



STUDY OF HYDROPHYTES OF BORALA AND MIRZAPUR LAKE OF WASHIM DISTRICT MAHARASHTRA STATE

Shivaji. M. Shende

Assistant Professor

Department of Botany

Late Pundalikrao Gawali Arts and Science Mahavidyalaya, Shirpur (Jain)

Taluka- Malegaon District - Washim (M. S.) India

Abstract: Two lakes of Washim District of Maharashtra state has been selected for present survey during 2022 - 23 for the study of hydrophytes shows 25 species diversity belongs to 20 families and 24 genera. During the visit to the selected sites data like generic name, family, vernacular names and growth form was recorded and all aquatic flora collected ranges from Algae, Pteridophytes and Angiosperms. Most of the abundant group of hydrophytes was found Hydrocharitaceae with three genera and three species followed by Characeae with two genera and two species and number families with one species each. There are found two genera with two species of Pteridophytes.

Keywords: Hydrophytes, diversity, Borala and Mirzapur lakes water bodies.

I. Introduction

The term hydrophytes are referred to the water loving flora occurred in aquatic condition ranges from ponds, ditches, lakes, streams, rivers, sea and oceans (Mishra, 2015). Those taxa which are normally present in different water bodies and grow for completing the life cycle either submerge, free floating or emerged condition (Muenscher, 1944). Based on the life form hydrophytes are categorized into rooted submerged, submerged, free floating, runner, amphibious and emergent (Wetzel, 1975 and Khaparde et al, 2018). Hydrophytes play important role in structure and function of aquatic ecosystem and also balanced it. The water bodies reveal enormous diversity of the aquatic plants depends on the geographical condition, depth of water bodies, water parameters, soil and sediments properties (Bassi et al, 2014). The water bodies are integral component of rural peoples of daily life activities. The hydrophytes are economically providing food, fodder, medicine, shelter, oxygen, breeding place for aquatic animals and other domestic material (Agostinho et al, 2007). Generally, hydrophytes bear roots which are poorly developed and it may be branched and unbranched. The stem is delicate and turns into runner or rhizomes. The leaf size of these plants are larger to smaller in size. Several scholars have been studied on diversity of aquatic plants throughout the world including different regions of India (Deka and Sarma, 2014, Kumar and Chelak, 2015, Agharkar (1923) and Ghosal 1993). The selected water bodies for study of hydrophytes of Washim district are natural water resources fully depends on annual rainfall. The water of that resources are supplied to the agriculture field and for domestic uses. The selected water bodies are unexplored for the study of hydrophytes so present study has been carried out to comprehend it in two selected lakes of Washim district.

II. Material and Method

The Washim district is located in the western region of Vidarbha. This district is located between 20.11370 N latitudes and 77.134794 E longitudes. The two water bodies “Borala Lake (BL) and Mirzapur Lake (ML)” selected for present study are in Malegaon Tahsil of the Washim district. Drinking water is supplied to the peoples of nearby villages from the Borala lake while water supplied to irrigation purposes from the both lakes. The study of hydrophytes is done by frequent visits to selected lake sites in different seasons during 2022 – 2023. The plants were observed in their natural habitat and digital photograph taken with the distinctive characteristics that may help to identification of the plants in their natural habitat. The plant specimens collected from the both lakes in polythene bag, wash it thoroughly and excess water soaked with the help of filter paper and brought to laboratory. The plant specimens preserved in formalin and identified with standard flora of Nagpur district, Flora of Kolhapur District and Flora of Maharashtra state (Ugemuge, 1986, Yadav and Sardesai, 2002 and Singh and Karthikeyan, 2000).

