Available online at http://www.ijcrls.com

International Journal of Current Research in Life Sciences
Vol. 08, No. 01, pp.3023-3026, January, 2019

ISSN: 2319-9490

RESEARCH ARTICLE

AQUATIC ANGIOSPERMS: A BOON FOR WATER GARDENERS

[1]Prasanjit Mukherjee and [2,*]Jyoti Kumar

[1]Department of Botany, KKM College, Pakur, Plant Taxonomy and Ecological Research Lab
[2]University Department of Botany, Ranchi University, Ranchi

Received 17th November, 2018; Accepted 20th December, 2018; Published 30th January, 2019

ABSTRACT

Aquatic angiosperms refer to the plants that grows in and around water bodies and are an important part of the aquatic ecosystem" or "those species which normally stand in water and must grow for at least part of their life cycle in water, either completely submersed or emersed. These plants are different from the terrestrial plants as these are delicate and fragile. Soon looses its identity when taken out of the water.

Key words: Aquatic angiosperms, Water gardener, Income.

Copyright © 2019, Prasanjit Mukherjee and Jyoti Kumar. *This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

Citation: Prasanjit Mukherjee and Jyoti Kumar. 2019. "Aquatic angiosperms: A boon for water gardeners" *International Journal of Current Research in Life Sciences*, 8, (01), 3023-3026.

INTRODUCTION

Decorating a waste land or a unused undulating land by leveling the surface, beautifying the area with plants, trees, flowers and flower pots moreover gardening. Landscaping differs according to the land and area for the purpose understating and ideas about the site is important. The garden cultivated plants are well practiced and available for the purpose of beautifying the areas under landscaping. But one group of the plant that grows on the surface other than the dry or terrestrial surface that is water surface, these plants are called aquatic plants. These plants can be used as beatifying the water surface. In fact these plants bear beautiful flowers and look charming in the pond or any other water bodies. Beautifying the water surface by water plant or aquatic plants is called water gardening or aquascaping. Or "growing and cultivating beautiful aquatic plants in the park, nalas and water bodies or even in pots for its aesthetic beauty is called water gardening. Gradually this ideas is gaining momentum in India and abroad. Cultivation and promotion of aquatic flowering plants can be a boon for the water gardeners. Hence Promotion of farmers for the cultivation and sell of flowering aquatic and semi aquatic plants is the need of the hour to enhance the income of the farmers. Considering the fact the present paper have been designed. The idea of the water gardening is the outcome of the more than 25 years of research of the aquatic and semi-aquatic flowering plants of Jharkhand. In this paper a flowering calendar of 31 aquatic and semi-aquatic species is given in the table along with a colour spectrum on the background of the each species reflecting the color of the flower.

Corresponding author: **Jyoti Kumar,**
University Department of Botany, Ranchi University, Ranchi.

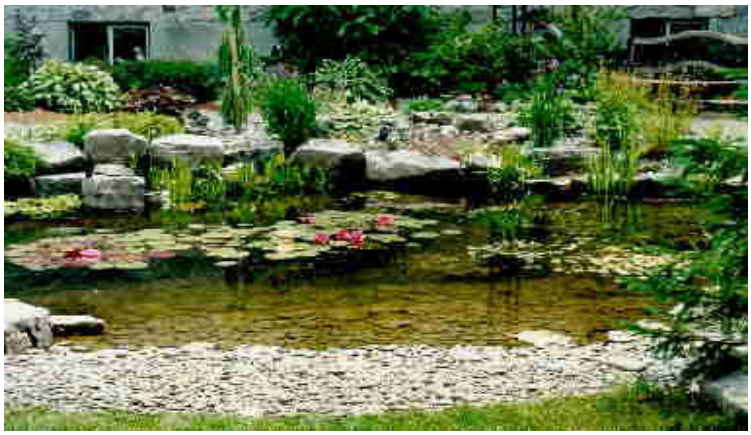
Some of the important species of the aquatic plant like *Nelumbo nucifera, Nymphaea nouchali, Pistia stratiotes* etc. The aquatic plants are not only used for the decorative purposes these plants are also used for other ornamental and religious purposes. Some of the submerged species even used in the aquarium industry. The food value of the same can not be ignored. The market of *Nelumbo* and *Nymphaeae* is around lakhs of Rupies every year during Rath festival and Dipawali. The

MATERIALS AND METHODS

- Selection of Site
- Selection of plants
- Making a flowering calendar of the selected aquatic and semi - aquatic plant species
- Accessing civil construction work in the selected site
- A flowering calendar along with the colour spectrum have been present in Table-I.

