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Potential Aquatic Ornamental Plants of Assam

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Abstract

More than 100 species of aquarium plants are captively grown and marketed in various parts of the world. Many of these are native to Southern United States, while others come from distant parts of the world. In India, a number of varieties of exotic and indigenous plants are available and developed methods of propagation of aquatic plants make easy to cultivate in cultured condition. In Assam, a great variety of ornamental indigenous plants exists in different types of water bodies, mostly in beels, which need to identify the species for commercial purposes. In view of this, an investigation was made to study available potential ornamental indigenous plants in different water bodies in the Nagaon, Morigaon and Sonitpur districts of Assam. About 16 indigenous ornamental plants were identified, out of which 2 marginal, 2 emergent, 3 floating and 9 submerged ; which comes under the 14 families.

Key words : Ornamental indigenous plants.

More than 100 species of aquarium plants are captively grown and marketed in various parts of the world. Many of these are native to Southern United States, while others come from distant parts of the world. Most of the ornamental plants sold fall into one of three categories ; bunch, floating or rooted. Plants are essential in aquarium for biological reasons, which also beautify the aesthetic view and create a natural surrounding for the fishes. In India, a variety of exotic and indigenous plants are used for decorating the aquarium both in closed and open aquariums. Techniques of propagation of aquatic plants in captivity make it easy to cultivate in controlled condition. A great variety of indigenous ornamental plants are available in different types of water bodies, mostly beels and slow moving rivers of Assam, that require investigation to ascertain their economic and commercial value. In view of this, an investigation was made to identify the plants available in the districts of Nagaon, Morigaon and Sonitpur districts of Assam that are suitable to decorate aquarium.

Methods

The study was made during 2005—2007 in Nagaon, Morigaon and Sonitpur districts of Assam in different available water bodies namely beels, big tanks, paddy fields and slow flowing rivers. Collected plants were brought to the college laboratory, reared in captivity and identified (1).

Results and Discussion

A total of 41 aquatic plants were identified, of which 16 had been considered to have ornamental value and listed with their habitat and family (Table 1). Of them, two were marginal, two emergent, three floating and nine submerged ; which comes under the 14 families.

Marginal aquatic plants *Ipomoea aquatica* and *Ludwigia adscendens* are creeping ones, which form a mat on the water surface extending from the margin of water bodies. Both are perennial, lentic in nature. Flowers bell shaped, white or pink color in *Ipomea* and only white in *Ludwigia*. *Nymphea* spp. and *Nelumbo nucifera* are perennial, lentic and more abundant in highly muddy water bodies. Both of them are emergent, mostly found in paddy fields, beels, big tanks and ponds. The flowers of *Nymphea* spp. are large, blue, purple or pink and highly decorative, while flowers of *Nelumbo* are elegant, white-pink, sweetly scented and emerge prominently on long stalks.

Three species viz. *Azolla pinnata, Pistia*

Table 1. Potential aquatic ornamental plants of Assam.

	Species	Common name	Family	Description
	Marginal			
1	*Ipomoea aquatica*	Waterspinach	Convolvulaceae	Perennial dicot, lentic, free floating Propagation by seed and stem fragments
2	*Ludwigia adscendens*	Creeping waterprimose	Onagraceae	Perennial, dicot, lentic, surface floating, reproduction by seeds and stolons
	Emergent, Rooted			
3	*Nelumbo nucifera*	Scented lotus	Nelumbonaceae	Perennial, dicot, lentic, surface floating, reproduction by seeds and stolons
4	*Nymphea* spp.	Waterlily	Nymphaeaceae	Perennial, dicot, lentic, surface floating, propagation by rootstocks
	Floating			
5	*Azolla pinnata*	Watervelvet	Azollaceae	Perennial, lentic, free floating, propagation offsets
6	*Pistia stratioites*	Waterlettuce	Araceae	Perennial, monocot lentic, free floating
7	*Lemna* spp.	Duckweeds	Lemnaceae	Annual herb, monocot, free floating, reproduction by seeds and rapid frond division
	Submerged, Anchored			
8	*Chara vulgaris*	Chara	Characeae	Annual, reproduction by amylum stars, bulbils and secondary protonema. Male and female sex organs prominent
	Submerged, Rooted			
9	*Aponogeton* spp.	–	Aponogetonaceae	Perennial, monocot, marshland
10	*Hydrilla verticillata*	Hydrilla	Hydrocharitaceae	Perennial, monocot, lentic and lotic, propagation largely by axillary and subterranean turions and plant fragments
11	*Ottelia alsimoides*	–	Hydrocharitaceae	Annual, monocot, lentic, marginal
12	*Vallisnaria* spp.	Eelgrass,Tapewood	Hydrocharitaceae	Perennial, monocot
13	*Najas minor*	–	Najadaceae	Annual, monocot, lentic, beels, marginal
14	*Potamogeton gayi*	Pondweeds	Potamogetonaceae	Annual, monocot, slow moving, streams and ponds
15	*Ceratophyllum demersum*	Hornwort	Ceratophyllaceae	Perennial, dicot, does not form roots, anchors itself into sediments
16	*Myriophyllum* spp.	Watermilfoil	Hallorhagaceae	Annual, dicot, pond and beels, propagation by stem fragments

stratiotes and *Lemna* spp. are significant for mats formation on the surface of water. They are common in small and medium ponds and tanks. *Azolla* and *Pistia* are perennial and *Lemna* spp. is an annual herb. All these are free floating plants in stagnant waters.

The most important indigenous aquatic ornamental plants that decorate aquaria are submerged aquatic plants. The important submerged indigenous ornamental plants that have ornamental value are *Chara*

vulgaris, Aponogeton spp. *Hydrilla verticillata, Ottelia alismoides, Vallisnaria spiralis, Najas major, Potamogeton gayi, Ceratophyllum demersum* and *Myriophyllum* spp. Among these *Chara vulgaris, Ottelia alismoides, Najas minor, Potamogeton gayi* and *Myriophyllum* are annual plant while *Aponogeton* spp. *Hydrilla verticillata, Vallisnaria spiralis* and *Ceratophylum demersum* are perennial ones. Most of the submerged plants are lentic in nature however, *Vallisnaria* spp. *Potamogeton* spp. *Hydrilla verticillata* are also found in very slow moving water bodies. *Hydrilla verticillata, Ceratophyllum demersum* and *Vallisnaria* spp. are dominant in many beels in the three districts.

Aquatic plants provide aesthetic beauty to the aquarium and create natural surroundings to the fishes. Most of the indigenous ornamental plants of India are used in aquaria in different parts of the country (2). Among the potential aquatic ornamental plants of these three districts (Table 1) 16 species have been judged to have aesthetic beauty for aquarium during the investigation. These have economical importance in aquarium business.

The aquatic macrophytes flourish during monsoon period with high intensity during August to December (3), however, when reared in controlled captive situation, the perennial plants exhibit normal growth in all the seasons, whereby they may be transplanted in aquarium all year round. The annual plants however maintain periodicity of luxuriant growth.

Most of the studies on aquatic macrophytes of beels (3—6) have indicated the importance of these plants for aquatic biodiversity and productivity. This investigation tries to indicate aesthetic value of some of theses macrophytes to decorate aquarium and harness benefit through organized trade of these plants.

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