



SURVEY OF AQUATIC MACROPHYTES BIODIVERSITY OF DOMRI WATER RESERVOIR, UKHANDA DIST. BEED (M.S.)

Jogdand S.K.

P.G.Dept.of Botany

Mrs.K.S.K.College ,Beed

w.sandhya13@gmail.com

The present study deals with the biodiversity of Macrophytes of Domri water reservoir of Ukhanda Dist. Beed. During the present study three different sampling stations were selected. Macrophytes were studied during a period from July 2019 to June 2020. Total 28 families and 36 genera were recorded. Cyperaceae is the dominant family. Eichornia, Pistia, Azolla, Ipomoea species were predominant at sampling stations which are the most pollution tolerant aquatic Macrophytes and be used as a biological indicator for water pollution. It is necessary to carry out biodiversity assessment of aquatic Macrophytes and its importance to ecosystem for conservation and sustainable utilization of aquatic ecosystem.

Key words: Study, Biodiversity, Macrophytes, Pollution, Sustainable and Ecosystem.

Introduction

Domri water reservoir can be considered as an example of an ecosystem. Domri reservoir situated near the Ukhanda village Tq. Patoda, Dist Beed. It is located on longitude 18⁰-54'' and 75⁰-34'' latitude. It covers 2371 sq.km. water spared area. It is constructed during the year 1996. It is 16 km away from Beed city. Due to the pollution as well as entry of sewage, waste water some notable changes were recorded. Aquatic Macrophytes are the diverse group of photosynthetic organisms and their vegetative plant organs grow seasonally or permanently in the vicinity of water. Macrophytes are important component and play a major role by providing food and habitats for aquatic invertebrates, zooplankton, fishes and aquatic wild life {Lacoul and Freedman, 2006}. Aquatic Macrophytes used nutrients and thus influence water quality, controls water quality by exuding various organic and mineral components (Solek et al., 2012).

Aquatic Macrophytes includes largest plants having root, stem and leaves, which sometimes attaches to bottom of water body, they sometimes submerged and sometimes they partly emergent (Chambers et al., 2008). Aquatic ecosystem provides suitable nesting and feeding habitats for migrating birds (Havera, 1999) they play a vital role in decomposition and energy transfer in aquatic ecosystem (Mc Queen et al., 1986).

Aquatic Macrophytes also used as bioindicators of water pollution as they respond to the changes in water quality and also play a significant role in mineral cycling and organic components and because of

this they also affect total biomass production in aquatic ecosystem Several workers works relating to aquatic and wetland flora in various parts of India (Mirashi, 1954; Sen and Chatterjee, 1959; Srivastva et al., 1987; Dhote and Dixit 2007; Chandra et al., 2008),

Now a days fresh water systems get affected and decline in its native biodiversity because of a huge quantity of untreated sewage, pollution, significantly alters the physic chemical parameters of water. This influences the qualitatively and quantitatively. The purpose of present study was under taken in studied area to summarize the biodiversity of aquatic Macrophytes and their categorization which provides important basic data of species diversity for biodiversity conservation of river Bindusara flow through Beed city.

MATERIALS AND METHODS

Study area and sampling stations

Domri water reservoir is situated near the Ukhanda village, in Patoda taluqa (Gazetteers Department, 2007) situated in the Beed district of Maharashtra state. It covers about 2371 sq.km. area. The Domri river is tributary of Sindhvana river. It is away from Beed city, it flows from south to north. This is minor project with huge water body on Domri reservoir. It also acts as a source of water for human, animals and irrigation (Wikipedia, 2012). For the present study selected three sampling stations.

Collection and identification

In the present study monthly survey was done during the period of July 2019 to June 2020 and plant specimens were collected in Herbarium of Botany P.G. Dept. Mrs. K.S.K. Collge. Beed. All collected specimens identified correctly using with the help of standard books and flora of Maharashtra (Gupta(2001), Yadav and Sardesai (2002)). These collected macrophytic plant species are classified on the basis of their habitat and morphological characters.

Results and Discussion

Belonging to 28 families and 36 species total 41 aquatic macrophytes species were recorded from Domri reservoir of Ukhanda village Dist Beed. Aquatic macrophytes were classified according to various habitats in three types.

1. Floating macrophytes : They float over the water surface. Freely floating macrophytes are only three (Table 1) namely *Pistia stratiotes* L., *Lemna minor* L. , and *Azolla pinnata* R.Br. recorded.

Rooted floating macrophytes: Two species namely *Nymphoides cristata* (Roxb.) and *Ipomea aquatica* Forsk from two families are recorded (Table 1).

2. Submerged macrophytes : Four species are recorded namely *Chara globularis* J.L. Thuiller, *Hydrilla verticillata* (L.f.) Royle , *Vallisneria spirallis* and *Najas minor* L. from four families (Table 2).

3. Emergent macrophytes: They grow in shallow water and existing near the wet environment. Total 21 species recorded from 13 families (Table 3)

Conclusion: In this study the Cyperaceae family is dominating followed by Poaceae , Hydrochariaceae, Amaranthaceae, Asteraceae, Commelinaceae, Convolvulaceae, Fabaceae, Menyanthaceae, Acanthaceae, Alismataceae, Boraginaceae, Marsiliaceae, Characeae, Euphorbiaceae, Polygonaceae, Salviniaceae, Scrophulariaceae, Najadaceae and Typhaceae.