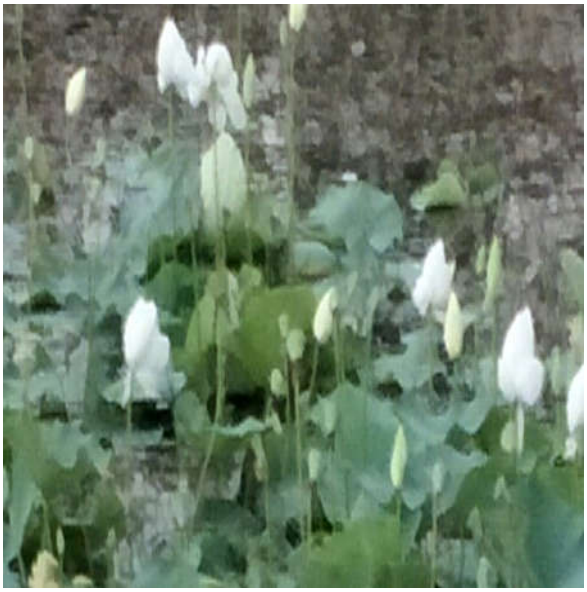
RESULT AND DISCUSSION

Aquatic plants are used in various ways in gardening -
For beautification of ponds or water bodies under controlled observation by using some kind of floating barriers. emerged or floating species can be used for the purposes. In small water bodies even submerged species can be used. In nala gardens ,for decorating the shoreline and puch-puch area on the bank of the nalas for its beautification. For decorating pots with some flowering species, some *Cyperus, Fimbristylis Eriocaulon,* species etc or even some ignored or less known aquatic species can be used for the purpose.

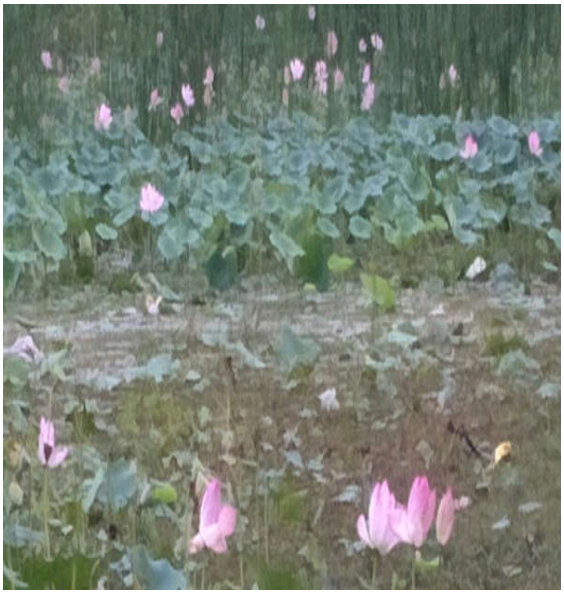


A photograph of water garden

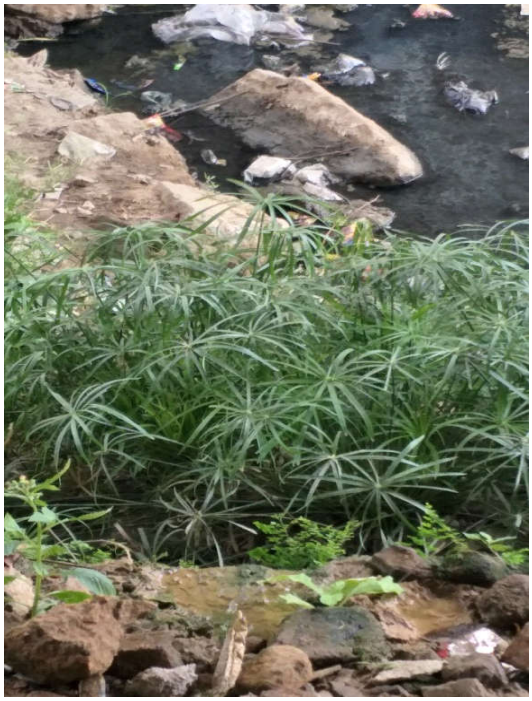
Pot decorated with less known semi- aquatic species



