

Aquatic Macrophytic Diversity in Deothan Reservoir of Akole Tahsil, Ahmednagar, Maharashtra.

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Abstract:-

The present study the algal aquatic macrophytes of Deothan reservoir, Taluka Akole, District Ahmednagar, Maharashtra during the period of 2004 and 2005. During the experimental investigation three different locations (D1, D2 and D3) were selected for collection of aquatic macrophytes samples. The total 11 species were recorded throughout the year and maximum plant diversity was recorded in winter as compared to summer and rainy season. *Chara* is the most dominating algal macrophytes observed in all three selected locations in Deothan reservoir. The species of *Ipomea*, *Typha* and *Potamogeton* were also reported from sampling locations of Deothan water reservoir. The sampling locations D2 and D3 found huge aquatic macrophytic diversity as compared to D1. The *Cyperous*, *Ipomea*, *Tridax* and *Parthenium* aquatic macrophytes were also observed during investigations.

Keywords:- Macrophytes, Deothan, *Chara* and Diversity.

Introduction:-

Plants which stand in water and grow either floating or submerged are considered as aquatic plants. Water reservoirs like drains, ponds, ditches, pits, marshes, puddles are rich sources of aquatic flora. The density and diversity of macrophytes depends on the quality of water in the reservoir. The distribution and periodicity of macrophytes is governed due to seasonal changes. The production of macrophytes, in an aquatic ecosystem, tends to vary with variation in physical factors like light, temperature, depth of the water etc. Aquatic macrophytes are of considerable ecological and economical importance. They contribute significantly to the productivity of water bodies. They mobilize mineral elements, and provide shelter to aquatic invertebrates, fishes and phytoplankton. They also plays important role in water quality and they are indicators of water pollution.

Our earlier research worked to analyze water quality by using Palmer index and it found that water quality is very polluted (Wagh and Jondhale, 2018). Therefore, it is necessary to assess macrophytic aquatic plants in Deothan reservoir. Similar work, Sanchita *et al.*,(2012), mentioned that the freshwater macrophytes play an important role in aquatic ecosystems by providing food, shelter and a variety of habitats for large numbers of organisms. Some aquatic plants are also important for removing pollutants from water. Therefore,

such plants are a good indicator of water pollution such as, Chara, Wolfia, Utricularia and some algae species. Das and Datta, (2006) reported that the prepared list such as types of plants. The macrophytic plant's growth depends on environmental conditions. So, light is playing an important role in growth and distribution of freshwater macrophytes (Spence, 1972). Therefore, it is urgent to study aquatic macrophytes diversity in Deothan reservoir. Because, it helps and understanding which type of macrophytes observed in Deothan reservoir and it also helps to find out the interrelations between algae and macrophytes. Deothan reservoir is one of the important reservoirs in the Akloe tehsil in Ahmednagar district and it is directly used for drinking and irrigation purposes for the local peoples. The present investigation was undertaken to study the aquatic macrophytic diversity of Deothan reservoirs located in Akole taluka, Ahmednagar district of Maharashtra. This type of study will be beneficial for various irrigation projects. During present studies the survey has been carried out which reflect the light on aquatic macrophytes of Deothan reservoir. Deothan reservoir is located quite away from cities and receives comparatively less pressure of pollution on the lakes.

Material and Methods:-

Deothan reservoir is a fresh water reservoir of Akole tahsil, Ahmednagar, Maharashtra, India. The total catchment area is 67.50 sq. miles and total command area is 230.67ha. It is situated on Adhala river, near Deothan villages. The water samples for pollution analysis were collected from the Deothan freshwater reservoirs. The sampling method was used for the present investigation. Water samples during the experimental study period were collected from January 2004 to December 2005 in Deothan water reservoirs. The algal samples were collected from three different sampling locations such as D1(towards the Savargaon pat village), D2 (near the canal alignment) and D3 (southern region near pump house) of the Deothan reservoirs. All selected sampling sites were selected after the survey and all samples were collected monthly in the morning between 6.00 a.m. to 10.00 a.m. The samples were observed on the spot in natural conditions. The macrophytes in the sites were packed in polythene bags and brought to the laboratory. The plant species were identified as per available literature (Cook,1996 and Das *et al.*,2009).

Result and Discussion:-

In the present investigation the aquatic plants samples collected from selected three different locations of Deothan water reservoir, have been identified and macrophytes identified plants in three different location was shown in Table-1. Certain macrophytes are responsible for purification of waste water and minimize the water pollution. Growth of species of *Chara* was found dominant throughout the period of investigation in Deothan reservoir. Throughout, experimental study the most of the macrophytes was observed at site D2 and D3 as compared to D1. Some angiosperm macrophytes were also noted (Table-1). Some marginal and marshy angiosperm macrophytes like *Cyperous*, *Ipomea*, *Tridax*, *Parthenium* were observed, (Table-1). Aquatic macrophytes adversely affect water quality. Variation in dissolved oxygen during different seasons revealed that maximum values occur during winter and minimum during summer. Similar observations were also recorded by Shirke (1984), Karande (1999), Kamat (2003), Nandan and Kumawat (2003). Barko and James, (1998) was reported that the growth strategy of aquatic macrophytic plants depending to obtain dissolved

nutrients from either or both of the sediment and water columns. Alkalinity, pH, BOD, Dissolved CO₂ were also influenced by the decomposing of organic matter.

Present research work, it was observed that very few macrophytes found in Deothan reservoir. But, there is angiospermic macrophytes diversity was more than aquatic macrophytes. The aquatic macrophytes is maintain or increasing the quality of water. In Deothan reservoir water quality is very lower, because there is very few macrophytes were observed in the present investigation. Maximum macrophytes plant diversity was observed in winter season as compared to summer and rainy season. The species of *Ipomea*, *Typha* and *Potamogeton* were also reported form sampling location of Deothan water reservoir. Finally, I concluded that the macrophytes are responsible for purification of waste water and minimize the water pollution. Growth of species of *Chara* was found dominant throughout the period of investigation in Deothan reservoir.

Sr. No.	Name of the Macrophyte	Locations of sampling		
		D1	D2	D3
1	<i>Ipomea aquatica</i> , frosk.	-	+	+
2	<i>Ipomea carnea</i> Mlarl.	-	+	+
3	<i>Hydrilla verticillata</i> Rox.	-	+	-
4	<i>Cyperus digitatus</i> Rotth.	+	+	+
5	<i>Cyperus rotundus</i> L.	+	+	+
6	<i>Cynodon dactylon</i> Pers	+	-	+
7	<i>Tridax procumbens</i> L	+	-	-
8	<i>Parthenium hysterophorus</i> ,L	+	+	+
9	<i>Chara coralline</i> Wildenow.	+	+	+
10	<i>Chara zeylanica</i> Wild.	+	+	+
11	<i>Potamogeton crispus</i> Linn.	+	+	-

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Wagh, B.D and Jondhale, A.S. 2018. Estimation of organic pollution by Palmer's algal index of Deothan reservoir, Akole Taluka, Ahmednagar. *International Journal of Emerging Technologies and Innovative Research*, 5(12):1347-1353.