Aquatic biodiversity fulfills all basic needs and also important for ecosystem, but now a days it is destroyed by pollution, habitat destruction, and over harvesting .Biodiversity conservation and sustainable development it is necessary to educate the peoples, use various NGOs, good management and strict legal actions should be taken for biodiversity conservation.

Table 1. Free floating macrophytes

Sr.No.	Species name	Family
1	<i>Pistia stratiotes</i> L.	Areceae
2	<i>Lemna minor</i> L.	Lemnaceae
3	<i>Azolla pinnata</i> R.Br.	Salviniaceae

Rooted floating macrophytes

Sr.No.	Species name	Family
1	<i>Nymphoides cristata</i> (Roxb.)	Menyanthaceae
2	<i>Ipomea aquatic</i> Forsk	Convolvulaceae

Table 2: Submerged macrophytes

Sr.No.	Species name	Family name
1	<i>Chara globularis</i> J.L. Thuiller	Characeae
2	<i>Hydrillaverticiliata</i> (L.f)Royle	Hydrocharitaceae
3	<i>Vallisneria spiralis</i>	Hydrocharitaceae
4	<i>Najas minor</i> L.	Najadaceae

Table 3: Emergent aquatic Macrophytes

Sr.No.	Species name	Family name
1	<i>Aiternanthera sessilis</i> (L .)	Amaranthaceae
2	<i>Hygrophila schulli</i> (Harm.)	Acanthaceae
3	<i>Cyperus rotundus</i> L.	Cyperaceae
4	<i>Cyperus difformis</i> L	Cyperaceae
5	<i>Eleocharis geniculata</i> (L.)	Cyperaceae
6.	<i>Eleocharis dulcis</i> (Burm .f.)	Cyperaceae
7	<i>Eleocharis capitata</i> R.Br.	Cyperaceae
8	<i>Ipomea cornea</i> jacq.	Convolvulaceae
9	<i>Commelina benghalensis</i> L.	Commelinaceae
10.	<i>Commelina hasskarlii</i> C.	Commelinaceae
11	<i>Marsilea quadrifolia</i> L.	Marsileaceae
12	<i>Eclipta prostrata</i> L.	Asteraceae
13	<i>Heliotropium supinum</i> L.	Boraginaceae
14.	<i>Chrozophora rottleri</i> (Geisel)	Ephorbiaceae
15	<i>Aeschynomene indica</i> L.	Fabaceae
16	<i>Aeschynomene aspera</i> L.	Fabaceae
17	<i>Coix aquatic</i> Roxb	Poaceae
18	<i>Echinochloa colona</i> (L.)	Poaceae
19	<i>Cynodon dictylon</i> (L.)	Poaceae
20.	<i>Typha angustata</i>	Typhaceae
21	<i>Polygonum glabrum</i> willd.	Polygonaceae

References :

1. **Chambers PA, Lacoul p, Murphy KJ, SM Thomaz** . Global diversity of aquatic macrophytes in fresh water. *Hydrobiologia*, 2008; 595: 9-26
2. **Chandra RJ Prusty BAK Azeez PA** . Biomass and productivity of plant community in a rainfed monsoonal wetland ecosystem with specific emphasis on its temporal variability. In. *International wetland Ecology, Conservation and restoration* . 2008; 5: 1-21
3. **Dhote S and Dixit S**. Water quality improvement through macrophytes. A case study. *Asian J* . 2007; 21(2): 427-430.
4. **Gupta OP**, *Weedy Aquatic Plants; their Utility, Menace and Management* Agrobios Jodhpur, India, 2001, 273.
5. **Gazetteers Department**. Bhir. Maharashtra.gov.in (Government of Maharashtra). Retrieved 2007-02-27.
6. **Havera SP**. Waterfowl of Illinois: status and management. Illinois Natural History Survey special publication 1999; 21: 628.
7. **Lacoul P, Freedman B**. Environmental influences on aquatic plants in freshwater ecosystems. *Environ. Rev* 2006; 14: 89-136.
8. **Mirishi MV**. Studies on the hydrophytes of Nagpur. *J. Indian bot. soc.* 1954; 33: 298-308.
9. **McQueen DJ ,Post JR, Mills EL**. Trophic relationship in fresh water pelagic ecosystems. *Canadian Journal of Fisheries and Aquatic Sciences*. 1986; 43: 1571-1581.
10. **Sen DN and Chetterjee UN** . **Ecological studies on aquatic** and swampy vegetation of Gorakhpur. *A Survey. Agra uni. Res. (Sci)* 1959; 8 : 17-27
11. **Solak CN , Barinova S , Ass E ,Dayioglu H**. Diversity and ecology of diatoms from Felant creek (Sakara river basin), Turkey. *Turkish Journal of Freshwater Ecology*. 2008; 23(1); 79-89.
12. **Wikipedia**. Bindusara River http://en.wikipedia.org/wiki/Bindusara_River. (2008)
13. **Yadav SR, Sardesai MM**. *Flora of Kolhapur district*. Shivaji University, Kolhapur, 2002.

