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Good Agricultural Practices of Oncidium Orchids

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Abstract

Oncidium consists of 750 species of sympodial epiphytic orchids from America, Mexico and Argentina with pseudobulbs or a fan of very thin leaves. They bear numerous number of attractive blossoms in various size, forms and colour and are commonly called as 'Golden Showers' and 'Dancing Ladies'. Hybrids and some commercial species are used for cut flowers, hanging baskets, potted plants and dry flowers. Cultivation practices of Oncidium orchids are discussed in details.

Introduction

Oncidium species, their hybrids and inter-generic hybrids are suited to intermediate and warmer climates. The plants are epiphytic using hosts such as cactus plant and trees for support. Hybridization of *Oncidium* orchids with Brassia orchids, Miltonia orchids and *Odontoglossum* orchids resulting in an *Oncidium* orchid that has some warmth tolerance and beautiful flowers. Hybrids and some commercial species are used for cut flowers, hanging baskets and potted plants.

Botanical Description

Oncidium consists of 750 species of sympodial epiphytic orchids from America, Mexico and Argentina. The plants have either pseudobulbs or a fan of very thin leaves. They bear numerous number of attractive blossoms in various size and forms and are commonly called as 'Golden Showers' and 'Dancing Ladies'. The pseudobulbs are topped by one or more leaves which are small, soft, pencil like or very large, leathery and thick. Usually, single inflorescence is produced from a single growth or in some cases, two inflorescences may be produced. Inflorescences develop from the base of the pseudobulbs or from the axil of leaves. The flower size varies from 1 cm to 12.5 cm across. The flower colours are mostly shades of yellow and brown, in some cases are red, pink, magenta, green or white. In general, all three sepals are alike in size, shape and colour, in some cases, these vary. The two lateral petals are similar in size and shape while dorsal sepals are larger. *Oncidium* species are characterized by (i) presence of coloumn wings, (ii) presence of complicated callus on the lip, (iii) pseudobulbs with one or three leaves, (iv) several basal bracts at the base of pseudobulbs.

Species and Varieties (De, 2014)

Species

Oncidium altissimum: Native to Guatemala, Nicaragua, Costa Rica and Panama. The pseudobulbs are compressed, thin, smooth and covered with elliptic lanceolate, yellowish green leaves. The inflorescence is very

long, 2 m tall, few to many flowered. The flowers are brown to ochre brown with yellow margin, 2.5 cm across and produced during August.

Oncidium ceboletta: Native to Mexico, Paraguay, Brazil from an elevation of 1800 m. The leaves are cylindric, 30 cm long. Inflorescence is branched and erect. The flowers are small, yellow stained and reddish brown and produced during July-August.

Oncidium crispum: Native to Brazil. The pseudobulbs are oblong, compressed and clustered with one to two green oblanceolate leaves. The inflorescence is a pendent cluster of 40 to 80 flowers, 75 cm long and strongly branched. The flowers are large, 7.5 cm across, undulated and reddish brown in colour.

Oncidium pachyphyllum: This species is inhibited from Mexico and Guatemala. The plants are pseudobulbless with thick and fleshy leaves. The inflorescence is strong, erect, 1.5 m tall and many flowered. Flowers are waxy, scented, 2 cm across, yellow with trilobed lip and produced in winter.

Oncidium forbesii: This species is native to Brazil. The pseudobulbs are clustered, oblong and compressed with single or paired, leathery, dark green leaves. The inflorescence is simple, erect or arching, many flowered and 90 cm long. The flowers are 6.5 cm across, chocolate colour edge with yellow having bright yellow lip and produced in October-February.

Oncidium nodosum: This species is native to Costa Rica, Panama, Colombia and Eucador. The pseudobulbs are flat, tightly clustered, roundish and dull purple brown with single coriaceous, dark green maculated with brownish purple leaves. Inflorescence is erect, persistent and producing flowers at regular intervals. The flowers are large, 12.5 cm across, long lasting, attractive and reddish brown edged with yellow.

