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“Read More, Grow More”

GOOD AGRICULTURAL PRACTICES OF
CATTLEYA ORCHIDS

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Good Agricultural Practices of Cattleya Orchids

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INTRODUCTION

Cattleyas are most people's fascinating home garden orchid. Flowers are long lasting and possess a beautiful fragrance. Cattleya hybrids also produce the biggest orchid flowers. Named in the honour of William Cattley, a noted 19th century English Horticulturist, this genus falls into subtribe Laeliinae, which comprises many Cattleya like species. Of the many intergeneric hybrids, Laelia, Sophronitis and Brassovola are the main genera used in hybridization program. Cattleya orchids are also known as the 'Queen of Orchids'.

BOTANICAL DESCRIPTION

Cattleya consists of 113 species from tropical America. The plants possess elongated pseudobulbs and may be of unifoliate or bi-foliate. The leaves are thick and leathery. The present day hybrid cattleyas belong to the unifoliate group. The flowers are 5 to 15cm in size and they occur

in all colours except true blue and black. Unifoliate cattleyas bear upto 5 flowers per inflorescence whereas bifoliate possesses 2 to 25 flowers per inflorescence. They are from the tropical Americas, but can also be found in the West Indies and Mexico. Cattleya orchids are epiphytes and have well-developed water-storage organs (called pseudobulbs) and large, fleshy roots. Cattleya orchid plants are long-lived perennials and will usually flower annually. These orchid plants are naturally erect, without need of much staking, and of a medium olive-green color (De, 2014).

PHYSIOLOGY OF CATTLEYA ORCHIDS

Several published scientific studies have shown that flowering of Cattleya species and hybrids is promoted by exposure to short day lengths and cool temperatures. For example, in Cattleya warscewiczii, Cattleya gaskelliana and Cattleya mossiae, flower induction occurred only when plants were placed under photoperiods of nine hours (nine hours of light per day) at 13°C, while flowering was inhibited under 16 hours of light per day at 55°F (Rotor, 1959). In winter, the Cattleya orchid plants will become stressed if the temperature drops below 15° Celsius. Tissue analyses of Laeliocattleya Culminant have shown that there is a net accumulation of nitrogen and phosphorus with age. In contrast, potassium content decreases with age, indicating that potassium is remobilised to support the growth requirements of new developing tissues (Davidson, 1960).

IMPORTANCE AND USES

In addition to cut flowers and pot plants, Cattleya orchids are ideal components for flower decorations including bouquets and flower arrangements. Besides, this orchid is used for making clay flowers.



SPECIES AND VARIETIES

Species

Cattleya aelandiae: Native to Brazil. A bifoliate species with cylindrical pseudobulbs and short leathery leaves. Flowers are one to two per inflorescence, 10-12.5 cm in diameter and yellow brown purple spotted.

Cattleya aurantiaca: Native to Central America. A bifoliate species with spindle or cylindrical shaped pseudobulbs. Flowers are small, orange –red, 3-5 cm across and produced during summer and autumn.

Cattleya bicolor: Native to Brazil. A bifoliate species with 40 to 60 cm long pseudobulbs and 2 to 8 flowers per inflorescence. Flowers are long lasting, fragrant and greenish brown with single lobed violet purple lip.

Cattleya bownringiana: Native to Central America. A bifoliate species with a swollen pseudobulb and long stalked inflorescence bearing 20 flowers. Flowers are rose or purple and produced during October-November.

Cattleya citrina: Native to Mexico. A bifoliate species. Flowers are solitary, bell shaped, pendent, scented, long lasting, bright citron yellow in colour and produced during June –August.

Cattleya dowiana : A native to Costa Rica. A unifoliate labiata type of cattleya bearing 2 to 5 yellow flowers per inflorescence.

Cattleya Forbesii: This species is native to Brazil with cylindrical pseudobulbs and 2 leaves per pseudobulb. Leaves are leathery, elliptic. Flowers are greenish yellow, borne 2 to 5 flowers in clusters and autumn.

Cattleya gaskelliana: Native to Venezuela belonging to Labiata group. Flowers are fragrant, pale mauve and produced in summer.

Cattleya gigus: Distributed in Colombia. A unifoliate species bearing upto 8 flowers per spike and lilac rose in colour.

Cattleya granulosa: Native to Brazil and Guatemala. A bifoliate species with elongated and noded pseudobulb and leathery leaves. Flowers are 4 to 8 per spike, yellowish green with spotted red and produced during autumn.

