Newsletter - March 2015

The Orchid Society of Karnataka (TOSKAR)

21 March 2015

From the Editor's Desk

21.March.2015

At the outset please accept our apologies for not bringing out the December 21, issue. There are few valid reasons for this. Our team mainly, Dr. Vani Hardev and Mr. Ravee have been doing a tremendous job and needless to say, I would once again request the members to share their experience in growing orchids in Bangalore conditions and also matters related to orchids, even if the information may be minor. We are trying our best to bring out the issues on time and will be able to do so with your active co operation.

We have tried to make this issue interesting and informative with wide range of articles. On the culture section, we have *Aerides maculosa*, *Epidendrum*, *Dendrobium*s. A small write up on how to prepare your orchid plant for exhibits by cleaning the leaves is interesting. Continuing part 2 of the Beginners section covers nutrition, potting and media, propagation. Observation on flowering orchids in Bangalore by our members has been well compiled month wise for the year 2014. This not only gives the flowering season for many of our common hybrids about also frequency. This information will definitely helps us in planning mini shows and other events. A power point presentation on orchid flasking gives valuable information on one of the propagation ways of orchids. A write up on National Conference on Orchids held at Katra (J & K) brings out the status, observations and some important recommendations. TOSKAR had its third annual Orchid show in October 2014, report on that sums up the major activity of TOSKAR. All in all, we have tried to give a bouquet of articles for the reader. Your comments and observations will go a long way in improving the newsletter. Once again, be ready to contribute to the next issue scheduled for June 21, 2015.

I would be failing in my duty if I do not acknowledge the efforts of the members who have taken the trouble of sharing their experiences and also penned the articles. I take this opportunity to congratulate all those who contributed for the issue and let us keep up the good work and look forward for more.

See you all, Happy Orchid Growing

Editor
editor.nl@toskar.org

In This Issue:

Photo on cover page:
Habenaria longicorniculata J.Graham

Photos in this page (from top to bottom):
Zeuxine gracilis (Breda) Blume
Dendrobium ovatum (L.) Kraenzl
Coelogyne breviscapa Lindl.

Aerides maculosa Lindl.

Sanjeev Dharwal

Aerides maculosa Lindl., Edwards's Bot. Reg. 31(Misc.): 58 (1845).
Synonyms: *Aerides illustris* Rchb.f. *1882*; *Aerides maculosa var. schroederi* (Rchb.f.) A.H. Kent 1891; *Aerides schroederi* Rchb.f. 1855; *Gastrochilus speciosus* (Wight) Kuntze 1891; *Saccolabium speciosum* Wight 1851

The genus belongs to the tribe Vandeae of Orchidaceae family (subfamily – Epidendroideae, subtribe - Aeridinae). The name of the genus literally means “air plants” (from Greek aer = air/wind). The epithet "*maculosa*" means "spotted," in reference to the magenta coloured spots on the tepals.
Aerides maculosa is also known as the Cat’s Tail, Fox Tail or Fox Brush orchid (*Kannada*: Drupadi Pushpa).

In situ

This species is endemic to Indian peninsular region. They are widely distributed from northern to southern parts of Western Ghats. These are tropical epiphytes that grow mainly in the warm lowlands of tropical areas found up to elevations of 800 meters and are known for their racemes of showy, fragrant and colourful flowers.

Inflorescence

These are monopodials that lack pseudo bulbs. The plants are medium to large sized and are hot to intermediate growing with an erect stem carrying leathery, apically bi-lobed leaves which are about 15-20 cm long. The bloom time is from spring to early summer. The white or pink flowers with magenta spots form pendulous racemes up to 15 cm long. The flowers are very fragrant and waxy and are long lasting, They have a fascinating lip with a prominently protruding spur.

Close up of flowers

Aerides maculosa is a very compact herb growing up to about 10cm long with profuse aerial roots running along the tree trunk which help in absorbing moisture from the air. The species has become endangered due clearing forest area for tea/coffee estates and felling of trees for construction and road building. It is listed in Cites Appendix- II and hence there is a need to take steps to conserve the species before it becomes endangered.

