



Studies on Floristic Diversity of Aquatic Flora of Akot Region, Dist. Akola, Maharashtra, India

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ABSTRACT:

This paper deals with the floristic diversity of aquatic flowering plants, which are classified into four different categories, viz. Free -floating hydrophytes, Submerged or suspended hydrophytes, Floating leaved hydrophytes and Emergent or amphibious or marshy hydrophytes. There are 48 taxa of flowering plants, which belongs to primitive and advanced families. Family Onagraceae represents the primitive one and families Cyperaceae and Poaceae represent the advanced families. Taxonomic details have been documented. Akot region of Akola district is rich in perennial lakes, ponds, ditches, rivers, and streams and most of these water bodies are rich in aquatic flora.

KEYWORDS: Aquatic plants, floristic diversity, Akot region.

INTRODUCTION:

Hydrophytes are plants normally growing in water and also include plants inhabiting swampy or marshy habitats containing a quantity of water which would prove much more than optimal for the average land plant. It will be evident that hydrophytes are subject to less extremes of temperature than land plants for the watery habitat in which the plants grow certainly takes longer to be heated and also longer to cool.

Vascular plants inheriting from remote marine ancestors a multicellular body with unlimited apical growth and a dimorphic life cycle slowly conquered the land and spread themselves over much of the land surface. Yet, despite this flourishing conquest of the land, some angiosperms, most of them herbs travelled back into fresh-waters.

Aquatic plants are essential parts of natural aquatic systems and form the basis of a water body's health and productivity. The aquatic flora is of great use in fish-culture, which is practiced on large scale in the district. Some of the aquatic plants are also used for various economic uses. Akot region of Akola district is rich in perennial lakes, ponds, ditches, rivers and streams and most of these water bodies are rich in aquatic flora.

MATERIAL AND METHODS:

To study the aquatic flora of the Akot region, extensive visits were arranged to various regions of the area in different seasons. The plants were observed in their natural habitat and the phenological data were collected and recorded in the field diary. The digital photographs of plants were taken with their unique characteristics that can help in identifying the plants in the natural habitat.

The convenient and easy method of classification was given by Tansley, A. G. (1949) British ecologists.

RESULTS AND DISCUSSION:

The present paper deals with enumeration of 48 plant species of angiosperms both Dicot and Monocot found in aquatic habitats during the floristic exploration of the Akot region from 2018 to 2020. The aquatic plants studied and documented from the region were classified into four different groups according to classification of Tansley as follows.

1. FREE FLOATING HYDROPHYTES:

These plants are not attached to the substratum inside the water body. The plant body floats on the surface of water with root system inside the water and rest of the part of the body above the water surface. These include four plant species viz. *Ceratophyllum demersum* L., *Eichhornia crassipes* (Mart.) Sohm., *Pistia stratiotes* L. and *Wolffia arrhiza* L.

2. SUBMERGED OR SUSPENDED HYDROPHYTES:

Submerged are either attached to the substratum by means of roots or may not attached but are completely grows inside the water. These include four plant species viz. *Utricularia scandens* Benj., *Hydrilla verticillata* (L.f.) Royle, *Vallisneria spiralis* L., and *Najas indica* (Willd.) Cham.

3. FLOATING LEAVED HYDROPHYTES:

These plants are usually perennial hydrophytes with rhizomatous stock in the soil at the bottom of water body. They grow usually with flexible petioles so that the leaves are adjusted to float on the surface of water. These include four plant species viz. *Nymphoides hydrophylla* (Lour.) O. Ktze, *Ottelia alismoides* (L.) Pers., *Sagittaria guayanensis* H. B. & K. ssp. *lappula* (D. Don) Bogin. and *Aponogeton natans* (L.) Engl. & Krause.