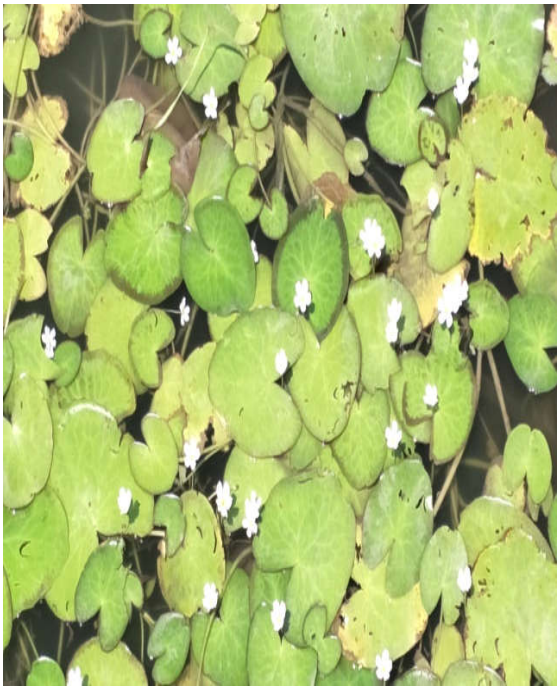
White Lotus



Pink Lotus

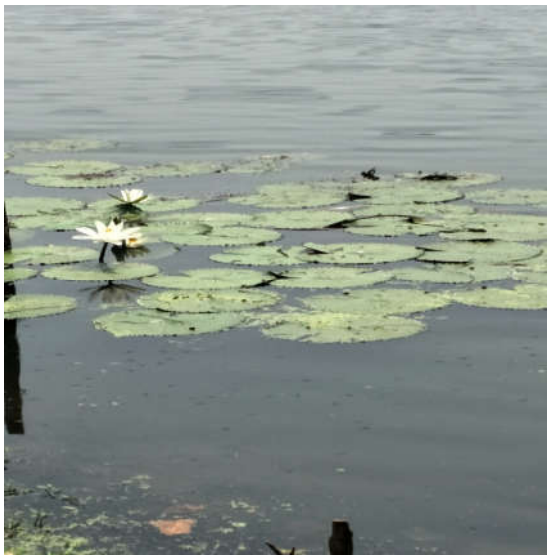


Cyperus



Nymphoids indicum

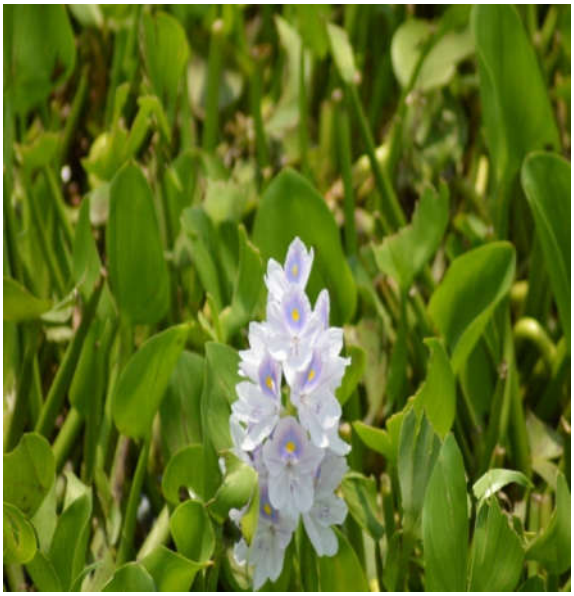
Fimbristylis dipsacea



Nymphaea pubescens

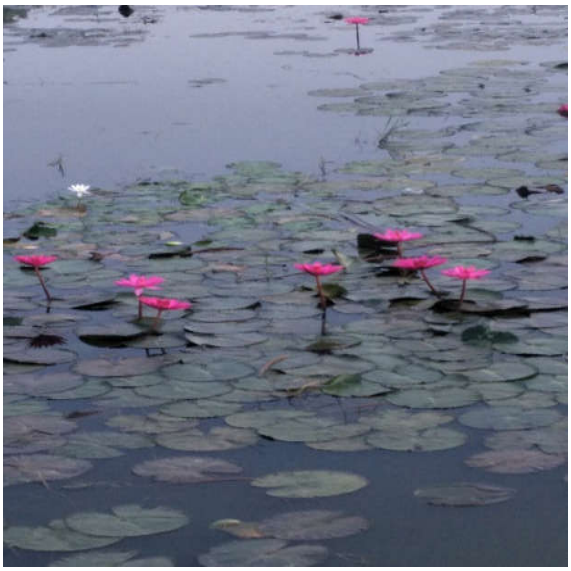
Ludwigia adscendens

Pistia stratoites



Eichhornia crassipes

Nymphaea rubra



Nymphaea rubra

Ottelia alismoides

For making bouquet. For beautification of aquarium. Some picture of the water garden, pot garden and potential aquatic flowering and foliage plants are furnished here.

REFERENCES

Christopher, C. 2006. Study on the diversity of the aquatic vascular plants in Karikkakom, Thiruanantpuram. *Ecol. Env. & Conc.* 12(4): 661 – 663.

Cook, C.D.K.1996. *Aquatic and Wetland plants of India* Oxford University Press, New York.

Gupta, O.P. 1979. *Aquatic weeds their menace and control. A text book and manual*. Today & Tomorrow's Printers & Publisher, New Delhi.

Haines, H.H. 1921 – 1925. *The Botany of Bihar & Orissa.* Allard & Son & West Newman Ltd, London

Jha, U.N. 1965 Hydrophytes of Ranchi. *Trop. Ecol*. 6: 96 - 105.

Kachroo, P. 1959. Aquatic vegetation of Damodar Valley. I. Phanerogamic flora of forest water

ponds ,etc. *J. Asiat. Soc*. *Bengal* 1: 271-289.

Maheshwari, J.K. 1960 The vegetation of marshes, swamps and riversides in Khandwa District

(Madhya Pradesh) J. Bombay Nat. Hist. Soc. 51: 371 – 387.

Majumdar N.C. 1965 Aquatic and semiaquatic flora of Calcutta and adjacent localities. Bull.

Bot. Soc. Bengal 19: 10 -17.