III. Result and Discussion

A total number of 25 species of aquatic plants belonging to the 24 genera have been recorded from the two selected lake sites viz. Borala lake (BL) and Mirzapur (ML). The number of monocots were found maximum (12 species) to that of dicot (7 species). The list of hydrophytes including their genus, species, vernacular name, life form and occurrence sites were noted (Table: 1). The plant groups i. e. free floating, rooted submerge, free floating and emergent was given in fig 1. The maximum numbers 22 species and 16 species aquatic plants recorded from the Borala lake site followed by Mirzapur Lake respectively. Out of these, 2 genera with 2 species of algae belonging to the single family Characeae occurred in Borala Lake. Two specimen of pteridophytes seen in both lake sites. The 13 species of hydrophytes were common to the both sites viz. *Heliotropium eruropeaum* (L.), *Azolla pinnata* R. Br., *Pomatogetan crispus* L., *Pomatogeton pecinatus* L., *Ottelia alismoides* (L.) Pers, *Pistia stratiotes* L., *Striga angustifolia* (D. Don), *Eclipta alba* (L.) Hassk., *Ludwigia octovalis* (Jacq.) Raven, *Cyperus rotundus* (L.), *Phyla nodiflora* (L.) Greene, *Alternanthera sessilis* L. and *Marsilea quadrifolia* (L.).

In Borala Lake (BL) total number 22 species of hydrophytes recorded which includes three species floating leaves, six species rooted submerge, four species free floating and eight emergent.

In Mirzapur Lake (ML) total number 16 species of hydrophytes recorded out of which one species floatng Leaves (*Ottelia alismoides* (L.) Pers, four species rooted submerge, two species free floating (*Azolla pinnata* R. Br. and *Pistia stratiotes* L.) and eight species emergents.

IV. Conclusion

Present study revealed that 25 species diversity of hydrophytes belongs to 20 families and 24 genera found in selected lakes sites of Washim District. There were two distinct genera of algae and pteridophytes each. There were recorded twelve monocots and seven dicots aquatic plants. The twenty-two and sixteen number of hydrophytes occurred in Borala lake followed by Mirzapur lake in the selected sites of Washim District Lake.

V. Conflinct of interest

No conflinct of interest influenced in this research.

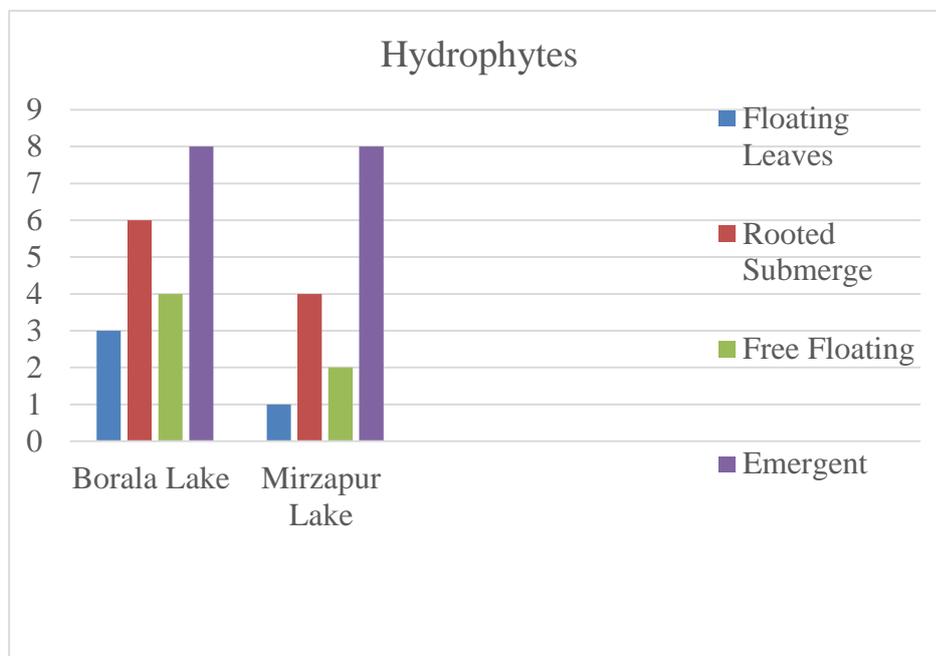


Fig. 1. Comparison of hydrophytes diversity in two lakes of Washim District

Table:1. List Hydrophytes in Borala (BL) and Mirzapur Lake Site (ML) Washim District