4. EMERGENT OR AMPHIBIOUS OR MARSHY HYDROPHYTES:

These plants usually grow on exposed or submerged soils and most of plants are perennial due to rhizomatous or underground stem. These include thirty six plant species viz. *Cleome chelidonii* L. f., *Tamarix ericoides* Rollt., *Bergia ammannioides* Roxb., *Ammannia baccifera* L. *Rotala verticillaris* L., *Ludwigia octovalvis* (Jacq.) Raven, *Mollugo pentaphylla* L., *Rotula aquatica* Lour., *Ipomoea aquatica* Forssk., *Ipomoea carnea* Jacq. subsp. *fistulosa* (Mart, ex Choisy) Austin, *Bacopa monnieri* (L.) Penn., *Limnophila aquatica* (Roxb.) Alston, *Limnophila indica* (L.) Druce, *Microcarpaea minima* (Koen. ex Retz.) Merr., *Hygrophila schulli* (Buch.-Ham.) M. R. & S. M. Almeida, *Phyla nodiflora* (L.) Greene, *Monochoria vaginalis* (Burm. f.) K. B. Presl, *Commelina diffusa* Burm. f., *Murdania nudiflora* (L.) Brenan, *Typha angustifolia* L., *Alocasia macrorhiza* (L.) G. Don., *Colocasia esculenta* (L.) Schott, *Sagittaria trifolia* L., *Cyperus distans* L. f., *Cyperus flabelliformis* Rottb., *Cyperus nutans* Vahl var. *eleusinoides* (Kunth) Haines, *Fimbristylis microcarya* F. v. Muell., *Fimbristylis ovata* (Burm. f.) Kern, *Fimbristylis schoenoides* (Retz.) Vahl., *Kyllinga nemoralis* (J.R. & G. Forst.) Dandy ex Hutch. & Dalziel., *Scirpus affinis* Roth, *Scirpus grossus* L. f., *Scleria parvula* Steud., *Arundinella pumila* (Hochst. ex A. Rich.) Steud., *Coix lacryma-jobi* L., *Paspalidium flavidum* (Retz.) A. Camus, *Sacciolepis interrupta* (Willd.) Stapf.

The total 48 hydrophytes were recorded from the Akot region which are categorized or classified into four groups. The most dominant families of these plants species are Cyperaceae, Poaceae, Scrophulariaceae, Hydrocharitaceae, Lythraceae, Onagraceae, Lentibulariaceae, Commelinaceae, and Alismataceae. Out of the total plant species recorded, most of the species i.e., Thirty six are from Emergent or amphibious or marshy habitats. These plants usually growing in water lodged soils and adopted for similar type of habitats. Four plant species belongs in the category of Floating leaved hydrophytes. These plants are submerged and only leaves are floating on the surface of water. Four plant species are found in the submerged hydrophytes category. These plants may be or may not be attached to the substratum by means of their root systems.