Cultivation – A delightful species which is not difficult to care for but must be provided with warm moisture and generous air movement. Without good movement of air, they often succumb to rot.
Aer. maculosa does well in basket or slotted pot in a variety of well drained media with roots exposed. The media can consist of 3 charcoal and 1 part brickbats. Coconut husk chips are best avoided as they tend to retain excess water and rot easily leading to re-potting frequently.
Like Vandas, *Aerides* require diffused bright light to bloom well. These are very hardy plants which can tolerate dry spells. They are best grown in east facing spot, avoiding overhead sun light.
For good growth, the plant should be fed weekly with a weak solution of NPK (19-19-19). Care should be taken to avoid leaving the fertilizer in direct contact with the roots for too long. If grown without any media, the plant should be soaked thoroughly on a daily basis. Avoid spraying either fertilizer or the insecticide on the flowers.

Annual Orchid Show 2014

The Orchid Society of Karnataka (TOSKAR)

Srikanth Parthasarathy

For the third consecutive year, The Orchid Society of Karnataka (TOSKAR) organized the Annual Orchid Show for three days on October 17th, 18th and 19th at Dr. M. H. Marigowda Hall, Lalbagh, Bangalore. Like every year, this time also the show was very successful and got wider publicity in the state. There were close to 200+ varieties of orchids on display, including both hybrids and species - many were also very rare orchids which attracted people from all over India. The big winner was the member-display area where TOSKAR members exhibited their orchid collection. Many visitors could not believe what they were seeing and they were absolutely thrilled to see some of those rare orchids being grown by members so successfully and were inspired to grow orchids themselves. The exquisitely elegant orchid "mantap" created by artist Kalidasa made the visitors go WOW! and the shutterbugs never got a chance to rest once they entered the hall. In all there were close to 4000+ visitors during the show on all three days. Many stalls were put up outside the hall selling orchid plants, books and orchid accessories.

First day started off to a great weekend with a brief inaugural ceremony by Sri. S. Prabhala, Chairman, Bangalore Environment Trust, Bangalore. It was followed by the release of souvenir by Sri. R. M. N. Sahai, IFS (Retired), Chairman, Karnataka Biodiversity Board, Bangalore. Since one of the objectives of TOSKAR being conserving orchids, Sri. R. M. N. Sahai extended his support to work with TOSKAR collaboratively with Karnataka Biodiversity Board on some conservational projects.

To educate visitors about orchids, orchid culture, and orchid conservation, there were many educational posters displayed inside the hall. And to show the variety of orchids growing in the wild, Dr. Shashidhar had exhibited some of his wild orchid photographs as well. Many visitors expressed their positive feedback after going through all these education materials and were delighted to know all the interesting information about orchids.


Training and Demonstration:

One more additional feature of the show other than the orchid display was the free training and demonstration workshop organized for visitors. Many experts from TOSKAR volunteered to conduct trainings and made it a huge success. The objectives of the workshop were predominantly on orchid growing and orchid culture. Idea was to promote orchid growing among enthusiasts and make them part of the fraternity. There were live demonstrations on potting, watering, pest control etc.. Many orchid growers came with their concerns to discuss with experts as well. There were five sessions spread across three days and each session lasted for 90 minutes. More than 400 visitors took part in the training and demonstration workshops. Following were the topics covered during the session:

1. Introducing epiphytes and terrestrials
2. Difference between monopodial and sympodial growth habit
3. Light and temperature requirements
4. Water and humidity
5. Pots and potting media
6. Aeration
7. Propagation
8. Nutrition
9. Insects & pest management


Workshops in progress

Training Statistics:

Date	Resource Person	Time	# People attended
17-Oct-2014	Dr. S. N. Hegde	2.30 to 3.30 Pm	74
18-Oct-2014	Dr. K. S. Shashidhar	11.30 to 12.30 Pm	95
18-Oct-2014	Ms. Nalini Kottolli	2.30 to 3.30 Pm	90
19-Oct-2014	Mr. Ram Kumar	11.30 to 12.30 Pm	70
19-Oct-2014	Mr. S. S. Kalyanpur	2.30 to 3.30 Pm	85

Orchid Display Competition:

To encourage participation as well as a healthy competition of Orchid Culture, for the first time TOSKAR introduced the Orchid Display Competition for the members. All the members were requested to select their best plants and enrol for the competition. There were many categories under the competition and members participated enthusiastically. 1st, 2nd and 3rd prizes were given in all categories and one person was chosen as the Champion of the Orchid Show as well. Dr. S. N. Hegde and Dr. K. S. Shashidhar were the judges and both of them were quite overwhelmed by seeing such a positive response. Mr. Nageshwar was chosen as the 'Champion of the Orchid Show 2014' and several others won the prizes for their best entries as well.

