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# **Study of Aquatic Weeds in Marpha Pond of Anuppur, Madhya Pradesh**

Preeti Sagar Malaiya

*Asstt. Prof. of Botany, Govt. Tulsi College, Anuppur (M.P.)*

**Abstract - A study was conducted for the aquatic weeds and its ecological attributes of district Anuppur of Madhya Pradesh. In the district, there are many natural and manmade seasonal wetlands that serve as important gateways for the migratory waterfowl. The current research reports biodiversity of Marpha pond during 2014- 2015. Total 40 different aquatic species were recorded from the wetlands, that include marshy, emergent, free floating and submerged hydrophytes. Significantly most common species belong to families like Poaceae, Araceae, Cyperaceae, Asteraceae. Species such as *Eichhornia crassipes*, *Ipomoea aquatica*, *Typha angustifolia*, *Lemna triscula*, *Spirodella polyrrhiza*, *Chloris barbata*, *Hydrilla Verticillata L.* and *Cyperus* have been found to occur throughout the year in both the wetlands.**

**Keywords - Aquatic Weeds; Marpha pond; Anuppur; Madhya Pradesh; India**

## **I. INTRODUCTION**

Wetland is among the most productive ecosystems in the world (Mitsch and Gosselink, 1993). Several works have been done on the aquatic macrophytes and phytosociology in different freshwater bodies of India (Kar and Barbhैया, 2007, Kauramb, 2007, Dabgar, 2006, Prusty and Azeez, 2008 and Gupta, 1996). In India the first comprehensive work on the wetland flora was produced (Biswas and Calder, 1984). Aquatic plants are key components for the well functioning of wetland ecosystem for biological productivity and support diverse organisms and there by provide lots of goods and services for the dependent people. The aquatic plants are the most important component of the aquatic ecosystem. Wetlands are important for biodiversity conservation as some of the most endangered species survive on them, especially migratory birds. Wetlands are also vital for the maintenance of ground water at an optimum level. Also, if not properly conserved, the catchments area of the wetlands gets blocked upstream, causing water-logging in nearby residential and commercial societies. This has severe economic and health repercussions.

The study site lies between 23°6'0" N Latitude and 81°41'1" E Longitude. Anuppur district situated in the north eastern part of Madhya Pradesh. This District came into existence on 15<sup>th</sup> August 2003 by re-organising Shahdol District. Anuppur District has total area of 3701 sq.km., extends 80 km from east to west and 70 km from north to south. District Anuppur is surrounded by Korias District (C.G.) in east, Shahdol & Umaria district in west. Shahdol district in north and Dindori (M.P.) Bilaspur (C.G.) in the south. The Marpha pond is perennial one. The area of pond is nearly 17 hectare. It is situated inside of the city. According to local residents it was digged by Pandavas but some people also says that this pond had been made by the authority of municipality before 100 years ago. During the time of Hindus festivals all the statues of devi and deotas are disposed in to the pond, so due to the these activities water is becomes polluted.

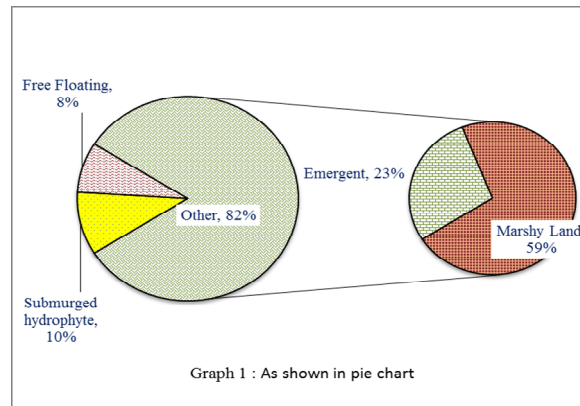
Hence, an effort has been made in this study to investigate the overall biodiversity of Marpha main pond situated in Anuppur during the year 2014-15.

## **II. MATERIAL AND METHODS**

The present study is the outcome of 6 months intensive survey with critical examination and standard quantitative assessment. In addition, species were documented by simple survey method to make a checklist of entire surveyed and samples areas. Moreover, this survey was attempted to categorize aquatic vegetation into Marshy, emergent, submerged, free floating hydrophytes. The nomenclature of the plant species are used in this paper on based on available floras "The Flora of the Presidency of Bombay" (Deshkar, 2008), "Aquatic and Wetland Plants of India" (Cooke, 1901-1908) and "The Flora of Madhya Pradesh State" (Singh, *et al.* 2001). Once plants were identified, they were poisoned with 1% mercury chloride solution which was followed by drying under blotting paper. The dried, treated specimens were numbered and mounted on standard herbarium sheet.