Oncidium luridum: Native to South America. The plants are pseudobulbless with very large, leathery and fleshy leaves. The inflorescence is robust and strong, loosely or densely paniculate, many flowered, 2.8 m tall and 3 to 5 flowered. The flowers are fragrant, 2.5 cm across, yellowish green with red brown blotches and produced during summer.

Oncidium ornithorhynchum: This species is native to Mexico, Guatemala, El Savador and Costa Rica. Pseudobulbs are clustered and bifoliated with linear lanceolate and thin textured leaves. Inflorescence is pendulous, 60 cm long and densely many flowered. The flowers are 7.5 cm long, many, lilac pink, long lasting and fragrant and produced during November to January.

Oncidium splendidum: This species is native to Guatemala. The pseudobulbs are clustered, ovoid or round, compressed with thick, coriaceous reddish brown leaves. The inflorescence is rigid, stout, erect, 1.2 m tall and few to many flowered. The flowers are large, showy, brown or reddish brown and are produced during spring and early summer.

Oncidium varicosum: A very popular attractive species from Brazil. The pseudobulbs are long, egg shaped and furrowed with two leathery, ligulate - lanceolate leaves. The inflorescence is erect, tall, slender, flattened, 12 m tall and many flowered. The flowers are 4.5 cm across, yellow and red blotched with yellow tip and produced in September-October.

Oncidium superbiens: This species is native to Columbia and Venezuela. The pseudobulbs are clustered, elongated, ovate with solitary, thin, leathery leaves. The inflorescence is 2.8 m tall, branched and few flowered. The flowers are waxy, reddish brown, 8 cm across tipped with yellow having purple lip and produced during winter and spring season.

Oncidium sphacelatum: The pseudobulbs are large with 90 cm long leaves. Inflorescences are branched, 60-150 cm tall, erect bearing 2.5 cm across yellow flowers spotted with reddish brown. Ideal for cut flowers.

Hybrids

Table 1: Types and hybrids of Oncidium orchids

Types	Species & Hybrids
Yellow Flowered	*Oncidium splendidum*, *O. lanceanum*, *O. spacealatum*
Golden Shower type	Aloha Iwanga Dogasima, Goldiana, Gower Ramsey, Golden Shower, Sum Lai Who Jungle Queen, Taka H & R, Sharry Baby Sweet Fragrance AM/AOS (Figure 1)
White coloured	*Oncidium variegatum* White
Red coloured	Popki Red, Irine Gleason Red, Vision Brownish Red, Catherine Wilson x New Calidonia Brownish Red
Pink Coloured	Robson Orchid Glad
Cream Coloured	*O. lowianum* hybrids

Bigeneric hybrids: *Aspasium = Oncidium x Aspasia; Brassidium = Oncidium x Brassia; Miltonidium = Oncidium x Miltonia; Odontocidium = Oncidium x Odontoglossum; Trichocidium = Oncidium x Trichocentrum; Oncidipilia = Oncidium x Trichopilia*

Trigeneric hybrids: *Aliceara = Oncidium x Brassia x Miltonia; Wilsonara = Oncidium x Cochlioda x Odontoglossum; Colmanara = Oncidium x Miltonia x Odontoglossum*

Tetrageneric hybrids: *Withnerara = Oncidium x Aspasia x Miltonia x Odontoglossum*

Interspecific hybrids: 'Dark Tower', 'Ruby Frost', 'Sanddrinho', 'Barbara Ann', 'Himekogane', 'Peach Pie', 'Flamingo', 'Flower Fairy', 'Nutmeg Dancer', 'Karukera Beauty', 'Midnight Moon', 'Lemon Ice', 'Caribbean Stars', 'Ruby Jewell', Debonoir',

'Fragrance Fantasy', 'Red fantacy'.