Vanda coerulea Griff. ex Lindl.

Paphiopedilum druryi (Bedd.) Stein

Some of the award winning and native species displayed

AN OBSERVATION ON FLOWERING OF ORCHIDS AT BANGALORE IN 2014

R. Jambulingam

The Orchid Society of Karnataka (TOSKAR) is known for popularising Orchid culture. There are nearly 300 life members supporting its activities. Most members report the flowering of their orchids along with a pictorial attachment to the Society through its website. A casual perusal of the reports indicated lesser flowering in some months and profuse flowering in others. Hence a month wise collation of information on flowering was compiled from the posts of 2014 that furnished a name tag, either generic, species or utility. The number of species or varieties that flowered during the month is provided in the brackets.

JANUARY 2014

Species: *Coelogyne pandurata* Lindl., *Dendrobium barbatulum* Lindl., *Dendrobium ovatum* (L.) Kraenzl., *Paphiopedilum liemianum* (Fowlie) K.Karas. & K.Saito, *Vanda* sp. - (5)
Hybrids: *Ascocenda* hybrid, *Catasetum* hybrid, *Catasetum* hybrid (Yellow), *Cattleya* hybrid, *Cattleya* L.C.Link, *Cattleya* miniature hybrid, *Dendrobium* hybrid, *Encyclia* hybrid, *Epicattleya* hybrid, *Epidendrum* hybrid, *Oncidium* miniature (equintant Lavender Pink), *Guaricyclia* plicaboa, *Oncidium* hybrid, *Phalaenopsis* hybrid, *Stanhopea* hybid, *Vanda* hybrid - (16)

FEBRUARY 2014

Species: *Bulbophyllum* sp. *Cottonia peduncularis* (Lindl.) Rchb.f., *Dendrobium barbatulum* Lindl., *Dendrobium canaliculatum* R.Br., *Dendrobium friedericksianum* Rchb.f., *Dendrobium heterocarpum* Wall. ex Lindl., *Dendrobium nobile* Lindl., *Trias stocksii* Benth. ex Hook.f., *Zeuxine longilabris* (Lindl.) Trimen, *Cattleya* sp., *Dendrobium secundum* (Blume) Lindl., *Paphiopedilum* sp., *Oncidium* sp, - (13)
Hybrids: Lady's Slipper hybrid, *Brassavola* laelia, *Broughtonia* white, *Broughtonia* sp., Blc.Copper Queen, Blc.San Yong Ruby, *Cattleya* hybrid, *Cattleya* white hybrid, *Cattleya* miniature, *Dendrobium* Compact Pansy Bush, *Dendrobium* bloody eyes, *Dendrobium* Red Jasmine, *Epidendrum* Flame Thrower, *Epidendrum* hybrid, Mokara lavender, *Oncidium* hybrid, *Oncidium* miniature (equintant), *Rhyncholaelia* hybrid, *Cattleya* Rhea Thornbury - (19)

MARCH 2014

Species: *Ascocentrum miniatum* (Lindl.) Schltr., *Bulbophyllum fimbriatum* (Lindl.) Rchb.f., *Calanthe vestita* Wall. ex Lindl., *Dendrobium aphyllum* (Roxb.) C.E.C.Fisch., *D. capillipes* Rchb.f., *D. crepidatum* Lindl. & Paxton, *D. chrysotoxum* Lindl., *D. densiflorum* Lindl., *D. primulinum* Lindl., *D. macrostachyum* Lindl., *D. ovatum* (L.) Kraenzl., *D. secundum* (Blume) Lindl. ex Wall., *D. fimbriatum* Hook., *D. fimbriatum* var. *occulatum* Hook.f., *D. christyanum* Rchb.f., *D. moschatum* (Buch.-Ham.) Sw., *D. jenkinsii* Wall. ex Lindl., *D. lindleyi* Steud., *D. transparens* Wall. ex Lindl., *Gastrochilus acaulis* (Lindl.) Kuntze, *Maxillariella tenuifolia* (Lindl.) M.A.Blanco & Carnevali, *Phaius tankervilleae* (Banks) Blume, *Paphiopedilum bellatulum* (Rchb.f.) Stein, *Papilionanthe subulata* (Willd.) Garay, *Seidenfadenia mitrata* (Rchb.f.) Garay, *Vanda stangeana* Rchb.f., *Vanda testacea* (Lindl.) Rchb.f., *Coelogyne pandurata* Lindl., *Oncidium* sp., *Phalaenopsis* sp., Schomburgkia sp. - (31)
Hybrids: *Ascocentrum* suksamrun Sunlight, *Ascocenda* sp., *Brassavola nodosa* x Richard Mueller, *Cattleya* Chinese Beauty, *Dendrobium* antelope, *D*. anucha flair, *D*. sakura hime, *D*. pansy, *Epidendrum* hybrid, *Encyclia cordigera* alba, *Miltassia* Royal Robe Jerry Pick, Nobile orchid, *Oncidium* hybrid, *O*. equitant, *O*. Gold Dust "GV Straight", *Paphiopedilum* philippinense x ciliolare, *Phalaenopsis* miniature, *Vanda* hybrid Muang Thong - (18)

