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CHECKLIST OF THE AQUATIC MACROPHYTES IN CERTAIN WETLANDS OF YAVATMAL DISTRICT, MAHARASTRA STATE, INDIA

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ABSTRACT

The present investigation concerns with the aquatic macrophyte diversity and its role in understanding the wetland ecosystem dynamics and species composition of aquatic macrophytes, seasonal distribution in five wetlands in Yavatmal district, viz. Arunavati dam, Nandgavan dam, Fetri dam in Digras Tehsil and Jamwadi Lake and Manpur Lake, in Yavatmal tehsil were studied during 2009-2011. Forty two different species of aquatic macrophytes were recorded from the studied wetlands which include three free floating macrophytes, seven submerged, two rooted floating and twenty eight emergent species of macrophytes. The free floating species Eichornia crassipes occurs throughout the year. While the submerged species Vallisneria spiralis, Ceratophyllum demursum, Hydrilla verticillata occur throughout the year. In the rooted floating category Ipomoea aquatica occurs throughout the year. Species composition and seasonal distribution of the macrophytes has also been noted in the present paper.

KEY WORDS: Aquatic macrophytes, Yavatmal District, Digras tehsil, Wetlands.

INTRODUCTION

Macrophytes serve as a link between the sediment, water, and (sometimes) atmosphere in wetlands, lakes, and rivers. The most notable function that plants serve is as primary produceres. However, macrophytes are also involved in ecosystem processes such as biomineralization, transpiration, sedimentation, elemental cycling, materials transformation, and release of biogenic trace gases into the atmosphere (Carpenter and Lodge, 1986). Recent studies also suggest that macrophytes play a central role in shallow lakes which can have two possible stable equilibria: a

clear-water state that is dominated by aquatic macrophytes and a turbid-water state that is dominated by phytoplankton (Scheffer et al., 1993; Moss et al., 1994, Jeppesen et al., 1998). Macrophytes maintain the clear-water state by a variety of mechanisms whose relative importance is probably variable (Ozimek et al., 1990, Vermaat et al., 2000, Madsen et al., 2001). Aquatic weeds referred to as Macrophytes constitute an important component of aquatic ecosystem. Their diversity an biomass influence primary productivity and complexities of tropic states (Kumar and Singh, 1987).

Since the wetland is considered as a transitional area between land and water, Smith (1980) aptly described it as a half-way world between terrestrial and aquatic ecosystems. It is largely dominated by water and has special type of flora and fauna, which usually undergo time scheduled characteristic changes from hydric to mesic types. Wetlands are well known for high diversity in class, composition and four broad categories of functions viz. physical, hydrological, chemical, biological and socioeconomic (Williams,1990). Wetland supports Mukund Dhore, Manik Dhore, Paresh Lachure And Dinesh Dabhadkar plant species intermediate between true aquatic and terrestrial habitats (Banerjee and Venu, 1994).

Thus researches on wetland macrophytes have started gaining importance not only because systematic stock taking of biodiversity is presently given top most priority but also because these plants have implications with functional values of wetlands. In addition to stock taking and assessment of ecological functions of different forms, wetlands biodiversity pattern is studied emphatically. Vegetation pattern are likely to control major aspects of wetlands biogeochemistry and tropic dynamics and wetlands should be viewed as complex mosaic of habitats with distinct structural and functional characteristics (Rose and Crompton, 1996). There is very scanty literature available about the aquatic macrophytes. The present investigation was, therefore, undertaken to study the species composition and seasonal distribution of aquatic macrophytes in certain wetlands of Yavatmal distrct, Maharashtra.

METHODS AND MATERIAL

The study area i.e. Yavatmal district is situated in the eastern part of Maharashtra between north latitudes 190 28’ and 200 48’ and East longitudes 770 18’ and 790 98’.This region is blessed with a good number of fresh water lakes and dams harbouring a great variety of aquatic macrophytes. Information on phytosociological data for aquatic macrophytes in any water body is of immense importance to understand the wetland ecosystem. Much work has been done on the phytosociology of different macrophytic species in different freshwater bodies of India and abroad (Billore and vyas, 1981, Biswas and Calder, 1984). In the present study monthly survey was done by quadrate method for collecting submerged aquatic macrophytes from January 2009 to July 2011. Qualitative and quantitative analysis of aquatic macrophytes was done by following the methodology of Biswas and Calder (1984) and Mishra (1974). In each water body, the aquatic macrophytes were analyzed and specimens were identified up to genus/species level.

RESULTS

Aquatic macrophytes exhibited a heterogenous assemblage of forty one species in the studied wetlands. These species were distributed in thirty eight genera representing a variety of taxanomic group angiosperms, charophyta and bryophyta. Out of these Eichornia crassipes, Vallisneria spiralis, Hydrilla verticillata, Ipomoea aquatica, Cynodon dactylon occur throughout the year. During monsoon, some floating species of aquatic macrophytes were found like Eichornia crassipes, Vallisneria spiralis, Hydrilla verticillata, Ipomoea aquatic which florished and dominated the auqa-regime at a greater depth of water. Conversely, the monsoon varieties of aquatic macrophytes were succeeded by the winter emergent species viz. Lemna perpusilla, Limnophilla sessiflora, Ottelia alismoides , Nagas minor. The species that occur during the onset of summer were observed to be Heliotropium supinum, Crozophora rottleri, Gnaphalium pulvinatum, Glinus lotoides. Significant phytosocial associations have been recorded among the different aquatic macrophytes like Hydrilla verticillata, Vallisneria spiralis, chara sp., Nitella sp. Similarly Vallisneria spiralis, Najas minor Potamogeton pectinatus, Ceratophyllum demersum and Ottelia allismoides, Limnophilla sessiflora, Valisneria spiralis were also found to be in associated with each other.

DISCUSSIONS

The check list generated in the study is intended to support other research in wetlands and in particular, to assure the continuity of ongoing long term ecological programs. Cowardin et al., (1979) gave an idea on the checklist of wetlands and deep water habitats of macrophytes of the United Stales. Keddy (2000) classified macrophytes on the basic of wetlands habitat of macrophytes.The aquatic macrophytes are classified as submerged, flooting and emergent growing in and covered by at least 25cm of water.

Kayode and Ogunleye (2008) were also studied the checklist and status of plant species used as spices in Kaduna State of Nigeria. Eichhornia crassipes, which is listed in 1995 as one of the invasive, problematic aquatic plants. Cronk and Fuller, 1995 was found also recorded the same type of checklist. The prominent macrophytes recorded during this study were V. nigritana, S. dalzielii and T. australis. Sesbania dalzielii, which the riparian communities livestock farmers depend on as a forage plant (Obot, 1984; Adesina et al., 2007) and whose growth is naturally tied to rainy seasons, does not pose threat to the lake. However, the other newly recorded macrophytic species pose major threat to the lake existence. Chambers et al., 2010 were studied the world checklist of macrophyte species.

Thomaz et al. (1999) found 62 taxa belonging to 25 families and 42 genera. Among this total, 47 were identified at the species level and 33 species were common between both surveys. Similar to what we found in present study. Differences in the number of species and the identity of genera between these surveys indicate that macrophyte assemblages are still changing and are dynamic in this reservoir.

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