Cattleya guttata : Native to Southern Brazil. A bifoliate species with cylindrical pseudobulbs. 5 to 30 fragrant flowers are borne on a spike. The flowers are greenish yellow, deep red blotched and produced in autumn and winter.

Cattleya intermedia: Native to Brazil. Pseudobulbs are tall and slender and bear 3 to 7 flowers per spike. Flowers are pretty rose in colour, fragrant, long lasting and produced in spring and summer.

Cattleya labiata: Native to Brazil. A unifoliate species with club shaped pseudobulbs and thick and leathery leaves. Inflorescence is 2 to 5 flowered. Flowers are deep red purple with yellow throat and produced during October to December.

Cattleya Lawrenceana: Native to British Guinea. A labiata grouped species with spindle shaped pseudobulbs and narrow red tinged leaves. Inflorescence is 5 to 8 flowered. Flowers are variable in colour and produced during spring and early summer.

Cattleya Lueddmanniana: A unifoliate species of Venezuela with narrow pseudobulbs. Inflorescence is 3 to 5 flowered. Flowers are 20cm in diameter, highly fragrant, fleshy and pink in colour and produced in September-October.

Cattleya luteola: Native to Brazil and Peru. Pseudobulbs are ovoid with elliptic ovate leaves. The inflorescence bears 2 to 6 flowered. Flowers are fragrant, waxy, long lasting, 5cm in diameter and pale yellow in



colour and produced in November-December.

Cattleya maxima: Native to Ecuador and Peru. A unifoliate species with cylindrical pseudobulbs and leathery, oblong or ligulate oblong leaves. The inflorescence is erect or arching, 3 to 15 flowered. Flowers are 12cm in diameter, scented, long lived and purple violet in colour, produced in autumn- winter.

Cattleya mossiae: Native to Venezuela. The pseudobulbs are club shaped with solitary and leathery leaves. There are 2 to 7 flowers per spike. The flowers are 20cm in diameter, purple mauve to white, lilac coloured, highly fragrant and produced during May-June. This species is very popular as cut flower.

Cattleya schilleriana: Native to Venezuela. A dwarf bifoliate species with cylindrical pseudobulbs with leathery and broadly elliptic leaves. The pseudobulbs are red tinged. There are 2 to 5 flowers per spike. The flowers are shining, fleshy, 10cm across, olive green marked with brown red.

Cattleya skimmeri: Native to Mexico, Costa Rica and Guatemala. A bifoliate species with club shaped pseudobulbs and leathery, oblong and obtuse leaves. There are 4 to 12 flowers per inflorescence. The flowers are 8 to 10cm across, deep rose in colour and produced in spring and summer season.

Cattleya trianae: Native to Columbia. The flowers are attractive, 20cm in diameter with crispy petals, purple mauve in colour and produced in December to January.

Cattleya velutina: Native to Brazil. 4 to 7 flowers are borne per spike. The flowers are 10 to 12.5 cm in diameter, glossy, heavy textured, orange yellow or coppery sepals and petals spotted with purple and produced in late summer.

Cattleya violacea: Native to Peru and Northern South America. A bifoliate species with spindle or club shaped pseudobulbs and

leathery leaves. There are 3 to 7 flowers per spike. The flowers are highly fragrant, 12,5 cm in diameter, deep rose in colour.

Cattleya walkeriana: Native to Brazil. The pseudobulbs are spindle shaped with elliptic oblong leathery leaves. The spike is 1 to 2 flowered. Flowers are fragrant, 10-12.5cm across, rose-purple to pinkish lilac in colour and produced in February-May.

Cattleya warneri: Native to Brazil. A labiate type cattleya. A unifoliate species with 2 to 4 flowered inflorescence. The flowers are 15 to 20 cm across, rose-lilac in colour and produced in June-July.

Varieties

Parents for large blue cattleya hybrids: *Cattleya warneri* var. *coerulea*, *Cattleya labiata* var. *coerulea*, *Cattleya mossiae* ‘Reineckiana Blue Lip’, *Cattleya gaskelliana* ‘Blue Dragon’, *Cattleya trianae* ‘Blue Bird’

Bigeneric hybrids:

Brassocattleya = *Cattleya* x *Brassovola*

Epicattleya = *Cattleya* x *Epidendrum*

Laeliocattleya = *Cattleya* x *Laelia*

Trigeneric hybrids:

Vaughnara = *Cattleya* x *Brassovola* x *Epidendrum*

Brassolaeliocattleya = *Cattleya* x *Brassovola* x *Laelia*

Rolfeara = *Cattleya* x *Brassovola* x *Sophranitis*

Osmentara = *Cattleya* x *Broughtonia* x *Laeliopsis*

Dialaeliocattleya = *Cattleya* x *Diacrinum* x *Laelia*

Epilaeliocattleya = *Cattleya* x *Epidendrum* x *Laelia*

Sophrolaeliocattleya = *Cattleya* x *Laelia* x *Sophranitis*

Tetrageneric hybrids:

Iwanagara = *Cattleya* x *Brassovola* x *Diacrinum* x *Laelia*



Yamadara = Cattleya x Brassovola x Laelia x Epidendrum

Potinara = Cattleya x Brassovola x Laelia x Sophronitis

Blue Cattleya hybrids: Cattleya Alcmeda, Cattleya Bobby Howarth, Cattleya Intertexta, Cattleya Mrs. Myra Peters, Cattleya Veriflora

Brassocattleya: ‘Nancy Clark’, ‘Playa Paparo’, ‘Topaz Galaxy’, ‘Mini Bird’, ‘Pim Little’, ‘Summer Walk’, ‘Tulsi Ram Pradhan’, ‘Pretty Star’, ‘Jairak Snow’, ‘Blue Ghost’.

Brassolaelia: ‘Purple Cricket’, ‘Caribbean Holiday’, ‘Wind Dancer’, ‘Graf’s Star’

Brassolaeliocattleya: ‘Daily Bread’, ‘Darling Sunset’, ‘Mem Ann Balmores ‘Conves’, ‘Hsinying Catherine’, ‘Chinese Beauty Orchid Queen’, ‘blaze Medal ‘U Emperor’, ‘Chia Lin New City’, ‘Tagore’s Song’, ‘Jagat Bandhu Pradhan’, ‘Joanne and Mark’, ‘Suvarnabhumi’.

Cattleya: ‘Queen Sirikhit’, ‘Gentle Cloud’, ‘Day Tripper’, ‘Spring Break’, ‘Baby Lipstick’, ‘Chief Snow’, ‘Magic Melody’, ‘Betty Blue’, ‘Summer Mystery’, ‘Baby David’, ‘Pomegranate Wine’, ‘Spring King’, ‘Indigo Sky’, ‘Chocolate Chip’, ‘Pink Diamond’, ‘Gyalmo Hope Namgyal’, ‘Memoria Amber Bahadur Gurung’, ‘Memoria Atal Singh Dewan’, ‘Memoria Chukie Tobden’, ‘Memoria Forester Naku Lepcha’, ‘Memoria Madan Tamang’, ‘Memoria Naren Rai’, ‘Memoria Lily Peter’, ‘Forest On Fire’, ‘Sikkim Dazzler’,

Laeliocattleya: ‘Hidden Agenda’, ‘Magic Road’, ‘Samba Crown’, ‘Tropical Fashion’, ‘Higher Ground’, ‘Mini

Case’, ‘Nobiles General’, ‘Spring Parade’, ‘Upstrart’, ‘Harmony Show’, ‘Julie Anne’, ‘Beautiful Park’, ‘Orange Sunset’, ‘Carbon Lines’, ‘Good Friend’, ‘Pat’s Golden Dream’, ‘Sunlight Kiss’, ‘Sweet Cream’, ‘Penny Love’, ‘Big Lucy’, ‘Blue Boy’, ‘Gatton Park’, ‘Ahmad Shiekhi, Purple Cascade ‘Fragrant Beauty’, ‘Ruby Glow’, ‘Red Rocket’

Epilaeliocattleya hybrids: ‘Chocolate Kisses’, ‘Kopaa’, ‘Rainbow Sherbet’, ‘Pixford’, ‘Tiny Magic’, ‘Highland Canary’, ‘Pseudogold’, ‘Jackie Bright’

Epicattleya hybrids: ‘Cathy Meincer’, ‘Painted Hill Star’, ‘Calandria’, ‘Erin Routon’, ‘Burdekin Honey’, ‘Peles Flame’.



Lc. Purple Cascade Fragrant Beauty



Blc ‘Mem Ann Balmores Convess



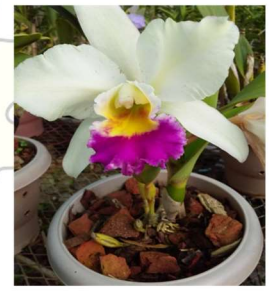
Blc Chinese Beauty Orchid Queen



Cattleya ‘Queen Sirikhit’