APRIL 2014

Species: *Acampe praemorsa* (Roxb.) Blatt. & McCann, *Esmeralda cathcartii* (Lindl.) Rchb.f., *Coelogyne pandurata* Lindl., *Cottonia peduncularis* (Lindl.) Rchb.f., *Cymbidium aloifolium* (L.) Sw., *Cymbidium bicolor* Lindl., *Dendrobium crumenatum* Sw., *D. crystallinum* Rchb.f., *D. sulcatum* Lindl., *Luisia zeylanica* Lindl., *Renanthera imschootiana* Rolfe, *Rhynchostylis gigantea* (Lindl.) Ridl., D. *devonianum* Paxton, *Vanda tessellata* (Roxb.) Hook. ex G.Don, *Vanda testacea* (Lindl.) Rchb.f., *Cymbidium* sp, *Paphiopedilum niveum* (Rchb.f.) Stein - (17)
Hybrids: *Ascocenda* orange, *Brassavola* laelia, 2 *Cattleya* hybrids, *C. Dayanum*, *D*. dawn maree, *D*. miniature, *D*. Pista green, *Dendrobium* hybrid, *Encyclia* tampensis, *Epicattleya* anon, *Miltonidium* hybrid, *Odontoglossum* hybrid, *Oncidium* equitant, *Paphiopedilum concolor* var striatum, *Paphiopedilum* delenatii x sib, *Phalaenopsis* miniature, *Phalaenopsis* clones, Terete *Vanda*, *Tolumnia*, *Vanda* hybrid - (21)

MAY 2014

Species: *Acampe praemorsa* (Roxb.) Blatt. & McCann, *Aerides crispa* Lindl., *Aerides crassifolia* C.S.P.Parish ex Burb., *Aerides odoratum* Reinw. ex Blume, *Ascocentrum garayi* Christenson, *Brassavola nodosa* (L.) Lindl., *Coelogyne ochracea* Lindl., *Coelogyne pandurata* Lindl., *Cottonia peduncularis* (Lindl.) Rchb.f., *Cymbidium bicolor* Lindl., *Rhynchostylis retusa* (L.) Blume, *Vanda testacea* (Lindl.) Rchb.f. , *Grammatophyllum scriptum* f. *citrinum* Valmayor & D.Tiu, *Dendrobium bensoniae* Rchb.f., *D. draconis* Rchb.f., D. *moschatum* (Buch.-Ham.) Sw., D. *aggregatum var. jenkinsii* (Wall. ex Lindl.) King & Pantl., *Dendrobium* sp., D. *macrostachyum* Lindl., *Ionopsis* sp., *Paphiopedilum concolor* (Lindl. ex Bateman) Pfitzer., *Schomburgkia* sp. - (22)
Hybrids: *Ascocentrum* Sagarik Red, *Ascocenda* Janice Allison, *Blc*. Humming Angel, *Brassavola* hybrid, *Brassavola* in Blue, *Brassavola nodosa* x Richard Mueller, *Cattleya* hybrid, *Cattleya* miniature, *Cattleya* noid hybrid, *Cymbidium* Golden Elf, *D*. Liberty hubrid, *Oncidium* Blackspider, *O*. brassica, Oncidium hybrid, *Oncidium* miniature, *Phalaenopsis* bellina hybrid, *Paphiopedilum* Red Complex, - (17)

