FOOD YIELDING PLANTS WITH SPECIAL REFERENCE TO AQUATIC ECOSYSTEM

Abstract

Aquatic ecosystem is a precious gift to the mankind by the nature. It includes varieties of aquatic habitats and the vegetations found in such habitats are called hydrophytes. They develop morphological as well as anatomical adaptations to adjust in water or soil covered with water. They are classified in to submerged, floating, amphibious and marsh plants. Hydrophytes include all taxonomic group that ranges from algae to angiosperm. They are producer in aquatic ecosystem and maintain ecological balance in nature. Most of them are used as food by human being. They collect plants or plant parts in different time and used as food. These plants are collected from wild or cultivated and sold in market. It increase the economic status of local people and farmers. Now-a-days aquatic plants become rare in wild condition due to over exploitation, pollution load, mushrooming of industries, interference of invasive and alien species, anthropogenic pressure and other socioeconomic developmental activities. Hence their conservation is very urgent.

Keywords: Aquatic ecosystem, Conservation, Hydrophytes

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I. INTRODUCTION

Aquatic ecosystem is a precious gift to the mankind by the nature. It includes pond, streams, lake, swamp, marshy lands and other aquatic environments. Vegetations found in such habitat are called hydrophytes. They develop morphological as well as anatomical adaptations to adjust in water or soil covered with water. The structural adaptations are correlated with decrease in oxygen supply due to aquatic environment, poorly developed or absence of structures that are needed for water loss in transpiration and also extreme decrease in mechanical and water conducting tissue. With regard to their relation to aquatic environments hydrophytes may be submerged, floating, amphibious and marsh plants. Hydrophytes include all taxonomic group that ranges from algae to angiosperm. These plants are key components of aquatic ecosystem which play the role of producer in aquatic ecosystem and maintain ecological balance in nature (Sahoo & Nayak 2022). They play a vital role in the lives of rural and tribal people. Most of them are used as food by human being. They collect plants or plant parts in different time and used as food. The plants are consumed in different forms like fried, cooked, boiled, curry or with other vegetable. Sometimes they are eaten in raw. They are rich in nutrients like carbohydrate, protein, fat, fibre, vitamin, iron, phosphorus, calcium etc. The utility of aquatic plant is described in aquatic and wetland plants of India by Cook 1996. Rice is only the aquatic plant used as staple food in most part of the world. It provide more than one-fifth of the calories consumed by humans worldwide. It improve nutrition, boosts food security, support rural development and sustainable landcare (Thomas 2008).

Table 1: List of Food Yielding Plants and their Parts in Aquatic Ecosystem

Sl. No	Name of the Plants	Family	Parts Used
01	*Alocasia macrorrhiza*	Araceae	Tuber
02	*Alternanthera philoxeroides*	Amaranthaceae	Leaf
03	*Alternanthera sessilis*	Amaranthaceae	Leaf
04	*Amorphophallus paeoniifolius*	Araceae	Rhizome
05	*Aponogeton natans*	Aponogetonaceae	Bulbil
06	*Aponogeton undulatus*	Aponogetonaceae	Bulbil
07	*Bacopa monnieri*	Scrophulariaceae	Leaf
08	*Boerhavia diffusa*	Nyctaginaceae	Leaf
09	*Centella asiatica*	Apiaceae	Leaf
10	*Coix aquatica*	Poaceae	Seed
11	*Colocasia esculenta*	Araceae	Leaf and Tuber
12	*Commelina benghalensis*	Commelinaceae	Leaf
13	*Crinum asiaticum*	Amaryllidaceae	Rhizome
14	*Echinochloa colona*	Poaceae	Grain
15	*Echinochloa crus- gali*	Poaceae	Grain
16	*Eclipta prostrata*	Asteraceae	Leaf
17	*Eleocharis dulcis*	Cyperaceae	Tuber
18	*Eleusine indica*	Poaceae	Grain
19	*Enydra fluctuans*	Asteraceae	Leaf
20	*Euryale ferox*	Nymphaeaceae	Fruit and Seed

21	*Glinus oppositifolius*	Molluginaceae	Leaf and tender shoot
22	*Hydrolea zeylanica*	Hydrophyllaceae	Young Shoot
23	*Hygrophila auriculata*	Acanthaceae	Leaf
24	*Hygroryza aristata*	Poaceae	Grain
25	*Ipomoea aquatica*	Convolvulaceae	Leaf and tender shoot
26	*Ischaemum rugosum*	Poaceae	Grain
27	*Leucas aspera*	Lamiaceae	Leaf
28	*Limnophila indica*	Scrophulariaceae	Leaf
29	*Ludwigia adscendens*	Onagraceae	Leaf
30	*Ludwigia prostata*	Onagraceae	Leaf
31	*Marsilea minuta*	Marsiliaceae	Leaf
32	*Monochoria hastata*	Pontederiaceae	Inflorescence
33	*Monochoria vaginalis*	Pontederiaceae	Leaf
34	*Nelumbo nucifera*	Nymphaeaceae	Seed
35	*Neptunia oleracea*	Mimosaceae	Leaf
36	*Nymphoides hydrophylla*	Menyanthaceae	Stem,leaf and fruit
37	*Nymphoides indica*	Menyanthaceae	Fruit
38	*Nymphaea nouchali*	Nymphaeaceae	Seed
39	*Oryza rufipogon*	Poaceae	Seed
40	*Oryza sativa*	Poaceae	Grain
41	*Ottelia alismoides*	Hydrocharitaceae	Leaf and Flower bud
42	*Oxalis corniculata*	Oxalidaceae	Leaf
43	*Phoenix paludosa*	Arecaceae	Fruit
44	*Pistia stratiotes*	Araceae	Young leaf
45	*Polygonum glabrum*	Polygonaceae	Leaf
46	*Polygonum plebeium*	Polygonaceae	Leaf
47	*Sagittaria sagitifolia*	Alismataceae	Root
48	*Sphenoclea zeylanica*	Campanulaceae	Young plant
49	*Solanum nigrum*	Solanaceae	Fruit
50	*Sonneratia apetala*	Sonneratiaceae	Fruit
51	*Sonneratia caseolaris*	Sonneratiaceae	Fruit
52	*Trapa natans*	Trapaceae	Fruit
53	*Trianthema portulacastrum*	Aiozaceae	Leaf
54	*Typha domingensis*	Typhaceae	Young Inflorescence
55	*Vallisneria natans*	Hydrocharitaceae	Leaf
56	*Vallisneria spiralis*	Hydrocharitaceae	Leaf
57	*Wolffia globosa*	Araceae	Leaf

(**Source :** Cooke, 1996, Mishra and Panda, 2013, Mishra *et al*. 2016, Swapna *et al.* 2011, Usher, 1984)

II. CONCLUSION

Aquatic plants provide food to the local people who depend on them. Beside this these plants are medicinally and socioeconomically important. Many plants grow vigorously in aquatic ecosystem and are considered as weed plant. Some of them can be effectively used as food. Popularization of these plants has changed their status from weed to important food yielding plants. Mostly they are collected from the wild and sold in market. As a few of them are cultivated and marketed. It is an additional income of poor rural people. Now the aquatic habitats gradually sinks due to different anthropogenic activities like pollution load, mushrooming of industries, other socioeconomic developmental activity and interference of invasive and alien species. It ultimately affects the livelihood of local people. Hence, their restoration and conservation is very urgent.

Figure 1: Food Yielding Plants in Aquatic Ecosystem

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