plants are the plants whose photosynthetically active parts remain permanently, or at least, for several months in a year partly or wholly, remain submerged in water or which float on the surface of water".

The present paper deals about range of aquatic plants under Asteraceae (Compositae) family found in Jamtata area. Asteraceae is regarded as the most advanced and highly evolved family occupying highest position in the plant kingdom. Compositae, the original name of Asteraceae family is divided into two subfamilies i.e. Asteroideae and Cichorioideae. The members of this family are mostly herbs or shrubs with alternate leaves, inflorescence capitulum, flowers tubular or ligulate, uni or bisexual, pentamerous, gamopetalous, petals and stamens 5, epipetalous, ovary unilocular, inferior with basal placentation, stigma bifid and fruit cypsela.

MATERIALS & METHODS

Jamtara district lies between 23°10' – 24°05' north latitudes and 86°30' – 87°15' east longitude, lying at the lower altitude of Chhotanagpur plateau. It is fabulous treasure of aquatic vegetation being dominated by tribal communities. Being enriched with herbal knowledge, they manage their bread and butter by utilizing aquatic plants growing in their vicinity for various purposes. The present work includes regular visit of the sampling sites for collection and identification of plants. The samples were collected and identified as per BSI guidelines and their taxonomic study was done. Taxonomic study includes citation of botanical names, local names, families and important vegetative and floral characters along with their local and therapeutic use.

Result & Discussion

The present work includes study of six aquatic plants under Asteraceae family including both native and invasive plants have been discussed as follows with suitable identification key.

- I. Flowers head medium, separated, solitary in corymbose clusters, bracts of the involucre narrow: **Blumea** DC.

- II. Flowers head small, in dense globose or ovoid masses, herbs with winged stem, pappus present: **Sphaeranthus** L.
- III. Flowers head with many flowers, heterogamous, disciform: **Gnaphalium** L.
- IV. Inner bracts of the involucre flat; scales of the receptacle flat, very narrow, usually few disc florets 4-toothed: **Eclipta** L.
- V. Ligules small, yellow; receptacle elongate: **Spilanthes** L.
- VI. Inner bracts of involucre embracing and enclosing the achenes of the fertile ray florets: **Enhydra**, Lour.

Marginal Plants

1. *Blumealacera* (Burm.f.), Haines, BBO. rep. ed. 493. 1961.

Erect aromatic herb; stems grooved with stalked glands; leaves oblong – obovate, serrate, rarely lyrate lobed, glands and minute hairs on both the surface; heads in short panicles, florets yellow; achenes hairy.

Local name: Janglimuli.

Field notes: Commonly found in moist shady places.

Fls. & Frts.: January – March.

This plant is used by poor mass of people as leafy vegetable.

2. *Sphaeranthus indicus* Linn. Haines, BBO. rep. ed. 494. 1961; Naskar, ASPLG. 158. 1990; Cook, AWPI. 72. 1996.

Prostrate, annual herb, much branched; leaves sessile, alternate, oblong or elliptic or oblanceolate; flowers pink or purple, heterogamous compact; achenes hairy and glandular.

Local name: Murmuria.

Field notes: Commonly found in moist places, ponds and road side ditches.

Fls. & Frts.: November – March.

This aquatic weed is highly aromatic and used in

toothache and in fish poisoning. It is diuretic and laxative too.

3. *Gnaphalium indicum* Linn., Naskar, ASPLG. 155. 1990.

Erect annual herb; leaves alternate, linear obovate; head small, heterogamous, pale yellow; achene oblong; pappus hairs free.

Local name:

Field notes: Commonly found along the river banks.

Fls. & Frts.: August – May.

4. *Eclipta prostrata* Linn., Naskar, ASPLG. 153. 1990; Cook, AWPI. 69. 1996.

E. alba L. Naskar, ASPLG. 152. 1990.

Prostrate or ascending annual herb; often rooting at nodes; stem hairy; leaves opposite, sessile, oblong – lanceolate or linear – lanceolate, entire or serrate; heads white, heterogamous; pappus usually absent.

Local name: Kesul or Bhingraj.

Field notes: Commonly found along drains and in moist places.

Fls. & Frts.: Throughout the year.

It is used as tonic in liver related problems. The leaves are also used during scorpion bite.

5. *Spilanthes acmella* Linn., Haines, BBO. 3:482. 1978.

A herb with long weak stems creeping at the base, sometimes erect or ascending; leaves simple, petiolate, opposite, ovate or lanceolate - serrate; pretty yellow heads with very prominent centre.

Local name: Akarkara

Field notes: Commonly found around water drain and moist places.

Fls. & Frts.: September – March.

Emerald Plant

6. *Enydra fluctuans* Lour., Haines, BBO. rep. ed. 3: 479. 1978; Naskar, ASPLG. 154. 1990.

Annual prostrate herb; stem prostrate and succulent,

rooting at the nodes; leaves opposite, narrowly oblong, serrate; Heads terminal or axillary, heterogamous, sessile; achenes black and glabrous.

Local name: Hingcha.

Field notes: Commonly found at the edges of ponds and ditches.

Fls. & Frts.: December - March.

The leaves are used as laxative. It is rich source of minerals also.

Conclusion

Aquatic plants constitute important footings of aquatic ecosystem which play important role to maintain biodiversity. Aquatic plants in general and the members of family Asteraceae in particular are economically important too, both in the field of ethnobotany and food and fodder.

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