JUNE 2014

Species: *Aerides crispa* Lindl., *Aerides maculosa* Lindl., *Habenaria grandifloriformis* Blatt. & McCann, *Coelogyne flavida* Hook.f. ex Lindl., *Coelogyne pandurata* Lindl, *Dendrobium crumenatum* Sw., *Rhynchostylis retusa* (L.) Blume, *Smithsonia maculata* (Dalzell) C.J.Saldanha, *Vanda testacea* (Lindl.) Rchb.f., *Aerides* sp., Dendrobium sp., *Disperis zeylanica* Trimen, *Doritis pulcherrima* Lindl., *Oncidium* sp., *Trichoglottis* sp. - (15)
Hybrids: *Broughtonia* white hybrid, *Cattleya* laelio sagarik Wax African Beauty, *Cattleya* pink, *Cattleya* hybrid, *Dendrobium* anucha flair, *Epidendrum* hybrid, Miltassia hybrid (Mufti), *Miltonopsis* bussia, *Vanda* hybrid - (9)

JULY 2014

Species: *Bulbophyllum gracillimum* (Rolfe) Rolfe, *Cattleya skinneri* Bateman, *D. draconis* Rchb.f., *Dendrobium formosum* Roxb. ex Lindl., *D. gibsonii* Paxton, *Liparis biloba* Wight, *Phalaenopsis cornu-cervi* (Breda) Blume & Rchb.f., *Rhynchostylis retusa* (L.) Blume, *Aerides* sp., *Cattleya* sp., *Eria fragrans* Rchb.f., *Pholidota imbricata* Lindl. - (12)
Hybrids: *Ascocenda* Fuchs Gold, *Ascocenda* hybrid, *Brassocattleya* Markai Mayund, *Cattleya* noid, Colmanara wildcat, *Cymbidium* Golden Elf, *Dendrobium* anucha Alba, *Epicattleya* Yellow, *Howeara* Lava Burst, *Laeliocattleya* hybrid, *Potinara* Burana Beauty, *Psychosis* kalihi, *Spathoglottis plicata* var alba, *Spathoglottis* White, *Vanda* hybrid - (15)

AUGUST 2014

Species: *Acampe praemorsa* (Roxb.) Blatt. & McCann, *Coelogyne nitida* (Wall. ex D.Don) Lindl., *Aerides* sp., *Cattleya* sp., *Dendrobium* sp., *Podochilus* sp., *Spathoglottis* sp., *Stanhopea* sp. - (8)
Hybrids: *Ascocenda* varut leopard x v.bitz' Heartthrob, *Ascocenda* Jakkit Gold x V. Kultana Gold, *Ascocenda* orange, *Ascocenda* jumeirah, *Cattleya* hybrid, *Mokara*, *Neofinetia falcata* x *Rhynchostylis coelestis*, *Odontocidium* -Tiger Crow Golden Girl, *Oncidium* hybrid, *O*. tolumnia, *Psychopsis* kalihi, *Vanda* sunshine x V.bitz' Heartthrob - (12)

SEPTEMBER 2014

Species: *Dendrobium heyneanum* Lindl., *Dendrobium spathulatum* L.O.Williams, *Epidendrum ciliare* L., *Doritis pulcherrima* Lindl. - (4)
Hybrids: *Aerides* flabellata x houlletiana, *Ascda*. Muang Thong, *Brassavola* Green, *Cattleya* hybrid, *D*. Angel Baby Love Pocket, *Guaricyclia* plicaboa, *Cattleya* mini hybrid, *Oncidium* Wild Cat, *Phalaenopsis* (P.Blume) var. Harlequin, *Vanda* hybrid - (10)

OCTOBER 2014

Species: *Arundina graminifolia* (D.Don) Hochr., *Brassavola nodosa* (L.) Lindl., *Bulbophyllum ornatissimum* (Rchb.f.) J.J.Sm., *Cycnoches* sp, *Coelogyne pandurata* Lindl, *Paphiopedilum druryi* (Bedd.) Stein, *Dendrobium tangerinum* P.J.Cribb, *Dendrobium* sp - (8)
Hybrids: *Cattleya* mini, *Dendrobium* anucha, *Oncidium* alliance, *Oncidium* hybrid, *Oncidium* mini, *Spathoglottis* hybrid, *Vanda* perret, *Vanda* hybrid - (8)