Table-1: Enumeration of Aquatic plants

S.N.	Name of Plant	Vernacular Name	Family	Type
1.	<i>Alocasia macrorhiza</i> (L.) G. Don.	M- Kaasaalu E-Giant Taro	Araceae	Emergent or amphibious or marshy hydrophytes
2.	<i>Ammannia baccifera</i> L.	M- Aginbuti, Dadmari E- Blistering Ammania	Lythraceae	Emergent or amphibious or marshy hydrophytes
3.	<i>Aponogeton natans</i> (L.) Engl. & Krause	E-Floating lace plant	Aponogetonaceae	Floating leaved hydrophytes
4.	<i>Arundinella pumila</i> (Hochst. ex A. Rich.) Steud.	E- Dwarf Reed grass	Poaceae	Emergent or amphibious or marshy hydrophytes
5.	<i>Bacopa monnieri</i> (L.) Penn.,	M-Bramhi E-Thyme Leaved Gratiola	Plantaginaceae	Emergent or amphibious or marshy hydrophytes
6.	<i>Bergia ammannioides</i> Roxb.,	E-Water fire	Elatinaceae	Emergent or amphibious or marshy hydrophytes
7.	<i>Ceratophyllum demersum</i> L.	M- Saivala E- Hornwort	Ceratophyllaceae	Free floating hydrophytes
8.	<i>Cleome chelidonii</i> Boj.	M- Pan Tilvan E-Calendine Spider Flower	Cleomaceae	Emergent or amphibious or marshy hydrophytes
9.	<i>Coix lacryma-jobi</i> L.,	M- Ran Maka E- Job's Tears	Poaceae	Emergent or amphibious or marshy hydrophytes
10.	<i>Colocasia esculenta</i> (L.) Schott,	M-Arvi or Kachalu E- Wild Taro	Araceae	Emergent or amphibious or marshy hydrophytes
11.	<i>Commelina diffusa</i> Burm. f.,	M- Kanpet E- Creeping Spider	Commelinaceae	Emergent or amphibious or marshy hydrophytes
12.	<i>Cyperus difformis</i> L.	E- Small flower Umbrella sedge	Cyperaceae	Emergent or amphibious or marshy hydrophytes
13.	<i>Cyperus distans</i> L. f.,	E-Slender Cyperus	Cyperaceae	Emergent or amphibious or marshy hydrophytes
14.	<i>Cyperus nutans</i> Vahl var. <i>eleusinoides</i> (Kunth) Haines,	E- Drooping sedge	Cyperaceae	Emergent or amphibious or marshy hydrophytes
15.	<i>Eichhornia crassipes</i> (Mart.) Sohms,	M- Jal Kumbhi E- Water Hyacinth	Potendriaceae	Free floating hydrophytes
16.	<i>Fimbristylis microcarya</i> F. Muell.,	E- Cat's Whiskers	Cyperaceae	Emergent or amphibious or marshy hydrophytes
17.	<i>Fimbristylis ovata</i> (Burm. f.) J. Kern	E- One spike Fimbry	Cyperaceae	Emergent or amphibious or

				marshy hydrophytes
18.	<i>Fimbristylis schoenoides</i> (Retz.) Vahl	E- Ditch Fimbry	Cyperaceae	Emergent or amphibious or marshy hydrophytes
19.	<i>Hydrilla verticillata</i> (L.f.) Royle,	E- Indian stargrass	Hydrocharitaceae	Submerged or suspended hydrophytes
20.	<i>Hygrophila schulli</i> (Buch.-Ham.) M. R. & S. M. Almeida,	M- Talimkhana E- Marsh Barbel	Acanthaceae	Emergent or amphibious or marshy hydrophytes
21.	<i>Ipomoea aquatica</i> Forssk.,	M- Nali chi Bhaji E-Water Morning Glory	Convolvulaceae	Emergent or amphibious or marshy hydrophytes
22.	<i>Ipomoea carnea</i> Jacq.	M- Besharam E- Pink Morning Glory	Convolvulaceae	Emergent or amphibious or marshy hydrophytes
23.	<i>Kyllinga nemoralis</i> (J.R. & G. Forst.) Dandy ex Hutch. & Dalziel	E- White Water Sedge	Cyperaceae	Emergent or amphibious or marshy hydrophytes
24.	<i>Limnophila aquatica</i> (Roxb.) Alston,	E-Dwarf Ambulia	Scrophulariaceae	Emergent or amphibious or marshy hydrophytes
25.	<i>Limnophila indica</i> (L.) Druce,	E- Indian Marshweed	Scrophulariaceae	Emergent or amphibious or marshy hydrophytes
26.	<i>Ludwigia octovalvis</i> (Jacq.) Raven,	M-Pan Lavang E- Water Primerose	Onagraceae	Emergent or amphibious or marshy hydrophytes
27.	<i>Microcarpaea minima</i> (Koen. ex Retz.) Merr.,	E- Chickweed Sparrow	Phrymaceae	Emergent or amphibious or marshy hydrophytes
28.	<i>Mollugo pentaphylla</i> L.,	M- Sarsalida E- African Chickweed	Molluginaceae	Emergent or amphibious or marshy hydrophytes
29.	<i>Monochoria vaginalis</i> (Burm. f.) K. B. Presl,	E- Oval leaf Pondweed	Potenderiaceae	Emergent or amphibious or marshy hydrophytes
30.	<i>Murdannia nudiflora</i> (L.) Brenan, (L.) Nash	E- Naked stem Dewflower	Commelinaceae	Emergent or amphibious or marshy hydrophytes
31.	<i>Najas indica</i> (Willd.) Cham.	E- Guppy grass or Waternymph	Hydrocharitaceae	Submerged or suspended hydrophytes
32.	<i>Nymphoides hydrophylla</i> (Lour.) O. Ktze,	E- Crested floatingheart	Menyanthaceae	Floating leaved hydrophytes
33.	<i>Ottelia alismoides</i> (L.) Pers.,	M-Bhat Kamal E- Duck lettuce	Hydrocharitaceae	Floating leaved hydrophytes
34.	<i>Paspalidium flavidum</i> (Retz.) A. Camus	E-Yellow water crown grass	Poaceae	Emergent or amphibious or marshy hydrophytes
35.	<i>Phyla nodiflora</i> (L.) Greene,	M- Jalpimpali E- Carpet	Verbenaceae	Emergent or amphibious or

