



DIVERSITY OF AQUATIC MACROPHYTES IN ARUVIKKARA RESERVOIR,
THIRUVANANTHAPURAM DISTRICT, KERALA

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ABSTRACT: The present attempt is to analyze the role of aquatic biodiversity i.e. macro flora in maintaining the status of the Aruvikkara reservoir. The variety and distribution patterns of macrophytes of inland water bodies are of current interest in studies on global biodiversity conservation. In the present paper the angiospermic plants in the Aruvikkara reservoir of Thiruvananthapuram District, Kerala, India has been considered. The study revealed the presence of 15 species of aquatic plants in the reservoir. The dominant macrophytes *Nymphoides indica* and *Nelumbium speciosum* were spread throughout the water surface.

Keywords: Aruvikkara reservoir, Angiosperms, Diversity

INTRODUCTION

Reservoirs are water locked ecosystems that are bodies of stagnant water with plenty of submerged, floating or rooted plants along with phytoplankton. The abundance, distribution and diversity of aquatic macrophytes, planktons and other aquatic organisms are influenced by the physico-chemical factors of the aquatic environment. Phytoplankton are also of considerable ecological significance as they form the basic link in the food chain of all aquatic animals [2] and as well as their role in the water environment [3]. The proposed site is of great significance as the water in the dam is the source of drinking water to the whole metropolis of Thiruvananthapuram. It is the need of the day to conserve such water resources as the problem of water scarcity is becoming acute now days.

The Present Study aims at the preliminary analysis of angiospermic flora of Aruvikkara reservoir, Thiruvananthapuram District, Kerala.

MATERIALS AND METHODS

Aruvikkara located in Kerala, India with coordinates 8.5677800°N 77.018890°E is a village in Thiruvananthapuram district in the state of Kerala, India. It is on the banks of the Karamana river, 15 km from Thiruvananthapuram, the capital city of Kerala, South India. Aruvikkara dam is one of the main sources of water for distribution in Trivandrum city. The water supply system for Trivandrum city was designed in 1928 and commissioned in 1933. The source of supply is the Karamana River. The reservoir could supply enough drinking water to the residents of Thiruvananthapuram city.

Over the years the quality of water in the reservoir has been influenced by the physicochemical factors of the environment. The present study is to assess the diversity of aquatic plants present in the Aruvikkara reservoir. Water quality exhibits a close relation with the micro and macro flora present in the reservoir because the occurrence, abundance and chemistry of related flora get changed with a change in the physicochemical factors. In the present study five different sites were selected at different places of the Aruvikkara dam for sample collection and analysis. The sites are:

1. Vembanni
2. Vembanni East
3. Mundela
4. Kalia kuzhi
5. Temple side

The aquatic macrophytes from Aruvikkara reservoir were collected from five different stations in Polythene bags regularly from May 2012 to May 2013. The angiospermic floras were collected and identified using different literatures [1, 4].

RESULT AND DISCUSSION

By this study, a total of 15 aquatic plants including aquatic and wetland belonging to different families were collected periodically. The collected plant specimens were identified with standard references (Flora). The dominant species include *Nymphoides indica* (L.) Kuntze, *Cabomba furcata* Schult. & Schult.f. and *Nymphaea nouchali* Burm.f. Spread throughout the water surface. The families with most number of species were Araceae, Nymphaeaceae and Hydrocharitaceae. Some sites were seen in the reservoir as islands with bushy grasses, plants and other aquatic organisms. The study revealed that the sites 3 and 4 with very dense vegetation, sites 1 and 2 with moderate vegetation and site 1 with sparse vegetation.

Table 1. Different aquatic plant species recorded in the Aruvikkara reservoir

S. No	Binomial	Family
1	<i>Cabomba furcata</i> Schult. & Schult.f.	Cabombaceae
2	<i>Ceratophyllum demersum</i> L.	Ceratophyllaceae
3	<i>Elodea canadensis</i> Michx.	Hydrocharitaceae
4	<i>Hydrilla verticillata</i> (L.f.) Royle	Hydrocharitaceae
5	<i>Lemna gibba</i> L.	Araceae
6	<i>Marsilea minuta</i> L.	Marsileaceae
7	<i>Nymphoides indica</i> (L.) Kuntze	Nymphaeaceae
8	<i>Nymphaea nouchali</i> Burm.f.	Nymphaeaceae
9	<i>Pistia stratiotes</i> L.	Araceae
10	<i>Salvinia adnata</i> Desv.	Salviniaceae
11	<i>Utricularia bifida</i> L.	Lentibulariaceae
12	Pandanus species	Pandanaceae
13	Cyperus species	Cyperaceae
14	<i>Eriocaulon aquaticum</i> (Hill) Druce	<i>Eriocaulaceae</i>
15	<i>Colocasia esculenta</i> (L.) Schott	Araceae