NOVEMBER 2014

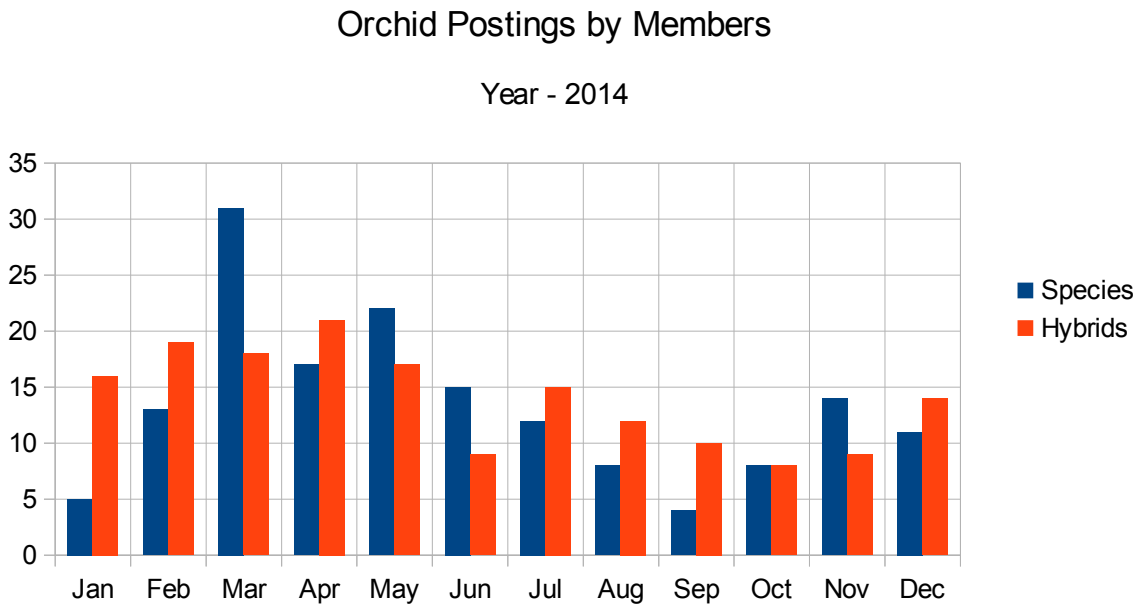
Species: *Coelogyne rochussenii* de Vriese, *Dendrobium antennatum* Lindl., *Phaius tankervilleae* (Banks) Blume, *Paphiopedilum exul* (Ridl.) Rolfe, *Paphiopedilum insigne* (Wall. ex Lindl.) Pfitzer, *Paphiopedilum villosum* (Lindl.) Stein, *Vanda* sp., *Brassovola* sp., *Bulbophyllum* sp., *Cattleya* sp., *Cymbidium* sp., *Dendrobium* sp., *Ionopsis* sp., *Phalaenopsis* sp. - (14)
Hybrids: *Cattleya* hybrid,*Dendrobium* hybrid Anucha Flare, *Epidendrum* Flame Thrower, *Guaricyclia* plicaboa, *Oncidium* sharer, *Oncidium* tolumnia, *Phalaenopsis* hybrid, *Rossioglossum* hybrid, *Psychopsis* mariposa - (9)

DECEMBER 2014

Species: *Dendrobium fytchianum* Bateman ex Rchb.f., *D. formosum* Roxb. ex Lindl., *Neofinetia falcata* (Thunb.) Hu, *Oberonia bicornis* Lindl., *Paphiopedilum concolor* (Lindl. ex Bateman) Pfitzer, *Paphiopedilum liemianum* (Fowlie) K.Karas. & K.Saito, *Paphiopedilum villosum* (Lindl.) Stein, *Rhynchostylis gigantea* (Lindl.) Ridl., Bulbophyllum sp., *Dracula lotax* (Luer) Luer, *Encyclia cordigera* (Kunth) Dressler - (11)
Hybrids: *Brassolaeliacattleya* (Blc) Chinese Beauty, *Blc*.Copper Queen, *Broughtonia* White, *Cattleya* hybrid, *Dendrobium* Anucha Flare, *Dendrobium* santana, *Dendrobium* sonia, *Epicattleya* Yellow, *Epicattleya* yucatan, Mokara, *Oncidium* hybrid, *Oncidium* Twinkle Star, *Paphiopedilum* delenatii x sib, *Rhynchostylis* hybrid, (14)

Observation:

A total of 328 flowering postings, covering 63 genera were recorded for the 12 month period as detailed here.



