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AQUATIC WEED DIVERSITY OF BHATALA LAKE OF WARORA TEHSIL OF CHANDRAPUR DISTRICT

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ABSTRACT:

Aquatic weeds of Bhatala, a freshwater perennial lake situated in Warora tehsil of Chandrapur district having rain fed nature are studied for over a two year's span during the years 2024 and 2025 and are presented in this research paper. The aquatic weeds of Bhatala lake of warora tehsil of Chandrapur district of Maharashtra state are observed, recorded and classified into free floating weeds, submerged weeds, floating leaved weeds and emergent, amphibious and marshy hydrophytes. In all about 14 different variety of weeds belonging to 12 different families are observed and recorded of which there are 3 free floating weeds, 2 submerged weeds, 3 floating leaved weeds and 6 emergent, amphibious and marshy hydrophytes were recorded. These different kinds of aquatic weeds die, decay and shallow down the lake basin continuously and are slowly degrading the aquatic ecosystem of perennial nature. It is predicted that sooner or later this ecosystem will be fully degraded over time due to manmade activities prevalent in its basin and will be perished forever.

Keywords:- Aquatic weeds, Bhatala lake, Warora tehsil, Chandrapur District

INTRODUCTION:

Aquatic weeds are very fast growing unwanted plants thriving in the aquatic ecosystems of the world that cause ecological imbalance and harm the beautiful ecosystems of the world. They disrupt waterways, hamper irrigation and recreational facilities. The excessive growth of aquatic weeds causes oxygen depletion which can lead to fish kills. The weeds block waterways of boats and replace native species apart from ruining the fish habitat.

Aquatic weeds are one of the most important biotic communities in the aquatic environments which provide food and shelter to resident organisms thriving on them. The weeds influence the quality of water by utilizing nutrients and circulating them in their basin. Aquatic weeds are of varied nature and pollute the water bodies worldwide shrinking the basin of freshwater lakes. The marshy lands of the world are some unique ecosystems on earth which form the best breeding grounds for amphibians and birds. The aquatic weeds may also provide food for birds (Batzar *et al* 1993) and fish (Crowder and Cooper 1982). The weeds also play role in decomposition and energy transfer (MC Queen et al, 1986, Dvorak, 1996). Aquatic weeds reflect anthropogenic impact and are very useful for detecting human impact. The local habitat conditions also determine the type of weeds thriving in water body. Aquatic macrophytes are higher plants that grow in ecosystem whose formation has been dominated by water and factors like water depth, topography of the basin, substrate type and water turbidity.

Freshwater macrophytes play a very important role in aquatic ecosystem of lakes and rivers (Nurminen, 2023). They provide food, shelter and habitats to a large number of aquatic and terrestrial organisms. The aquatic weeds affect

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nutrients cycle of a lake and increase the habitat complexity.

Hydrophytes are plants normally growing in water and also include plants inhabiting swampy or marshy habitats. The most of water body are beside to the villagers for their daily activities like washing of cloths, animals etc. In many large lakes fish culture is practiced which also interferes the aquatic ecology by humans during fishing.

Aquatic weeds in India are studied by many researchers viz. Unni (1971), Thangadurai *et al* (2004), Rather and Pandit (2005), Khinchi *et al* (2008), Wadhave *et al* (2010), Tijare (2011), Javid and Sheikh (2011), Rohankar *et al* (2012), Palit and Mukherjee (2012), Nath (2012), Kshirsagar and Gunale (2013), Parshuramkar *et al* (2013), Manohar and Shyam (2014), Dhore and Lachure (2014), Harney (2014), Patil (2015), Sharma and Dwivedi (2016

METHODOLOGY

Bhatala lake is a freshwater perennial lake of Warora tehsil of Chandrapur district of Vidarbha region. Latitude of the lake is 20.350969 and longitude 79.083062 having elevation- 217.67 ± 44m. A large number of aquatic weeds are thriving in its basin which was shallowed during summer season. Aquatic macrophytes (weeds) were observed in 2 years span from 3 different study areas. It was divided into winter (November-January) pre monsoon (February to April), Monsoon (June-August), post monsoon (September-October).

The water depth of lake varies in different seasons of the year so observations are done in all the season of the lake basin during 2024 & 2025. Aquatic weeds were surveyed and photographed and identified using Cook (1996). The unidentified weeds were collected by fisherman's help and bought to IHLR & SS in Zoology Laboratory of Nilkanthrao Shinde Science and Arts college, Bhadrawati and identified using standard available literature.

Results and Discussion:

The recorded aquatic weeds of Bhatala lake are presented in table no.1 and their families in table no. 2. The aquatic weeds of Bhatala lake are classified into free floating, submerged hydrophytes, floating leaved hydrophytes and emergent hydrophytes/amphibians or marshy hydrophytes.