Lc Ahmad Sheikhi



Blc Hsinying Catherine



Blc Chia Lin New City



Blc Ablaze U-Emperor



Cattleya bowringiana

Fig.1. Important species and hybrids of Cattleya orchids



CULTIVATION

Cattleya orchids belong to a group of orchids which is the most colorful of all orchid species. Due to their relative ease of culture and adaptability, Cattleya orchids are among the most popular orchid genus grown because of their cross compatibility many genera which have similar structures and a range of interesting and unique characteristics. Besides, the Cattleya orchids are suited to both the intermediate and warm climate group of orchids under cultivation. Cattleya orchids lend themselves to many different types of cultivation and they will grow outdoors in trees in tropical landscaped gardens as well as in pots in shade houses and climate controlled green houses. Cattleya orchids are usually slow growers and can take up to three or even four years to flower. However, once they start flowering they will continue to do so all year round under the optimum conditions in which to thrive.

Temperature

The ideal temperature range of Cattleya orchid species is between 15 and 30° Celsius. Depending upon the temperature, Cattleya orchids should be watered about once or twice a week. In winter, the Cattleya orchid plants will become stressed if the temperature drops below 15° Celsius. Then it is also essential to keep the orchid plant a little drier under those conditions because extended exposure to cold and damp simultaneously will result in rot. The Cattleya orchid goes into a state of dormancy and will wake up when the weather warms up again. Do not feed or water the Cattleya orchid plant when it is in a state of dormancy damage. During the summer, the Cattleya orchid plants should be watered and fed. Always Cattleya orchids should be protected against frost in the cold winters.

Light

Cattleya orchids need medium to bright light to the exposure with 2000 to 3000 foot candles. They thrive well under a 40% shade cloth. Dark green but limp foliage indicates the receive of little light. The Cattleya and its allied inter-generic hybrid orchids are capable of withstanding higher light, but they may become stressed if exposed for too long.

Water and humidity

Cattleya orchids should be watered about once or twice a week. It should be watered more frequently during the hotter months of the year. Cattleya orchids may be allowed to dry out between applications of water. It is advised to always water the Cattleya orchids early in the day, so that the foliage will be dry by nightfall. They require 40-60% relative humidity. During the summer months, Cattleya orchids should be sure to feed and water so as to plump up the pseudobulbs and thus provide nutrients for storage purposes to be used during the winter rest period.

Feeding

Cattleya orchids are known as heavy feeders. This is especially true during their active growth period in spring. A high nitrogenous orchid fertilizer must be applied on a regular basis during spring. Application of dilute 20:10:10 weekly fertilizer produces more flowers. Furthermore, well-rooted plants should be given regular feeds of nitrogen-based fertilizers. During summer, the fertilizer type may be changed to a good quality bloom booster that will harden the plant off and make it ready for flowering.

Potting Mix and Repotting

All Cattleya orchids, including all the hybrid and orchid species that has been hybridized from the Cattleya orchid requires very open, friable potting mix, a very free



draining compost containing at least 50 percent bark. They should be potted in a porous, free-draining medium. The most commonly used potting mix are bark, shredded tree-fern fibre, various types of rock like granite chips, processed coconut fiber and lately, mixes based on peat moss and perlite and also osmunda. A potting mixture consisting of Cocochips + brick piece + leaf mould/ leaf fern /woodchips(1:1:1) was used for growth and flowering of the plants. Cattleya orchids should be potted on an annual basis when the orchid plant is young or in its active growth period. Once the orchid plant has matured and begun to flower, repotting may occur every alternate year. Repotting of Cattleya orchids is best practiced soon after flower just when the new growth appears at the base of the pseudobulbs, just before any new roots may have begun.

Pests and Diseases

All excess humidity increases the risks of fungus and bacterial infections. This can further result in a loss of new growth and in severe cases causes even permanent spotting on the leaves.

The ant is a serious pest to Cattleya orchids. They relish the sugary substance that is produced by the new flowers. They are carriers of scale insects. A grower should actually remove old bracts and sheaths and groom the orchid plants regularly.

Virus infection on Cattleya orchids are usually manifested as white striations in the orchid flowers of the Cattleya orchid. This phenomenon is referred to as color-break. This color-break soon develops further into a brown streak. Virus infections on the Cattleya orchids can be controlled effectively by making use of clean secateurs, blades, etc.

Post-Harvest Management

Stage of harvest: Fully open flowers. There may be one or more flowers on a spike of 25-40cm length depending on the type. In Cattleya hybrids, longevity of cellophane paper packing of fully open florets ranges from 14 to 45 days over unpacked florets i.e. 7 to 11 days.

Storage

7-10°C for 14 days dry storage and 10 to 13°C wet storage.

Vase life: 10 to 25 days.

Preservatives: STS 1mM + sucrose 1 per cent.

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