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Some Under-Utilised Floriculture Crops

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The underutilized floriculture species are capable of developing as new cultivars through breeding programs targeting the flower colour, flower size, fragrance of the flowers, leaf size and number and plant structure etc. After developing into new species, they can be commercialized as potted ornamental plants. However, there are major gaps in knowledge and capacity to make the best out of these crops because agricultural research has so far paid little attention to these species. Research to increase the value of these crops and encourage them to be more widely cultivated would broaden the resource base and increase the livelihood options especially for smallholder farmers in marginal areas. Some of the under-utilised floriculture sp. are listed here.

Blue Mist/ Iron Wood

Blue mist is a perennial evergreen shrub or small tree reaching heights of 8–14 meters. Young branches display vibrant blue umbellate cymes, enhancing the plant's significance in floriculture. The clusters consist of small purple flowers that bloom once or twice annually, creating a stunning spectacle as their petals fall to the ground. Classified as an endangered species in Sri Lanka, it thrives in wet, dry, and montane zones across the island.

Propagation

This can be propagated through seeds and air layering. In some regions, vivipary has been observed in *M. umbellatum* seeds due to high moisture during heavy rainfall. An in-vitro multiplication protocol for *Memecylon umbellatum* showed a higher callus induction percentage with internodal explants than nodal explants. Rooted plants were successfully acclimatized in cocopeat media with a 56.66% survival rate.

Other Uses

Apart from landscaping, *Memecylon umbellatum*, and other species, are utilized for walking stick timber, decorative plant work, comb preparation, silk and cotton dyeing mordants, and constructing houses and boats. Beyond its floricultural value, *Memecylon umbellatum* is recognized for potential medicinal properties, extensively used by local healers. In vitro antioxidant activities in leaf extracts suggest its potential use against oxidative stress.

Possible Value Addition

Developing a dwarf structure makes this plant a potential potted ornamental.

Glory Lily

Glory lily, a climbing herb with a broad natural distribution, is cultivated as a garden ornamental in tropical regions. Found in forests, grasslands, and abandoned cultivated areas, it boasts glamorous yellow and red solitary flowers, contributing to its ornamental appeal. Classified as least concern in the flora red list.

Propagation

Propagation occurs through seeds or tubers, with flowering starting in 5 to 8 weeks for tubers. The branching pattern correlates with tuber weight, allowing for increased branches and flowers per vine. However, tuber-based vegetative propagation reduces vigour and stress tolerance. Seed propagation introduces new variability, crucial for conventional propagation.

Other Uses

Besides ornamental value, Glory Lily is a potential source of colchicine, exported for pharmaceutical industries. Despite its poisonous nature, it holds various traditional medicinal uses, such as asthma treatment and wound healing.

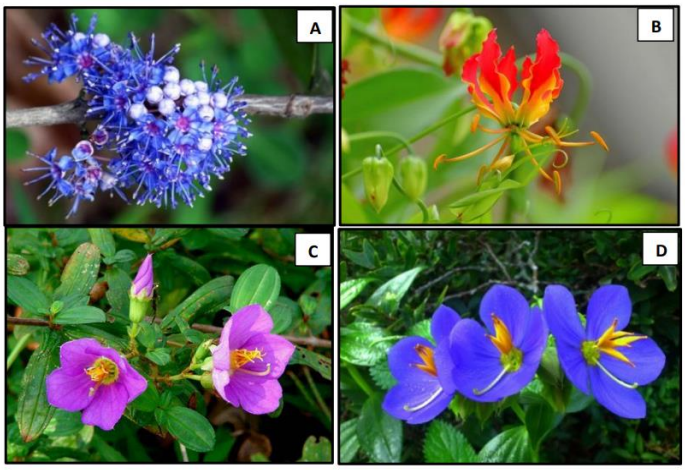


Fig. 1: Few potential underutilized ornamental species. (A) *Memecylon umbellatum* Burm (EnglishIronwood tree, Family: Melastomataceae), (B) *Gloriosa superba* (English- Glory lily, Family: Colchicaceae), (C) *Osbeckia aspera* (English- Rough osbeckia, Family:Melastomataceae), (D) *Exacum trinervium macranthum* (Family:Gentianaceae)

Possible Value Addition

Enhance ornamental value through cross-pollination for different flower colours and shapes. Growing as a potted ornamental plant with a dwarf stature and vibrant flowers presents commercial opportunities.

Rough Osbeckia/ Bovitiya

Osbekia aspera, a perennial montane shrub, showcases high floricultural potential, found in grasslands, open areas, and along the roadsides. Its free-flowering nature and contrasting flower colour against foliage place it under the least concern category in the red list.

Propagation

Simple propagation methods and adaptability to greenhouse conditions make it suitable for mass propagation. A protocol using single nodal cuttings on a specific medium has proven successful for shoot production.

