Current Status of Ornamental Aquatic Plants Industry in Sri Lanka

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Abstract

Present study attempted to overview the current status of the ornamental aquatic plant industry and to identify constraints and to make recommendations. During the survey, different propagation techniques and ornamental aquatic plants were observed and identified both at private sector nurseries and the government operated aquatic plant breeding center at Rambodagalla. Export data were obtained from the export development board and the Sri Lanka customs while the legislations pertaining to export trade were obtained from the departments of Wildlife and Forestry. According to the survey, though there is an increasing demand in the world trade for aquatic plants, Sri Lanka still experiences a shortage of stocks for export purposes. International demand for aquatic plants has shown a steady increase in the past few years. Despite, Europe being the strongest market for aquatic plants, currently a growth in demand has been experienced in the US market with the increasing number of species, varieties and quality. According to trade statistics, 53,830 kg of aquatic ornamental plants valued at 428663 US$ (56,403,023 LKR) were exported to twenty countries during the period from January 2013 to August 2014. Being the major attractive species, *Cryptocoryne, Anubias, Echinodorous, Aponogeton, Hygrophyla, Bacopa, Myriophyllum, Lagenandra* playa vital role among exports. When considering the prevailing constraints in the industry, it is time for the government to launch subsidiary schemes for the private sector growers/exporters and provide them with required technical knowhow to boon this industry of economic importance.

Keywords: ornamental aquatic plants, demand, supply, export

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Introduction

Aquatic plants are adapted to living in aquatic environments (saltwater or freshwater). They are also referred to ashydrophytes or macrophytes and can be categorized into three groups: floating, bunch and rooted plants. These plants require special adaptations for living submerged in water, or at the water surface. Aquatic plants play a major role in ornamental fishing industry giving an aesthetic value to the observation units while performing diverse services for its inhabitants.

In the past, ornamental aquatic plant industry in Sri Lanka was limited to the wild collected plants exported from the country. The continuous collection of aquatic plants from the wild threatened floral biodiversity in particular for endemic plants. Consequently, different acts and legislations were introduced to control the collection

from the wild (1,2,3). World trade for aquatic plants in Sri Lanka still experiences a shortage of stocks for export purposes. As a result, private sector exporters have started nurseries to culture plants using different techniques. However, the industry is still not in a position to cater the demand due to various reasons. The aim of the present study was to investigate the current status of the Sri Lankan ornamental aquatic plant industry, identify constraints and to make recommendations.

Materials and Methods

Ornamental aquatic plant propagation methods including "tissue culture techniques/labs" were monitored at the National Aquaculture Development Authority at Rambodagalla and at private sector nurseries. Different types of ornamental aquatic plants were identified from the collection of plants at NARA, NAQDA and several private sector nurseries. Packing, quarantine, green house processes and tissue culture operations were observed at leading private sector nurseries. Exported aquatic plants, their prices and export data/statistics were obtained from the Export Development Board and Sri Lanka customs. The legislations pertaining to aquatic ornamental plants were obtained from the Departments of Wildlife and Forestry. Direct interviews were conducted with private sector exporters to learn about the prevailing constraints. Literature was gathered from research papers, paper articles and online publications.

Results and Discussion

Ornamental aquatic plant nurseries use different types of culture methods to grow aquatic plants viz. directly planted in the mud or soil, submerged in water in cement tanks/ponds and growing in green houses using fertilizers. Mainly two types of aquatic plant propagation methods were noted namely, sexual propagation and asexual propagation. Seeds are used for sexual propagation while the cuttings, running roots, rhizomes and tissue culture techniques represent the asexual propagation. Asexual (vegetative) propagation method is known to be more successful than the sexual propagation because seed propagation is a long term process. In house quarantine procedure when introducing plants to the green houses and before packaging was observed using specific chemicals to remove all possible pests. In packaging process, rock wool was found to be used together with stones. Some exporters produce rather sophisticated and ready to use plant pots cultured in a specific gel medium which do not contain any debris using tissue culture techniques especially for the countries like Australia and New Zeeland where biosecurity procedures are strictly adopted. Aquatic plants grown in a particular agar medium can be kept outside around 10 days after delivery until they are introduced into the aquaria.

Currently implemented procedure during export adopts an HS code (Harmonized System code) 0602.90.20) and a "No objection letter"/Permit. Nevertheless, no permit is required for exotic species at present but export of endemic species requires the particular document (Permit fee: 1500/=), Prior to shipment, random sample is taken by quarantine officers from the Department of Agriculture at Katunayake and inspected for the presence of pests such as white flies, scales, thrips and nematodes to ensure that the plants are pest free. Subsequently, plant boxes are transported to the plant quarantine section of Cargo Village and inspected prior to issuing the Phytosanitary Certificate. Then, the shipment is sent to Sri Lanka customs and inspected by the officers of Biodiversity and Bio-security section and allowed for shipping.

According to the statistics of year 2014, major importing countries of local aquatic plants are Germany, Sweden and France. Nevertheless, currently a growth in demand has been experienced in the US market with the increasing number of species, varieties and quality despite, Europe being the strongest market for aquatic plants. Total revenue of the aquatic plant trade from 2013 January to 2014 August is reported to be 428,663 US$ (56,403,023 LKR.) Total quantity exported in the particular period amounted 53,830 Kg. Around 180 aquatic plant species are known to be cultured in Sri Lanka mainly where 84 species are reported to be exported. Of the exported category, 11 species are endemic and they are allowed for export only if they are cultured. Though, there are several attractive species such as *Cryptocoryne, Anubias, Echinodorous, Aponogeton, Hygrophyla, Bacopa, Myriophyllum, Lagenandra* in the export trade, *Anabius* and *Cryptocorine* are the most expensive species exported from Sri Lanka. Individual plant price ranges from 0.16 to 1.95 US$ depending on the variety.

Constraints

One of the major problems faced by the industry relates to the issue of identification of plants, as there are different species with similar morphological characters. Further, the permit procedure at the department of Forestry is too lengthy (7 days) and consequently, the exporters lose the customers as they cannot respond to the orders immediately. In addition, lack of responsible authority to address the issues of aquatic plant exporters is another major constraint. Furthermore, lack of skilled personnel and foreign consultancy for upgrading knowledge of local exporters/nursery owners with new techniques for further development of the industry are some other constraints prevailing in the industry. Moreover, exporters complain if pest problems arise, it is a risk for the industry and it is difficult to control as the country has already used very strong pesticides such as Carbofuran.

Recommendation

Introduction of new varieties using genetic engineering, new packing methods/techniques, introduction of loan scheme by the government with low interest rates and launching foreign training/consultancy services sponsored by the government are among the suggested recommendations.

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