		Weed		marshy hydrophytes
36.	<i>Pistia stratiotes</i> L.	M-Gondali E- Tropical Duck Weed	Araceae	Free floating hydrophytes
37.	<i>Rotula aquatica</i> Lour.,	E-Aquatic Rotula	Boraginaceae	Emergent or amphibious or marshy hydrophytes
38.	<i>Sacciolepis interrupta</i> (Willd.) Stapf	E-Cup scale grass	Poaceae	Emergent or amphibious or marshy hydrophytes
39.	<i>Sagittaria guayanensis</i> Kunth	E- Guyanese arrowhead	Alismataceae	Floating leaved hydrophytes
40.	<i>Sagittaria trifolia</i> L.,	E- Three leaf Arrowhead or Chinese arrowhead	Alismataceae	Emergent or amphibious or marshy hydrophytes
41.	<i>Scirpus affinis</i> Roth,	E- Saltmarsh Bulrush	Cyperaceae	Emergent or amphibious or marshy hydrophytes
42.	<i>Scirpus grossus</i> L. f.,	E-Greater Club Rush	Cyperaceae	Emergent or amphibious or marshy hydrophytes
43.	<i>Scleria parvula</i> Steud.	E-Wright's Nutrush		Emergent or amphibious or marshy hydrophytes
44.	<i>Tamarix ericoides</i> Rollt. & Willd.	M-Kadsherni	Tamaricaceae	Emergent or amphibious or marshy hydrophytes
45.	<i>Typha angustifolia</i> L.,	M- Pan kanis E- Cat tail grass or Elephant grass	Typhaceae	Emergent or amphibious or marshy hydrophytes
46.	<i>Utricularia scandens</i> Benj.	E- Bladerwort	Lentibulariaceae	Submerged or suspended hydrophytes
47.	<i>Vallisneria spiralis</i> L.	E-Eel grass or Tape grass	Hydrocharitaceae	Submerged or suspended hydrophytes
48.	<i>Wolffia arrhiza</i> (L.) Horkel ex Wimm.	E- Watermeal or Duck weed	Araceae	Free floating hydrophytes

CONCLUSION:

Plant species were recorded as free floating, submerged or emergent hydrophytes. The various small and medium sized water bodies beside and around the villages are being shallow day by day. A total number of 48 species distributed among 40 genera and 27 families were recorded. Families with maximum number of species are Hydrocharitaceae, Cyperaceae and Poaceae. Further quantitative and qualitative floristic survey is needed to save these hydrophytes.

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