In all about 14 different variety of weeds belonging to 12 different families are observed and recorded of which there are 3 free floating weeds, 2 submerged weeds, 3 floating leaved weeds and 6 emergent, amphibious and marshy hydrophytes were recorded (Table 1). These different kinds of aquatic weeds continuously die and decay and shallow down the lake basin continuously and are slowly degrading the aquatic ecosystem of perennial nature.

The free floating weeds are not attached to the substratum inside the Lake. The plant body float on the water surface and roots inside the water and rest of the weed surface is above the water surface. These free floating weeds are - *Trapa natans* and *Ceratophyllum demersum*. The submerged or suspended hydrophytes of the lake are *Hydrilla Verticillata*, and *Vallisneria Spiralis*.

The floating leaved hydrophytes are usually perennial hydrophytes with rhizomatous stock in the soil. They usually grow with flexible petioles so that leaves are adjusted to float on water surface. The floating leaved hydrophytes include *Sagittaria guayanensis*, *Nymphaea nauchali*.

Emergent, amphibious or marshy hydrophytes usually grow on submerged soils and are perennial in nature due to rhizomatous underground stems. The emergent weeds of the lake water are Nelumbo nucifera, *Sagittaria trifolia*, *Typha angustata*, *Ipomoea aquatica*, *Ipomoea indica*, *Ludgiwia adscendens*.

The Ludwigia (water primrose) is an aquatic herbaceous perennial and creeping plant with both prostrate and ascending stems with root formation ability at all the nodes. It is widely spread in tropical countries and subtropics of Africa also.

Humane (2020) studied the floristic biodiversity of aquatic flora of Bhandara district and recorded 82 taxa belonging to 34 families of flowering plants with families Nymphaceae, Onagraceae, Cyperaceae. Kasar (2021) reported 7 families of weeds in Shivni dam and 11 in Chorkhund dam of Ghatanji area of Yavatmal district supporting our findings of present work. Jitendra Kumar and Amit Pal (2015) reported about 12 species of aquatic macrophytes in Bundelkhand region of Uttar Pradesh. The weeds vary based on nature of substratum and nutrient supply from its basin and dissolved nitrate and phosphate play a major role in weed multiplication.

CONCLUSION:

Today in Indian continent most of the lakes are near villages which are being polluted by the local villagers due to their daily activities like washing and fish culture apart from cultivation of shingada (Trapa) crop and *nymphaea* for fruits and flowers. These activities subsequently pollute the water bodies an increase weed coverage over lake areas making them unfertile and unproductive. Sooner or later due to man's negligent attitude the lakes will perish and the beautiful biodiversity of weeds of Bhatala lake is an example of this.

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Table 1: Aquatic Weeds of Bhatala Lake

Sr.No.	Name of Aquatic Weed	Summer Season	Rainy Season	Winter Season
1	**Free Floating Weeds**			
	Trapa natans	+	+	+
	Ceratophyllum demersum	+	-	+
	Salvinia molesta	+	+	+
2	**Submerged Weeds**			
	Hydrilla verticillata	+	-	+
	Vallisneria spiralis	+	-	-
3	**Floating Leaved Weeds**			
	Nymphaea nauchali	-	+	+
	Nelumbo nucifera	+	+	+
	Lemna minor	-	+	+
4	**Emergent/ Amphibious/ Marshy Hydrophytes**			
	Sagittaria trifolia	+	-	-
	Typha angustata	+	+	+
	Ipomoea aquatica	-	+	+
	Ipomoea indica	+	+	+
	Ludwigia adscens	+	-	+
	Marsilea quadrifolia	+	-	+

Table 2: Aquatic Weeds of Bhatala Lake of Warora Tehsil of Chandrapur District with their families

Sr.No.	Name of Aquatic Weed	Family
1	**Free Floating Weeds**	
	Trapa natans	Lythraceae
	Ceratophyllum demersum	Ceratophyllaceae
	Salvinia molesta	Salviniaceae
2	**Submerged Weeds/ Suspended Hydrophytes**	
	Hydrilla verticillata	Hydrocharitaceae
	Vallisneria spiralis	Hydrocharitaceae
3	**Floating Leaved Weeds**	
	Nymphaea nauchali	Lemnaceae
	Nelumbo nucifera	Nymphaceae
	Lemna minor	Lemnaceae
4	**Emergent/ Amphibious/ Marshy Hydrophyte**	
	Sagittaria trifolia	Alismataceae
	Typha angustata	Typhaceae
	Ipomoea aquatica	Convolvulaceae
	Ipomoea indica	Convolvuceae
	Ludwigia adscens	Onagraceae
	Marsilea quadrifolia	Marsiliaceae