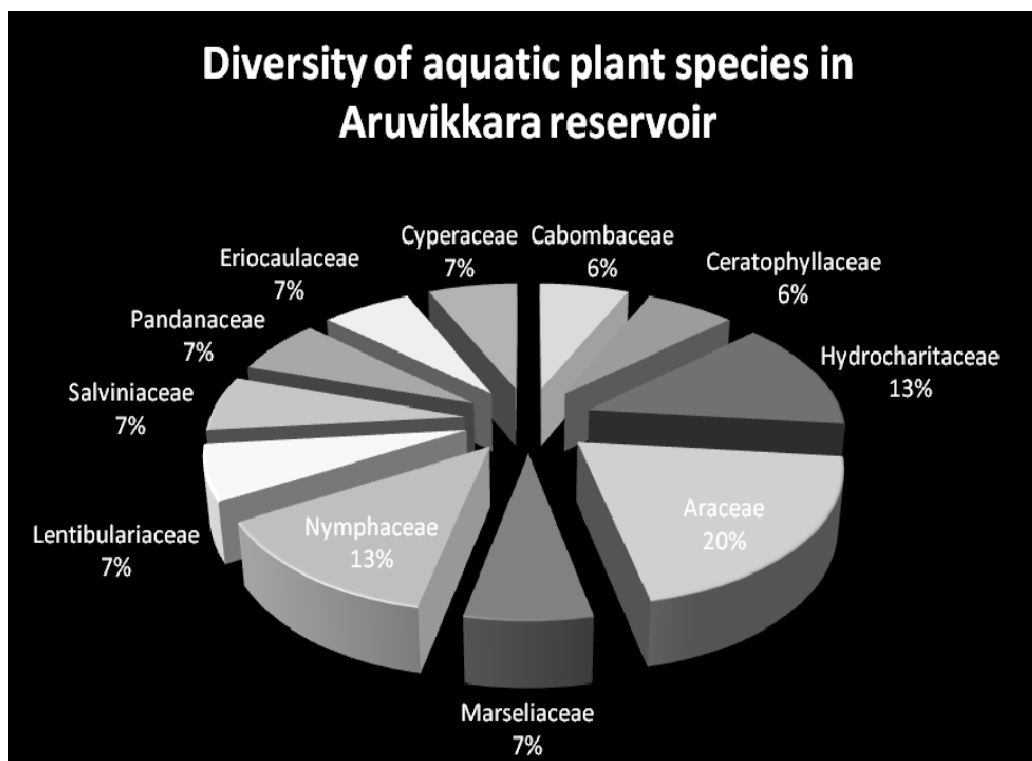


Fig 1 Diversity of aquatic plant species in Aruvikkara reservoir

Table 2. An analysis of aquatic vegetation

Plant species	Family	Stations	Dominance	Site 1	Site 2	Site 3	Site 4	Site 5
<i>Cabomba furcata</i>	Cabombaceae	4	2	P	P	D	D	A
<i>Ceratophyllum demersum</i>	Ceratophylleae	3	2	P	D	D	A	A
<i>Elodea canadensis</i>	Hydrocharitaceae	2	0	A	A	P	P	A
<i>Hydrilla verticillata</i>	Hydrocharitaceae	4	2	D	P	D	P	A
<i>Lemna gibba</i>	Araceae	2	0	P	P	A	A	P
<i>Marsilea polycarpa</i>	Marseliaceae	2	0	A	P	P	A	A
<i>Nymphoides indica</i>	Nymphaeaceae	4	3	D	P	D	D	A
<i>Nymphaea nouchali</i>	Nymphaeaceae	4	2	P	D	D	P	A
<i>Pistia stratiotes</i>	Araceae	2	1	A	P	D	A	A
<i>Salvinia adnata</i>	Salviniaceae	2	0	A	P	P	A	A
<i>Utricularia bifida</i>	Lentibulariaceae	3	1	A	P	P	D	P
Pandanus species	Pandanaceae	4	2	P	D	P	D	A
Cyperus species	Cyperaceae	5	4	D	D	D	D	P
<i>Eriocaulon aquaticum</i>	Eriocaulaceae	3	0	P	A	P	P	A
<i>Colocasia esculenta</i>	Araceae	3	2	A	P	D	D	A

D: Dominance, P: Present, A: Absent

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