There is a peak in flowering during March, a pre-summer month and a gentle slowing down subsequently till the end of October. The tempo picks up again from November onwards. March to May period seems to accelerate the blooming process.

The significance of this periodicity needs to be confirmed with a similar observation during 2015.

POOR MAN'S ORCHIDS

We have come across plentiful numbers of orchids of different hues, shape and structure that are most alluring to us besides the captivating fragrance they emit. These members belong to the plant family *Orchidaceae*. They command great care in their culture and the flowers are the preferred items in weddings, bridal decorations and display on dining tables, besides there is a long list of their uses. Their flower spikes tend to remain fresh and fleshy for an extended period of one to six weeks or more. Generally they are assigned to the upper strata of the society falling in the category of rich and famous. On the contrary, we have simple plants that possess orchid like flowers of varying colours and dimensions, hardy to grow and sustain adverse habitats.

Their mimic is so good that anyone can fall for the original. There are several species qualifying to this status and we will look into a few.

Impatiens

The flowers of many Impatiens species resemble the floral structure of orchids. Among the most intriguing are the Oncidium types, such as the East African *Impatiens cecilii*. Impatiens is much easier to grow and flower, tolerating more adverse conditions. In its wild condition, Impatiens sodenii found across Kenya to Tanzania grows to an imposing height of three meters with showy flowers. Besides this, there are *I. oliveri* with flowers of pale pinkish lavendar colour and *I. uguenensis* that displays largely white flowers with a central eye of magenta. Several hybrids have appeared now such as *I. usambarensis* – an easy plant to grow that has the added benefit of being somewhat hardier. The remarkable *I. niamniamensis* (African Queen) has a wide distribution across the wilds of Africa from Kenya to Cameroon with candy corn flowers of orange, yellow and green making it the most recognisable orchid mimics.

In Asia, this flower form is adopted by Impatiens diodes with wonderful lemon yellow flowers. Still rare in cultivation, it is proving to be a good garden plant for cool coastal areas. *Impatiens falcifer* (an annual from Himalayas) may be the best of the group. It sports bright yellow flowers with brick red speckling on the upper petal and in some forms, on the large lower petals. *Impatiens auricoma* is one of the newest balsams on the market. Native to the Comoro Islands off the coast of Madagascar, it is a little finicky about its growing conditions, preferring slightly warmer temperatures. In a greenhouse environment, it can reach four feet tall with long lanceolate leaves and weird, bright yellow flowers.

For lovers of red flowers, up steps *I. bicaudata* 'Madagascar Red', a five-foot-tall balsam with a thick trunk approaching eight inches around at the base. It is a seasonal bloomer, producing flowers mostly in the fall. I. 'Kenya'- a lavender "African Orchid." What appeared was

I. 'Big Red', an exotic, red-flowered giant like *I. bicaudata* with the free-flowering habit of I. 'Kenya'. When 'Big Red' starts to bloom, it never stops, each stem producing great clusters of flowers at its peak. Even during the heat of summer it will have several flowers open and will produce more as the weather cools.

Closely related to *I. niamniamensis* is Mount Kilimanjaro balsam (*I. kilimanjari*), another species that dislikes dry heat preferring cool summers and moist soils, it will thrive and produce cherry red, yellow-spotted flowers among the shiny green leaves. If you grow its Kilimanjaro relative, *I. pseudoviola*, you may get natural hybrids in an array of forms. *Impatiens pseudoviola* is fairly new to the US, but it can be found easily in England.

Few commonly found Impatiens

Schizanthus pinnatus (Butterfly flower)

There are several hundred variants of the colourful flowers that amazingly resemble that of a true orchid. This is mostly found in the drier tracts of New Mexico to Arizona of south USA and is a preferred species for planting immediately on spring tide. Plant culture through seed is predominant. This is an annual plant belonging to *Solanaceae*.

Epidendrum radicans (Poor man's orchid)

This is an easily propagated real orchid having about 400 species and distributed along the tropical and subtropical region of both sides of Central America. The flowers are not as showy as other orchid species but it carries itself well to call it an orchid. The simplicity is in its availability of the plant at a very low cost and easy production of rooted cuttings from stem.

