

RECENT STUDY ON AQUATIC MONOCOTS (FRESH WATER) OF THIRUVALLUR DISTRICT, TAMIL NADU.

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ABSTRACT

The Aquatic Vegetation of Thiruvallur District is quite rich due to presence of a large number of water bodies. Aquatic plants are important components of many water ecosystem. An extensive field survey was conducted during the year 2016 - 2017 on various regions of Thiruvallur district of Tamil Nadu. During the survey, 14 species of Monocots belonging to 9 families and 12 genera were documented. The Study reveals that various parts of aquatic monocot species are edible and the medicinal uses are also reported.

INTRODUCTION

Aquatic plants are central members of wetland communities that provide food and shelter, directly or indirectly for many organism, erosion control; Oxygen enrichment of water through photosynthesis; nutrient cycling; absorption of pollutants (Cook 1974, Halls 1997); reduction of sediment suspension; refuges for zooplankton from fish grazing; and suppression of algal growth by competing for nutrients and light and the release of allelopathic substances (Takamura *et al.*, 2003). Aquatic plant distribution, abundance and vigor are influenced by abiotic factors including water temperature, pH, dissolved oxygen, nutrient levels, turbidity (Squires *et al.*, 2002), sediment type, water and wind currents, depth and changes in water levels (Wetzel 1983). Therefore, the health and health of any aquatic community is an expression of quality of water. The present study aims to explore the aquatic monocots of Thiruvallur district.

MATERIALS AND METHODS

Thiruvallur District, the study area lies between 12°15' and 13°15' N Latitude and 79°15' and 80°20' E Longitude. The district is surrounded by Kancheepuram District in the south, Vellore District in the west, Bay of Bengal in the East and Andhra Pradesh state in the North. The district spreads over an area of about 3422 sq.kms. The mean annual rainfall is 1152.8 mm, which is received largely at North East Monsoon. Annual mean maximum and mean minimum temperatures are 37.9°C and 18.5°C. Agriculture is the principle occupation of the people of this district. The Araniyar, Kosasthalaiyar, Nandi, Kallar, Nagari, Adayar and Coovum are important rivers draining the district. All the rivers are seasonal and carry substantial flows during monsoon period. The Araniyar river basin is bounded by the Swarnamukhi river basin towards north. Kalangi and a minor river basin towards northeast and Kosasthalaiyar river basin towards south and west. Kosasthalaiyar water is supplied to Cholavaram and Redhills tanks by constructing anicut at Tamarapakkam. After filling a number of tanks on its further course, the river empties into the Ennore creek a few kilometers in north of Chennai. The Coovum river, flowing across the southern part of the district. It feeds the chembarambakkam tank through a channel. Hydrophytes are unaffected by climatic and seasonal changes. Many ponds are seasonal, lasting just a couple of months (such as sessile pools). They dried up during pre-monsoon. Until this period aquatic vegetation going to dormant stage to protect their life. In the monsoon period they germinate and grows abundantly. The specimens have been collected at regular intervals covering all the seasons of the year (during 2016 - 2017). The samples of the specimens were collected in the field and deposited at L.N. Government College, Ponneri. The identification and nomenclature of the listed plants were done with the help of various 'Floras' such as, The Flora of Presidency of Madras (Gamble, 1915), The flowering plants of Madras City and its immediate Neighborhood (Mayuranathan, 1929), An Excursion Flora of Central Tamilnadu (Matthew, 1991). The revised and latest names of the plants were taken from Flora of Tamilnadu (Henry *et al.*, 1983-89).

Table : 1- List of Aquatic Monocots recorded in Thiruvallur District

S.No.	BOTANICAL NAME	FAMILY	MORPHO- ECOLOGIC GROUP	USES
1.	<i>Aponogeton natans</i> (L) Engl. & K. Krause	Aponogetanaceae	Floating but rooted	Starchy root stocks edible
2.	<i>Eichornia crassipes</i> (Mart.)	Pontederiaceae	Free floating	-
3.	<i>Hydrilla verticillate</i> (L.f.) Royle	Hydrocharitaceae	Submerged anchored	Used as green manure
4.	<i>Lemna gibba</i> L.	Lemnaceae	Free floating	Fishes feed on the plant,introduced in carp nurseries as it destroys algae and promotes growth of zooplanktons.
5.	<i>Limnophyton obtusifolium</i>	Alismataceae	Emergent anchored	-
6.	<i>Monochoria vaginalis</i> C.Presl	Araceae	Free floating	Roots taken for stomach and liver complaints, Asthma and Tooth ache.
7.	<i>Najas graminea</i> Delile	Najadaceae	Submerged anchored	-
8.	<i>Najas indica</i> (Willd) Cham.	Najadaceae	Submerged anchored	-
9.	<i>Najas minor</i> All.	Najadaceae	Submerged anchored	-
10.	<i>Ottelia alismoides</i> (L.) Pers.	Hydrocharitaceae	Submerged anchored	Fruit eaten as raw
11.	<i>Pistia stratiotes</i> L.	Araceae	Free floating	Applied to the ringworm of the scalp, excellent food for fishes.
12.	<i>Typha angustifolia</i> L.	Typhaceae	Emergent anchored	Reeds are useful in making mats, screens and roof for huts.
13.	<i>Vallisneria natans</i> (Lour:) H. Hara	Hydrocharitaceae	Submerged anchored	Stomach ache, young leaves eaten with salads.
14.	<i>Wolffia lobose</i> Roxb.	Lemnaceae	Free floating	-

*Monochoria vaginalis**Pistia stratiotes**Aponogeton natans**Eichornia crassipes*

RESULTS AND DISCUSSION

In the present study 14 species and 12 genera belonging to 9 families were recorded from the aquatic regions of Thiruvallur district. [Table 1].

Among these families Hydrocharitaceae, Lemnaceae and Najadaceae were represented by 3 species each, followed by Araceae (2), Aponogetanaceae, Alismataceae, Pontederiaceae and Typhaceae were monospecific. Regarding habitat category 6 species belong to Submerged anchored, followed by free floating (5), Emergent anchored (2), and 1 species floating but rooted. The Pollution indicator species such as *Eichornia crassipes*, *Pistia stratiotes* was recorded which indicate eutrophication (Udayakumar *et al.*, 2010). Raju *et al.*, 2010 proved that *Lemna minor* is a suitable aquatic plant for phytoremediation of domestic waste water, which improved the quality of domestic waste water by absorbing organic and inorganic pollutants. *Pistia stratiotes* was a pollution tolerant aquatic macrophytes and be used as a biological indicator for eutrophication. Incase of any aquatic ecosystem monocots dominate the vegetation having more species diversity in contrast to terrestrial habitats.

CONCLUSION

Aquatic monocots play a vital role in the nature in many ways. Generally, ponds and pools having more vegetation than lakes and rivers. Most of the aquatic macrophytes are found specific to the environmental quality. In the recent study, we observed that most of the water bodies are going to deplet or near to threat. Dumping of solid waste and addition of sewage into the water bodies to be stopped immediately.

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