Aquatic Macrophyte Bio-Diversity in Manda Tukum Lake of Mul Tehsil of Chandrapur District.

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ABSTRACT

The present research work was carried out to assess the diversity of aquatic macrophytes in Manda Tukum lake of Mul Tehsil of Chandrapur district in Maharashtra state during a two year span 2016-2018. The aquatic macrophytes of the study area were collected and identified using standard literature. Total 15 species of aquatic macrophytes of various types were recorded in the lake. The 15 different species of aquatic macrophytes of the lake basin belong to five different groups viz. 4 free floating, 4 rooted floating 3 submerged, 2 submerged floating leaved and 2 emergent macrophytes. Among different macrophytes *Nelumbo spp*, and *Nymphea spp*. were found in abundance during winter season in all sites of the lake and it added aesthetic value to the water body.

Key words : Manda Tukum lake, Macrophytes, Diversity, Mul tehsil, Chandrapur district, Maharashta state.

Introduction

Macrophytes are aquatic plants growing in and near water bodies throughout the world. Macrophytes provide food, shelter and oxygen for aquatic life like invertebrates, fishes etc. Diversity of macrophyte in a aquatic ecosystem is an indicator of water quality. Presence and absence of macrophytes always affects the aquatic eco- system to a large extent. Abundance of macrophyte in a water body influence habitat structure, fish potential and nutrient dynamics of a lake. Absence of macrophyte leads to excessive turbidity and salinization which affects aquatic ecosystem balance and growth and development of aquatic life.

However, an over abundance of macrophyte in a lake basin may affect ecosystem health, recreational activities and the aesthetic appeal of the aquatic eco-system. Aquatic macrophytes serve as a good source of food to mankind and animals, thus forming a palatable food for water and birds and best for aquatic wild life conservation practices (Kiran *et. al*., 2006). They serve as substratum to different micro and macro fauna (Raut *et. al*., 2005)

Chandrapur district of Maharashtra State harbors a large number of fresh water bodies and Mul tehsil harbours some of them. Manda Tukum is a fresh water lake situated in village Manda Tukum of Mul Tehsil of Chandrapur district. It is very close to Tadoba-Andhari Tiger Reserve.

As no previous studies were reported on this aquatic ecosystem till date by any researcher the present research work is done to analyze the aquatic macrophyte biodiversity in this beautiful perennial lake and its vicinity.

Materials and Methods

Manda Tukum is a fresh water perennial lake situated in village Manda Tukum of Mul Tehsil of Chandrapur district. Manda Tukum is 11 km away from Mul. The lake is approximately 17.58 hector in size. It is 200 meter above mean sea level with latitude 19,98935 and longitude 79,59280 (Plate 1 and 2). One side of this lake is surrounded by agricultural fields and other sites are surrounded by dense forest area of Chichpalli region and it is very close to Tadoba-Andhari Tiger Reserve. The aquatic macrophytes were collected for the period of 2 years i.e. 2016 to 2018. Macrophytes in shallow water were collected directly while those from deeper water with the help of long handled hook.

On collection the macrophytes were thoroughly washed and excess water soaked with filter paper. Kept in polythene bags lined with filter paper and brought to the laboratory, preserved in 10% formalin and identified using standard available literature (Cook 1996, Sharma 2013) .

Fig.1- Satellite View of Lake

Fig.2. Manda Tukum lake

Results and Discussion

In the present study of Manda Tukum lake 15 different macrophyte sps. were recorded belonging to six different groups, viz Rooted floating. Free floating, submerged floating, Rooted floating leaved and Emergent macrophytes group.

Free floating sps. in lake water are Pistia spp, Azolla sps, Salvinia sps, Wolffia sps. Rooted floating macrophytes are Trapa sps, Marsilla spp, Nymphaea, Hydrilla sps. Submerged macrophytes that are found in lake water site are represented by 3 spp. Vallisneria, Utricularia, Najas spp. Emergent, macrophytes remain firmly fixed in the bottom substratum and top region are exposed. Typha spp, Ipomea spp are abundant in nature. Submerged floating leaved macrophyte are Nelumbo spp. And Nymphea spp. with their beautiful flowers added aesthetic value to the lake.

Information on phytosociological data for aquatic macrophytes in any water body is of immense importance to understand the wetland ecosystem (Dhore and Lachure, 2014) . Several works have been done on the aquatic macrophytic sps. in different fresh water bodies of India and aboard. Aquatic plants are important indicators of water (Shimoda 1986, Dhote and Dixit 2007).

Several workers have conducted macrophyte survey in lakes from different parts of India Kiran *et. al*., (2006) recorded 15 sps. belonging to 13 families and grouped under submerged (2 sp.), rooted floating (2 sp.) five floating (2 sp.) emergent (7 sp.) and marshy amphibious (2 sps.) from fish culture ponds, Karnataka. Meshram (2003) also recorded dominant macrophyte as Hydrillia spp, Ceratophyllum spp and Chara spp. Dhore and Lachure (2014) recorded 15 spp. of macrophytes in Yavatmal District. Bhute and Harney (2018) recorded 15 spp. belonging to 5 group in Nagrala lake of Bhadravati. (M.S.). Reddy and Chaturvedi (2016) recorded 16 hydrophytes and 56 other macrophyte from the major rivers of the Chandrapur district. Nami Prasad and T. Das (2018) recorded 58 sps. belonging to 30 families with special reference to invasive species in Barak Valley, Assam. Rawlekar and Sawane (2020) recorded 25 sps. of macrophyte diversity of tropical river i.e. Kolar river and stated that enrichment of the shallow water with high bottom sediments provides an ideal habitat for luxuriant growth of macrophytes. Diversity of macrophyte is less where water current is more and diversity increases as the water current decrease and organic contents increases. Pimplshende and Sitre(2019) recorded 13 sps and 15 sps. of macrophyte in

Satara Bhosale and Satara Tukum lake of Pombhurna Tehsil of Chandrapur Dist. respectively. Our observations were supported by findings of Pimpalshende and Sitre(2019), Bhute and Harney (2018).

Our studies on aquatic macrophytes found 15 different beautiful species thriving in Manda Tukum lake of Chandrapur district which support a rich fauna in the basin for a two year span. Worldwide different types of macrophytes thrive in different water bodies based on nutrient conditions prevailing in that condition. Our studies are first of its kind in Chandrapur district on Manda Tukum lake.

Table 1: Diversity of Macrophytes in Manda Tukum Lake of Chandrapur District

Sr. No.	Name of Macrophyte spp.	Present
1	Free floating Macrophytes (Azolla, Pistia, Salvinia, Wolffia spp.)	+
2.	Rooted floating Macrophytes (Trapa, Marsilla, Nymphaea spp., Hydrilla verticillata)	+
3.	Submerged rooted Macrophytes (Vallisneria spp, Utricularia, Najas spp.	+
4.	Submerged floating leaved (Nelumbo spp, Nymphea spp.)	+
5.	Emergent Macrophyte (Typha angustifolia, Ipomoea indica)	+

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Ipomea indica

Nymphaea spp.

Nymphaea Odorata

Marsileia spp

Najas Spp.

Typha Latifolia

Nymphoids Indica

Eicchornia Crassipes

Hydrilla Verticillata