

A STUDY ON THE HYDROPHYTIC PLANT *OTTELLA ALISMOIDES* (L.) PERS (HYDROCHARITACEAE) AND ITS POLLUTING EFFECT FROM MATHADI PROJECT OF ADILABAD DISTRICT, TELANGANA STATE (INDIA).

EANGUWAR SRINIVAS REDDY¹, SHINDE S. R.²

^{1,2}Department of Botany,

Baliram Patil College, Kinwat District Nanded, Maharashtra, India

Email - eanguwarsrinivas@gmail.com

Abstract: The water pollution is a common phenomenon, it can be due to chemical or materials dumped in water bodies. The pollution of rivers, lakes and other bodies can also be by certain Angiospermic macrophytes, the present study is about unnecessary and unwanted expansion of *Ottella alismoides* (L.) Pers (Hydrocharitaceae) from Mathadi Project, Adilabad District, Telangana state, India. The reasons and consequences of this expansion are discussed in this study, the primary investigation suggest that growth of the macrophytes are tremendously increased in last two years, it is due to excess use of agricultural fertilizers drain inside the water, which disturb the Phytoplankton and Zooplankton of dam.

Keywords: *Ottella alismoides* (L.) Pers, pollution, agricultural fertilizers, Mathadi Project, District Adilabad, Telangana State.

1. INTRODUCTION:

Water is vital resource required by living organisms. It is a most essential basic component to all living being as most of the biochemical reactions that takes place through the metabolism and growth of living organisms involve in water. Without water no life is possible to maintain on this planet earth hence it is termed as 'Natural liquid Gold'. It is also called 'universal solvent', almost of the inorganic chemicals are dissolved in water. Water occupies 71% of the planet earth surface, out of all the available water on the earth surface only 3% constitute fresh water which is present in the form of ice caps, glaciers, rivers, lakes, ponds, streams and ground water resources. The most important and susceptible freshwater system is the river and plays a critical role in the sustenance of all life. The decline in the quality of water in freshwater systems threatens its sustainability and has become a cause for concern (Venkatesharaju et.al. 2010).

The Indian environmental researchers have recently explained the condition of freshwater resources in India and their management as a serious environmental problem which includes nutrition enrichment, acidification and domestic waste, agricultural waste, sewage and industrial effluents toxic substances identified as major impacts (Sachidanandamurthy and Yajurvedi 2006, Parashar 2008 and Laskar and Susmita 2009).

Water resources and water quality affect the economic and social of the society, water becomes contaminated by unexpected substances, it is considered as harmful for human and aquatic lives (Bagul et. el. 2015). Wetlands are amongst the ecosystems most severely threatened by human activity, which is leading to loss of biodiversity and impaired ecosystem function (Revenga et al., 2005). The hydrophytic macrophytes i. e. Angiospermic plants create number of pollution problems as *Eichhornia* species causes tremendous hazards in water body (Manju and Darsana, 2014; Esawy Kasem Mahmoud1 and Adel Mohamed Ghoneim, 2016). The present investigation is about the unnecessary and unwanted expansion of *Ottella alismoides* (L.) Pers (Hydrocharitaceae) from Mathadi Project, Adilabad District, Telangana state, India, a sudden growth of this plant is been observed during last two years in 2014 and 2016. The exploration was done on for finding of the reason is sudden growth and its effect on Phytoplankton and Zooplankton of dam.

2. MATERIAL AND METHODS:

Adilabad district is one of the district of newly created Telangana State is situated near to Maharashtra state. The district is situated between 770.46' and 80.01', of the eastern longitudes and 180.40' and 190.56', of northern latitudes. Due to the districts re-organisation in October 2016, the district was carved out to form three new districts of Asifabad district, Mancherial district and Nirmal district.

Adilabad district occupies an area of 4,153 square kilometres (1,603 sq mi). Adilabad is bounded on the North by Yavatmal district and on north east by Chandrapur district, both of Maharashtra state, on east by Asifabad district (aka. KomaramBheem district), on south east by Mancherial district, on South by Nirmal district and on West by Nanded district of Maharashtra state.

The main water sources of Adilabad district are sub rivers which merge into Penganganga river, the Muthadi river is one of the sub river; The Mathadi project is constructed on this river near Sunkali village, project helps agriculture for

lift irrigation. The Mathadi project is surrounded by agriculture catchment area is 236 Sq/Kms, out of which the beneficiary area is about 3440 hectares; the main cultivation is cotton, tur, soyabean and jawar.