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## III. RESULTS AND DISCUSSION



The flora of ponds of Anuppur showed 40 genera belonging to 26 families. The check list of plant species with their botanical name, family, local name and habitat is presented in Table 1. Amaranthaceae and poaceae each with 5 plant species were found to be most dominated families. As shown in pie chart 59% of total plant species that were recorded fall into the category of marshy land, followed by 23% emergent hydrophytes, 10% submerged Hydrophytes and 8% free floating hydrophytes. Free floating hydrophytes viz. *Eichhornia*, *Lemna* and *Pistia* and Rooted with floating viz. *Nelumbo*, *Nymphaea*, Rooted submerged viz. *Hydrilla*, *Ceratophyllum* and rooted emergent viz. *Typha* and *Cyperus* were recorded throughout the year. *Sagittaria* and *scirpus* were found to be dominant during dry season of the year only. Some pteridophytes viz. *Azolla pinnata*, *Marsellia* were also found to be abundant in this wetland. There was a number of plants association of which the following were frequently noticeable in the pond:

### A. Aquatic Habitat Association

*Ludwigia-Ammania – Commelina*

*Hydrilla-Ceratophyllum – Lymnophyton*

*Nymphaea-Hydrilla-Nelumbo*

### B. Marshy Habitat Association

*Ipomoea -Typha- Scirpus*

*Ammania-Phyla-Commelina*

Biodiversity survey for terrestrial ecosystem of Anuppur district was done by many researches but biodiversity survey of ponds in Anuppur especially ponds remained neglected. Current study was aimed at identification of aquatic plants growing in this pond. The plant species in our study were found to influence flood control, aquifer recharge, nutrient absorption and erosion control.

Table - 1

S.No.	Scientific Name	Family	Local name	Habitat
1.	<i>Solanum surattense</i> Burm. f.	Solanaceae	Yellow-fruit nightshade	Marshy Land
2.	<i>Ludwigia perrium</i> L.	Onagraceae	Water-primrose	Marshy Land
3.	<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	Ironweed	Marshy Land
4.	<i>Phyllanthus amarus</i> Schumach. & Thonn.	Phyllanthaceae	Carry-me seed	Marshy Land
5.	<i>Pistia stratiotes</i> L.	Araceae	Shellflower (water Lettuce)	Free Floating
6.	<i>Ceratophyllum demersum</i> L.	Ceratophyllaceae	Hornwort	Submerged Hydrophyte
7.	<i>Hydrilla verticillata</i> (L.f.) Royle	Hydrocharitaceae	Waterweed	Submerged Hydrophyte
8.	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Sanguinarea	Marshy Land
9.	<i>Paspalum vaginatum</i> Sw.	Poaceae	Biscuit grass	Marshy Land

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10.	Ludvigia octavalvis	Onagraceae	Willow prime rose	Marshy Land
11.	Ipomoea aquatica Forssk.	Convolvulaceae	Water spinach	Emergent
12.	Hygrophila auriculata (Schumach.) Heine	Acanthaceae	Gokulakanta	Marshy Land
13.	Ammania baccifera L.	Lythraceae	Monarch redstem	Marshy Land
14.	Alternanthera pungens kunth.	Amaranthaceae	Khaki weed	Marshy Land
15.	Commelina forsskalii Vahl	Commelinaceae	Asiatic Dayflower	Marshy Land
16.	Nelumbo nucifera Gaertn.	Nelumbonaceae	Indian lotus	Free Floating
17.	Chloris barbata Sw.	Poaceae	Windmill grass or finger grass.	Marshy Land
18.	Hygroryza aristata (Retz.) Nees ex Wight & Arn.	Poaceae	Great duckweed	Emergent
19.	Spirodela polyrrhiza (L.) Schleid.	Araceae	Water velvet	Free Floating
20.	Azolla pinnata var. imbricata (Roxb. ex Griff.) Bonap	Azollaceae	Blunt Arrowhead	Free Floating
21.	Limnophyton obtusifolium (L.) Miq.	Alismataceae	Elephant's ear	Emergent
22.	Dactyloctenium aegyptium (L.) Willd	Poaceae	Egyptian grass	Marshy Land
23.	Limnophila gratioloides R. Br.	Schrophulariaceae		Marshy Land
24.	Marsilea quadrifolia L.	Marsiliaceae	Four Leaf Clover	Marshy Land
25.	Utricularia vulgaris L.	Lentibulariaceae	Common Bladderworts	Submerged Hydrophyte
26.	Gomphrena celosioides Mart.	Amaranthaceae	Gomphrena Weed	Marshy Land
27.	Bergia ammannioides	Elatinaceae	Jerry Water fire	Marshy Land
28.	Cressa cretica L.	Convolvulaceae	European water clover	Marshy Land
29.	Phyla nodiflora (L.) Greene	Verbenaceae	Turkey tangle fogfruit	Marshy Land
30.	Elaeocarpus variabilis Zmarzty	Elaeocarpaceae	Chorphone	Marshy Land
31.	Aeschynomene indica L.	Fabaceae	Curly indigo	Marshy Land
32.	Eliocharis dulcis	Cyperaceae	Wrinkle duck-beak	Marshy Land
33.	Ischaemum rugosum Salisb.	Poaceae	Wrinkle duck-beak	Marshy Land
34.	Cyperus difformis L.	Cyperaceae	Flat sedge	Marshy Land
35.	Alternanthera philoxeroides	Amaranthaceae	Alligator weed	Marshy Land
36.	Eichhornia crassipes (Mart.) Solms	Pontederiaceae	Water hyacinth	Emergent
37.	Amaranthus spinosus L.	Amaranthaceae	Spiny amaranth	Marshy Land
38.	Sphaeranthus indicus L.	Asteraceae	Gorkhmundi	Marshy Land
39.	Peristrophe paniculata (Forssk.) Brummitt	Acanthaceae	Panicled Foldwing	Marshy Land
40.	Colocasia esculenta (L.) Schott	Araceae	Elephant's ear	Emergent

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