Other Uses

Used in traditional medicine for its astringent properties, stress mitigation, detoxification, and treating cancer and inflammation. Chemical constituents include flavonoids, organic acids, and steroids.

Possible Value Addition

This ornamental flowering shrub holds great potential in the floriculture industry as a potted ornamental plant.

Fig. 2. (E) *Anoectochilus reinwarddtii* (English- Marbled Jewel Orchids, Family:Orchidacea), (F) *Clitoria ternatea* (English- Blue butterfly pea, Family:Leguminosae), (G) *Ipsea speciosa* (English- Daffodil orchids, Family:Orchidacea), (H) *Jasminum angustifolium* (English- Wild jasmine, Family:Oleaceae)

Binara

Binara, an endemic wild plant, can thrive in both low country and up-country wet zones on the island, growing to about 1 meter in height.

Marbled Jewel Orchids / Wanaraja

Wanaraja, an endemic orchid species, predominantly grows in tropical evergreen and subtropical montane forests in Sri Lanka. Thriving under tree shades and among leaf litter, its dark green to brownish purple leaves with red hearts and silvery vein patterns add to its ornamental value.

Propagation

Anoectochilus spp are typically propagated by seeds, but mass propagation through shoot tips and nodal explants is more efficient due to higher propagation rates.

Other Uses

Wanaraja is potentially rich in starch and alkaloids, holding medicinal importance.

Possible Value Addition

This orchid, with its distinctive leaf colour patterns, has the potential for commercialization as an ornamental potted plant.

Daffodil Orchids

A rare endemic terrestrial orchid found in highland grasslands, *I. speciosa* faces diminishing populations in central hills due to intentional burning and illegal harvesting for medicinal purposes. Easily distinguished by large bright yellow flowers, it blooms from September to February.

Propagation

Artificial propagation of seeds is successful for in vitro conditions while rhizome tips were suitable explant for mass propagation of Daffodil orchid. Following that mass propagation protocol will ensure year-round production of this orchid species.

Other uses

Ipsea speciosa is an endangered orchid species with medicinal values.

Possible value addition

Developing the Daffodil orchid as a potted ornamental plant could enhance its appeal, especially since the plant does not bear leaves during the flowering season. According to Djordjević et al. (2016), factors such as temperature, altitude, and soil pH significantly impact the abundance of orchid species. Therefore, when introducing this species as

ornamental plants, it is crucial to consider and adjust the basic requirements according to the plant's needs.

Blue Butterfly Pea

Clitoria ternatea is a versatile perennial leguminous twiner. The petals of its attractive flowers contain anthocyanin, imparting a stunning natural deep blue colour that adds ornamental value to the plant. Native to equatorial Asia and parts of Southeast Asia, it has also been introduced to Africa and Australia. It is a least concerned crop.

Propagation

The plant is typically propagated by seeds and readily self-seeds. Hand-harvested seeds require scarification before sowing. In vitro regeneration of *C. ternatea* is achievable using nodal explants.

Other uses

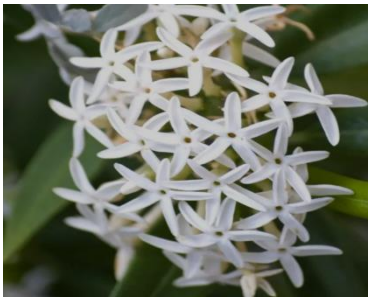
Aside from its floricultural value, numerous health-promoting functions have been attributed to this plant, including its anti-diabetic, anxiolytic, sedative, and anti-inflammatory properties. Butterfly pea is also utilized as a cover crop and green manure. Livestock find the crop highly palatable due to its non-toxic nature, thin stems, and large leaves.

Possible value addition

Improving the ornamental value of the plant can be achieved by developing medium-height Sergeants with deep violet, light pink, and velvety blue flowers and a reduced number of leaves.

Wild Jasmine

Wild Jasmine (*Jasminum angustifolium*) is a vine with a fragrant floricultural value, featuring prominently white flowers with a sweet fragrance. Endemic, it is classified as a least concerned crop that warrants more attention.



Propagation

Common methods of jasmine propagation include layering and cuttings. However, these methods limit the quantity of plants produced as they depend on season and climate.

Other uses

Wild jasmine is utilized to treat various ailments either alone or in combination with other medicinal herbs. Ethanol extracts of the plant exhibit anti-tumor effects.

Possible value addition

The vine can be developed into a dwarf potted wine with larger petals while enhancing its fragrance.

Reference

Rehana, S., & Bala, M. (2022). Under Exploited Ornamental Crops: Treasure for Floriculture Industry. *Annals of Horticulture*, *15*(1), 43–55.

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