Plants in Aquarium Ecosystem: Present Scenario & Future Prospects

Agnidyuti Halder, Patit Paban Halder, Prof. Dr. Manjusha Tarafder Department of Botany, Scottish Church College, Kolkata, WB, India, 700006 Department of Education, Seacom Skills University, Kendradangal Birbhum, WB, India

INTRODUCTION

ABSTRACT: Nowadays various variations are being noticed in the society. People are not limited to food, clothing, and shelter. Hobbies continue to bring a taste of innovation along with creativity, combining with environment and nature. A work that portrays all of the above is an Aquarium, along with flora, fauna and other abiotic components of its ecosystem. On one hand it will bring beautification and on the other hand it has propagation, culture and economic importance which will solve the unemployment problem. It will also generate a new market-place for home and abroad and will bring foreign exchange. This aqua-life farming, management and business can be done at basic, advanced and corporate levels.

Keywords: Aquatic Plant, Ornamental Fish, Aquarium, Economic Importance, Study.



In the aquarium ecosystem we see mainly three types of aquatic plants from tropical and sub-tropical regions, firstly 'floating plants' which floats on the surface of water and are not anchored in soil, such as Azolla sp., Lemna minor, Limnobium lagevigatum etc. Secondly 'mergible plants' which are capable of surviving and growing both underwater and on lands adapting to different water levels and conditions, like Hydrocotyle vulgaris, Glossostigma elantinoides, Cryptocoryne wendtii, Echinodorous sp., Bacopa carolina, Ludwigia repens, etc. Thirdly 'submergeable plants' which grows completely in submerged water. They have roots anchored with the soil, such as Valliseneria asistica, Cabomba caroliniana, Microsorum pteropus, Rotala rotundifolia, Egeria densa etc. Some of the plants mentioned here are indigenous and some are exogenous but these all are farmed here. The future prospects of aquatic plants have a great economic importance in both local and international markets for aquarium trade. Even scope in research field is also present. Additionally aquatic plants are used in many ways, it consists of essential nutrients, used as feeds, used as water treatment, have therapeutic sources with pharmaceutical properties and many more.



Plant; Baccopa moneri, Cryptocorine wendity, Cabomba caroliana

WHY THIS WORK

Nature is made up of water world, land world and air world. So far it has not been possible to work with a

special focus on the water system. If we do not give equal importance to the world then one day the world is bound to be destroyed. Therefore, it can be understood that the importance of living organisms in the aquatic environment is immense for the environment. Careful attention to ethics will greatly improve the aquatic environment and be economically prosperous as well. It has been possible to find several examples of solving the unemployment problem in our society. It will be possible to re-evaluate the nature of the environment. It is for this purpose that I have attempted to deal with this subject in this chapter.

IMPORTANCE AND NECESSARY OF THIS STUDY

If you want to save people's education, culture, ideology, development, you have to move forward with the idea of saving the environment first. Along with giving importance to everything, it is necessary to keep an equal eye on all the resources of nature. Experience and field research have shown that aquatic plants play a major role in sustaining the aquatic world. So here, by showing equal respect to all things in the aquatic world, special emphasis has been given to these ornamental aquatic plants that can become eco-friendly plants. Not much work has been done on aquatic plants. If you can work with them, students, teachers, researchers will also benefit in the field of education. The children of the new generation can become quite prosperous from the economic point of view. In addition, there is a great possibility that its various streams will be useful in the future. I am referring to the plant here. Keeping them creates a peaceful atmosphere inside the house. At the same time, there is a lot to increase their conservation, breeding and marketing. Through this, the economic structure of the society will be strengthened.