Sr. No.	Name of Genera	Family	Vernacular Name	Growth Form	Occurrence sites	
					BL	ML
1.	<i>Aponogetons nutans</i> L.	Aponogetonaceae	Floating Lace plant	Floating Leaves	+	-
2.	<i>Heliotropium eruropeaum</i> (L.)	Boraginaceae	Common heliotrope	Rooted submerge	+	+
3.	<i>Lemna minor</i> L.	Lemnaceae	Common duckweed	Free floating	+	-
4.	<i>Azolla pinnata</i> R. Br.	Azollaceae	Water velvet	Free floating	+	+
5.	<i>Eichhornia crassipes</i> (Mart). Solm	Pontederiaceae	Common water hyacinth	Free floating	+	-
6.	<i>Pomatogetan crispus</i> L	Pomatogetanaceae	Curlyleaf pond Weed	Rooted submerge	+	+
7.	<i>Pomatogeton pecinatus</i> L.		Sago pondweed	Rooted submerge	+	+
8.	<i>Hygrophila auriculata</i> L.	Acanthaceae	Swampweed	Emergent	-	+
9.	<i>Valisnaria spiralis</i> L.	Hydrocharitaceae	Eel grass	Rooted submerge	+	-
10.	<i>Hydrilla verticillata</i> (L. F.) Royle		Hydrilla	Rooted Submerge	-	+
11.	<i>Ottelia alismoides</i> (L.) Pers		Duck lettuce	Floating Leaves	+	+
12.	<i>Chara zeylenica</i> Willd	Characeae	Stoneworts	Rooted submerge	+	-
13.	<i>Nitella furcatus</i> (Roxb) C. Agardh		Stoneworts	Rooted submerge	+	-
14.	<i>Polygonum glabrum</i> Willd	Polygonaceae	Gulabi godhri	Emergent	+	-
15.	<i>Alocasia macrorhiza</i> (L.) G. Don.	Araceae	Giant taro	Emergent	+	-

16.	<i>Pistia stratiotes</i> L.		Water lettuce	Free floating	+	+
17.	<i>Striga angustifolia</i> (D. Don) Saldanha.	Scrophulariaceae	Agua	Emergent	+	+
18.	<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	Bhringraj	Emergent	+	+
19.	<i>Ludwigia octovalis</i> (Jacq.) Raven.	Onagraceae	Water primerose	Emergent	+	+
20.	<i>Cyperus rotundus</i> (L.)	Cyperaceae	Nut grass	Emergent	+	+
21.	<i>Sagittaria sagitifolia</i> (L.)	Alismataceae	Arrowhead	Floatng Leaves	+	-
22.	<i>Phyla nodiflora</i> (L.) Greene	Veбенaceae	Terkey tangle frogfruit	Emergent	+	+
23.	<i>Commelina bengalensis</i> (L.)	Commelinaceae	Benghal day flower	Emergent	-	+
24.	<i>Alternanthera sessilis</i> (L.) R. Br. ex.	Amaranthaceae	Dwarf copperleaf	Emergent	+	+
25.	<i>Marsilea quadrifolia</i> (L.)	Marsileaceae	Caupatia	Rooted floating	+	+



Borala Lake



Mirzapur Lake

Photo plates - 1: Selected Lake View



Azolla pinnata R. Br.



Valisnaria spirali L.



Cyperus rotundus L.



Commelina bengalensis L.



Eclipta alba (L.) Hassk.



Heliotropium europaeum (L.)



Hygrophila auriculata L.



Phyla nodiflora (L.) Greene

Photo plates 2: Photograph of plants from selected sites

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