The survey of the Mathadi project is undertaken by several visits, it was observed that three species of Hydrocharitaceae members predominance is more, they are *Hydrilla verticillata* (L.f.) Royle, *Ottella alismoides* (L.) Pers and *Vallisneria natans* (Lour.) Hara, it is cross checked by pertinent literature (Pullaiah, 1992 and Naik, 1998).

3. RESULT AND DISCUSSION:

Frequent botanical visits of the dam shown occurrence of number of hydrophytic plants, among them three plants of Hydrocharitaceae members revealed the predominance, they are *Hydrilla verticillata* (L.f.) Royle, *Ottella alismoides* (L.) Pers and *Vallisneria natans* (Lour.) Hara, it is shown in Figure No. 1. Among these two plants are *Hydrilla verticillata* (L.f.) and *Vallisneria natans* (Lour.) are totally submerged small plants, while *Ottella alismoides* (L.) Pers is a quite large floating hydrophyte, it has been observed on the surface of the water, it is shown in Figure No.2, the population of submerged plants have correlation with the Phytoplankton and Zooplankton of water body. Now a day's farmer are frequently using high dose of chemical fertilizers to boost their crops, leaching of various fertilizers and micro elements from the field into the water helps the rapid growth of *Ottella alismoides* (L.) Pers. It also been balancing the ecosystem, this is probably affected the population of fishes of the dam.

Photo plates:



a.



b.



c.

Figure No. 1 a) *Hydrilla verticillata* (L.f.) Royle b) *Ottella alismoides* (L.) Pers and C) *Vallisneria natans* (Lour.) Hara



Figure 2. Photo of Mathadi Project showing huge growth of *Ottella alismoides* (L.) Pers.

4. CONCLUSION:

The present condition of floating hydrophyte *Ottella alismoides* (L.) Pers, its population has been increased tremendously during last few months, the observation and analysis of the population of this plant in the Mathadi project is due to surrounding agricultural lands with a continuous leaching of chemical fertilizers and micro nutrients in the project. So it an urgent need to undertake further studies for the pollution point of view.

ACKNOWLEDGEMENT:

The authors wish to thank the principal of Baliram Patil collage, Kinwat, District Nanded, Maharashtra, India.

REFERENCES:

1. Bagul V. R.; Shinde D. N. Chavan R. P. Patil C.L: Causes and Impacts of Water Pollution on Rivers in Maharashtra A Review. *Research Journal of Chemical and Environmental Sciences. Res J. Chem. Environ. Sci.* Vol 3 [6] 01-(2015). ISSN 2321-1040.
2. Esawy Kasem Mahmoud and Adel Mohamed Ghoneim : Effect of polluted water on soil and plant contamination by heavy metals in El-Mahla El-Kobra, Egypt. *Solid Earth*, 7, P; 703–711. (2016).
3. Klaus Lackschewitz : Vascular Plants of West-Central Montana— Identification Guide book. United States Department of Agriculture. (1991).
4. Laskar H. S and Susmita.G, Phytoplankton diversity and dynamics of Chatla floodplain lake, Barak Valley, Assam, North East India - A seasonal study, *J. Environ. Biol.*, 30, 1007-1012.
5. Madsen, T. V and Sand-Jensen, K., : Topics of worldwide organisation. Denmark. (2006).
6. Manju K.G. and Darsana S. : *Eichhornia Sp. As sentinel of pollution in aquatic ecosystem. Journal of Aquatic Biology and Fisheries*, Vol. 2// P: 334 to 335. (2014).
7. Naik V.N. : Flora of Marathwada, Amrut Prakashan, Aurangabad. (1998).
8. Parashar, C., Verma N., Dixit S. and ShrivastavaR. (2008).Multivariate analysis of drinking water quality parameters in Bhopal, India, *Environ. Monit. Assess.* 140, 119-122.
9. Pullaiah T. : Flora of Adilabad district (Andhra Pradesh, India), CBS Publishers & distributors, Delhi. (1992).
10. Revenga C, Campbell, Abell R, de Villiers P, Bryer M.: Prospects for monitoring freshwater ecosystems towards the 2010 targets. *Philosophical Transactions of the Royal Society B-Biological Sciences*, 360: 397–413. (2005).
11. Venkatesharaju K., Ravikumar P., SomashekarR.K.,Prakash K.L, Physico- chemical and Bacteriological investigation on the River Cauvery of Kollegal stretch in Karnataka, *J. Sci., Engin. and tech.*,6 (1), 50-59. (2010).
12. Sachidanandamurthy, K.L. and Yajurvedi H.N. : A study on physicochemical parameters of an aquaculture body in Mysore city, Karnataka, India, *J. Environ. Biol.*, 27, 615-618. (2006).