Mooney, H.F. 1950. *A supplement to the Botany of Bihar & Orissa* . Catholic Press**,** Ranchi.

Mukherjee, P. 2001. *The Floristic and Ecological studies of Aquatic Angiosperms of Lohardaga*. Ph.D. Thesis, Ranchi University, Ranchi (Unpublished).

Mukherjee, P. & Kumar,P 2003. Studies on the angiospermic flora of ponds of Ranchi (Jharkhand). *Proceeding National Seminar on Biodiversity, Taxonomy and conservation.* Majalgaon College, Majalgaon,

Mukherje, P. Ghosh, T.K. & Sinha, S. 2006. Status of Economically important plants of Lohardaga. Proceeding XXIX Annual conference of Indian Botanical Society, Mohan Lal Sukharia University,Udaipur.

Naskar, K.R. 1990. *Aquatic & Semi-aquatic plants of the lower Ganga Delta.* Daya Publishing House, Delhi.

Subramanyam, K. 1962. *Aquatic Angiosperms.* CSIR, New Delhi.

Singh, A.1998. Floristic composition and vegetation profile of aquatic angiosperms of Hazaribag

and adjacent area. Ph.D. Thesis V.B. University Hazaribagh,(Unpublished).

Singh,M. P. 1990. Hydrophytes of Ranchi *J. Econ. Taxon. Bot.* 14 :3.

Verma S.K. and Pandeya P.K. 2007 Ethnomedicinal use of some aquatic plants in Jharkhand. J.

Haemotol & Ecotoxicol.2(1) pp34-37.

Verma S.K. and Pandeya P.K. 2008 Floristic studies of Aquatic and Semi aquatic

Angiosperms of Ratu Maharaja Pond, Ranchi .Jharkhand .Biospectra. .2(1): pp139-41.

Mukheree P. and Ghosh T.K. 2015. Aquatic and Semi – semi aquatic angiospermic flora of

Lohardaga (Jharkhand) Phytotaxonomy Vol.15: pp 134-145.

****