Inter-varietal hybrids: 'Volcano Gold', 'Dark Sun', 'Bright Night', 'Coral Gold', 'Golden Sun', 'Sundown', 'Sweet Sunset', 'Golden Bonanza', 'Dear Friend', 'Orchidom Happy', 'Kulmura Gold', 'Aka Cacao', 'Music Shower', 'Summer Glow', 'Baby Breath', ' Island Gold', 'Kona Boy', 'Space Baby', 'Millenium Gold', 'Golden Prince', 'Golden River', 'Sun Shade', 'Ash Hollow', 'Private Dancer', 'Green Valley', 'Fragrant Red Barry', 'Golden Sunray', 'Sungold', 'Sharry Baby Dancing Doll', 'Sharry Baby Pink Lip', 'Sharry Baby 'Tricolor'.

Variety-Species hybrids: 'Cameo Moonlight', 'Dusk', 'Jazzberry', 'Long Yellow', 'Orchidon Gold', 'Tokyo Fantacy', 'Panache Gold', 'Sarah Elizabeth Merritt', 'Barbie Doll', 'Elegant Dancer Pretty Lady', 'Yellow Canary', 'Butterfly Profusion', 'Pacific Perfume', 'Copper Hills', Annabel', 'Forbes Island', 'Sweet Sugar' (Figure 1).

Colmanara hybrids: Colm. 'Jungle Monarch', Colm. 'Wildcat Carmera, Colm. Wildcat 'Bobcat', Colm. Wildcat 'Cheetah', Colm. Wildcat 'Rainbow', Colm. Wildcat 'Red Star', Colm. Wildcat 'Tiger' (Figure 1).

Medicinal Oncidium: *Oncidium cebolleta* is reported to contain phenanthrene derivatives.

a) Wild Cat Carmela

b) Taka Yellow

c) J.R. Orange Red

d) Sweet Sugar

e) Wildcat Bobcat

f) Sharry Baby Sweet Fragrance

Figure 1: Some hybrids of Oncidium and Alliances for pot plants and cut flowers

Physiological Aspects of Oncidium

The pseudobulb of *Oncidium* accumulates massive amounts of carbohydrates during vegetative development. These carbohydrate reserves are subsequently remobilised to support new shoot and inflorescence development. In *Oncidium* 'Goldiana', uptake of nitrate is reported highest during the formation of new pseudobulbs. In addition, it is observed that mineral allocation to pseudobulbs within connected shoots of *Oncidium*'Goldiana' is most active during formation and development of a new pseudobulb (Hew and Ng, 1996). There are remarkable reductions in the mineral content of mature pseudobulbs of connected shoots during the development of a new shoot. The remobilisation of stored mineral nutrients from older pseudobulbs coupled with the high rates of nutrient uptake is indicative of the demand for mineral nutrients by developing pseudobulbs. *Oncidium* orchids can tolerate more light. In a greenhouse, they are

best advised to make use of a shade cloth ranging from 30 to 50 percent shade, depending on the orchid plants (De *et al*., 2018).

Cultural Requirements

Propagation

Oncidiums are commonly propagated by means of pseudobulbs having dormant eyes. They can be multiplied through tissue culture techniques using floral bud or shoot tips as explants.

Temperature

Majority of species grow well in temperature between 25-30 °C during daytime and 20 °C during the night. Little bit hot are tolerated by the warmth tolerant *Oncidium* orchid hybrids if humidity and air movement are increased as the temperatures rise.

Light

Light needs can vary from bright to nearly full direct sun depending on the *Oncidium* orchid species and hybrids. Most *Oncidium* orchids will thrive with one to several hours of sun a day and a light intensity of 2,500 foot candles. Generally, thicker-leaved plants, such as **Tolumnias** also known as "**mule-ear**" and "**equitant**" *oncidium* orchids, can tolerate more light. *Oncidium* orchids in a greenhouse are best advised to make use of a shade cloth which can be anywhere from 30 to 50 percent shade, depending on the orchid plants. In home, *Oncidium* orchid grows best in the east, south or west windows. Many types of *Oncidium* orchids will even grow under artificial light.