GAP OF THE SUBJECT

Ornamental aquatic plants and small fishes are often highly neglected. What works except the one who has unprecedented beauty, who has an infinite role in the environment? Yet it is being left out in many cases. If you want to keep everything in harmony with the environment in ecology. Those that are falling away should be caught easily. We have to work on them more and better. The hobby of the aquarium has moved to a major location. However, its special attraction is aquatic plants and fish. Fish are discussed a lot, but water supply is not discussed so much and few plants are given importance. Since this aquarium has reached all parts of the world, it is easy to study many types of things inside the indoor outdoor laboratory, but there is no discussion about this aquarium, except that there is a beautiful. Even its nitrogen cycle is bypassed. A harmonious coexistence between living and non-living things is often overlooked among all the elements within the aquarium. Nitrogen cycle, NO2, ammonia nitrate, nitrous, nitrification, introduction of heterotrophic bacteria, nitrosomonas bacteria, azotobacter etc. is appropriate. In many cases, the matter is left out of the matter, this is a terrible thing.

INDIAN & ABROAD SENARIOS

In India there is very little discussion of aquarium plants or aquatic plants and their ecosystem and how they can generate economic income. Currently unable to meet our needs. Many people have no idea about this aquarium and aquatic plants. A few organizations and individuals are doing little work on this issue through private initiative. Their range is also limited to a very small area. The need for more depth in their simple thinking is emerging from various media. There is a complete lack of awareness and training among the people in different parts of India on the subject of Aquatic Plants in Aquariums as a system and earning money from it. Some people who have gone ahead are trying to focus on its good aspects again and again but apart from economic social and media negligence, the government's initiative is quite low, it is understood from various quarters. It is very difficult to advance the subject in the words of those who are biased in advancing this matter. In the districts of Howrah, Hooghly, Kolkata, South 24 Parganas, Burdwan, Nadia, Bankura, Birbhum, Midnipur, etc., some progressive ideas are emerging and being implemented. Apart from West Bengal, aquatic plants are being worked on in some parts of North India and South India, so that they can be useful in forest mental aquarium field. Work on this abroad has progressed quite a bit. Singapore, Hong Kong, Malaysia, Java, Sumatra, Sinhalese are doing marketing with this foreign Many schools, colleges and universities are giving special importance to these aquatic life and elements and are repeatedly announcing their coexistence. In order to save the environment. Some countries are doing this very carefully. If we can expand this work more widely in India, the atmosphere of improvement will develop in all aspects.

RESEARCH METHODOLOGY

The objectives of my research are to prioritize aquatic plants for aquarium, developing aquarium concept, generating economy from aquatic plants, research and developments in the field of aquaculture and according to objectives it's an expected hypothesis. After the work has been done, the objectives became clear from sampling of 50 respondents through questionnaire from people of aquarium trade, farming and hobby collected from city Chadernagore of district Hooghly of state West Bengal, India.

TOOLS & TECHNIQUES

Method of case study and questionnaire based on five point Liker scale to know the acceptance rate and Kuppuswamy scale to measure socio-economic status of respondents is used along with tools like IBM's SPSS, MS Excel 2007, MS Word 2007 and others.

CONCLUSION

Huge research gap in this domain is observed, so there is a scope of achievements in this field. But in the field of education and academics the aquatic plants has been neglected, so there is a great scope of student, teacher and researchers for diversification. It is true that participation of people in this field is very little. If compilation of traditional and academic field is cooperated and if, Government, NGOs, Self entrepreneurs and Media jointly encourage this matter. then it will be more successful.



REFERENCES

- [1]. Rangin Mach o Jolojo Gach Chas, Halder Publication 1996
- [2]. Studies in Botany, Moulik Library, Jatindra Nath Mitra, Debabrata Mitra, Salil Kumar Chaudhuri, 1972
- [3]. Microbiology with Virology and Immunology, MIR Publishers Moscow, KD Pyatkin, YU S KRIVOSHEIN, 1987
- [4]. Brock Biology of Microorganisms, Upper Saddle River, New Jersey, Madigan, Martinko, Parker, 2000
- [5]. Aquarium Porichorchar Mul Bisoy, Halder Publication, Patit Paban Halder, 2006

- [6]. Essential Tips for Aquarist, Publication, Patit Paban Halder, 2006
- [7]. Maintenance and Treatment of Color Fishes, Publication, Patit Paban Halder, 2000
- [8]. Picture Credithttps://aquariumconnection.com/fresh_water_sol ution/the-nitrogen-cycle-cycling/