Water and Humidity

Most *Oncidium* orchid species and the *Oncidium* orchid hybrids prefer free compost that holds moisture rather than water. Water requirements vary with the type of orchid plant. Generally, *Oncidium* orchid plants with large fleshy roots or leaves require less-frequent watering than thin-leaved or thin-rooted plants. Watering should be thorough, and the medium should be allowed to dry at least halfway through the pot before watering again. This may be every 2 to 10 days depending on weather, pot size and material, type of orchid and type of potting medium. Plants not actively growing should be watered less. Humidity ranges should be between 50 and 60 percent. Many *Oncidium* orchids require less humidity than other orchids. Most greenhouses have adequate humidity and the *Oncidium* orchid can easily be kept well under those circumstances. Under indoor climate, *Oncidium* orchid plants survive better above moist pebbles in trays. If *Oncidium* orchids are grown in a shade house or garden outside, then they will require more frequent mistings to reduce the possibilities of dehydration. Dehydration of *Oncidium* orchids is usually manifested as crinkled leaves.

Feeding

The *Oncidium* orchid is known to be a heavy feeder. The *Oncidium* orchid and its hybrids must be fed at half the recommended strength of most fertilizers once a week while the orchid plants are actively growing. A high nitrogenous fertilizer in spring is beneficial in terms of new growth and a balanced fertilizer during the summer and the winter keeps the *Oncidium* orchid in peak condition. During autumn, it is best to feed the *Oncidium* orchid with a high potash-based fertilizer to aid new flowering stems from the bulbs.

Potting Mix and Repotting

Potting of *Oncidium* orchids should be done when new growth at about one-half mature stage. This is usually done in the spring. One can use fine-grade potting media with fine-rooted *Oncidium* orchid plants and coarser mixes with large-rooted orchid plants and the standard size is medium grade. The *Oncidium* orchid should be positioned in the pot so that the newest growth is farthest away from the edge of the pot and allows the maximum number of new growths before crowding the pot. The roots of the orchid plant are spread over a cone of potting medium and fill in around the roots. The medium around the roots of the orchid plant is firmed with your fingers. The humidity is kept high and the potting medium kept dry until new roots form.

The *Tolumnias, or equitant* and *mule-ear oncidium* orchids, as well as other fleshy-leaved or large-rooted orchid plants are easily grown on slabs of cork bark or tree fern or in pots filled with a coarse, well-drained medium such as charcoal, or even osmunda. This measure facilitates the necessary drying between water applications required by these *Oncidium* orchids. These orchids detest wet feet.

Pests and Diseases

The *Oncidium* orchid species is almost pest and disease free as fewer pests attack them. On rare occasions, *Oncidium* orchids get aphid infestation. This is observed usually with those orchids that are placed in open shade houses.

Post-Harvest Management

Stage of harvest: When more than 80 percent flowers on the spikes are fully open on a spike length of 60 cm with many florets.

Storage: Stored wet at 8 to 12 °C.

Vase life: Under room conditions, vase life ranges from 15 days (Pixie Ruth), 30 days (Popki Red), 38 days (J.R. Yellow Brown), 50 days (Wild Cat Carmera) to 60 days (Taka Yellow).

Preservatives: 8-HQC 200 ppm + 4% sucrose; $AlCl_3$ 100 ppm + boric acid 500 ppm + 4% sucrose + aspirin 100 ppm.

Flower Drying: Embedded drying of floral spikes in borax or sand in oven at 50 °C and air drying under room condition are effective (Figure 2).

a) Dried Oncidium 'Taka Yellow'

b) Dried Oncidium 'Sweet Sugar'

Figure 2: Embedded drying of Oncidium floral spikes

Conclusion

In international trade, the orchids have taken a significant position as cut flowers, potted plants and propagules due to its attractiveness, long shelf life, high productivity, right season of bloom, easy in packing and transportation. Globally, trade on artificially propagated live plants are dominated by orchidaceae hybrids (28.7%), Cymbidium species (26.9%), orchidaceae species (18.9), Phalaenopsis hybrids (10.1%), Phalaenopsis species (4.4%), Dendrobium species (3.4%), Cymbidium hybrids (3.3%), Dendrobium hybrids (2.3%), Cattleya species (0.4%) and Oncidium species (0.2%). It indicates that Oncidium has great potential in tropical and subtropical regions of our country through production of cut flowers and potted plants.

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