Though not so flamboyantly coloured its flowers are arranged in attractive manner in tufts in a variety of inflorescence. The inflorescence types vary from one species to another. Most Epidendrums are fragrant. The rich and dense inflorescence are marked by tufts of little colourful flowers. The colours range from white, yellow, orange, pink and purple and almost all shades inbetween. The plant is predominated with small green leaflets arranged alternately on the stem. The highly colourful tufts of blossoms are borne on an elongated spike which shoots towards the top of the plant. The flowering continues after short intervals throughout the year. Owing to its attractive flowers, it is also called by several other names such as Butterfly flower or Fringe flower.

Reference: Pacific Horticulture, Flowers of India, How Stuff Works

Turn to page 25 for a detailed write-up on ***Epidendrum radicans*** **Pav. ex Lindl.**

Beginners' Section
Part – 2

Dr. K. S. Shashidhar

In the previous article we tried to bring out some of the important factors that need to be considered while taking care of an orchid. In continuation of that, we discuss here a few more parameters which are important in orchid care and culture. As mentioned earlier, orchids once established are real hardy plants and many growers still believe that they do not need any special care. However, you have to make a difference between everybody growing orchids and you growing it as a specimen plant. The saying is that 'you care for it and you will reap rewards'. Let us look into some more of those parameters which help you become a successful orchid grower.

Nutrition

In nature the orchids derive nutrients from the debris of leaf and other materials which will house itself in the net work of roots. The decomposing organic matter will continuously provide the nutrients to the plant. Remember the key for growing orchids is to follow what happens in nature. Hence, the thumb rule for supplying nutrients for an orchid plant under cultivation is WEEKLY APPLICTION WITH WEAK DOSES. Orchids also need essential nutrients for their growth and flowering.. Orchids under cultivation respond to application of fertilizers by producing good growth and flowering. Orchids are relatively slow growing and the requirement of nutrients is in smaller quantities but on a continuous basis. The four parameters – nutrition, light, temperature and water are interactive in producing good growth with numerous flowers.

Both organic and inorganic nutrient sources are used on orchids. Like all other flowering plants, orchids require major nutrients (Nitrogen, Phosphorus, and Potassium), secondary nutrients (Calcium, Magnesium, and Sulphur) and other trace elements. Nitrogen is important to promote vegetative growth. However, too much nitrogen results in dark green foliage and may affect flowering. Phosphorus and Potash facilitate flowering and promote better root growth.

Among organic source of nutrients, cow dung manure, poultry manure, fish meal, and bone meal and fish emulsions are used to promote growth and flowering in orchids. *Arachnis* and some of the Vandaceous orchids are known to respond well for liberal application of diluted cow dung slurry. Of the inorganic sources, the most ideal combination is the balanced fertilizer which has equal proportion of all the three major nutrients. Depending on the period of growth (vegetative or reproductive) and stage of the plant (young or seedling stage or mature and blooming stage) the fertilizers are applied either in combination or by varying one of the nutrients. Further, all new or current growth undergoes a phase of vegetative growth followed by a reproductive phase. During the vegetative stage, they require more Nitrogen and as they approach reproductive phase, the Nitrogen has to be reduced compared to Phosphorus and Potassium.

The quantum of nutrients required, dose and frequency of application of fertilizers depends on the type of orchid, stage of growth – vegetative or reproductive – and the media used (whether organic or inorganic). Orchids grown in organic based media such as bark, coconut husk chips, need comparatively less fertilizer than the one grown in inorganic based materials like brick bats, charcoal and LECA. A proper fertilizer schedule is essential for successful cultivation of orchids.

Roots are the sites of absorption of nutrients in the plant and the root system should be healthy to perform this function. The schedule of application of fertilizers starts during the active growth stage, with a weekly dose of a balanced fertilizer such as 19-19-19 (NPK) at quarter to half the

recommended dose which ensures a good foundation for the plant through vegetative growth. This is followed by fertilizers with high Phosphorus and Potash such as 5-10-20 to produce flowers of good quality. Some growers use Magnesium sulphate before induction of spikes. Over watering and poor root growth and build up of salts around the root zone due to continuous application of fertilizers results in plants unable to absorb the nutrients even though they are available. The roots, especially those of terrestrial orchid are sensitive to build up of salts in the root zone. It is advised that if one is applying fertilisers through watering, it is better to leach out all the salts accumulated in the media in and around the root zone.

Feeding and absorption of nutrients by orchids depends on several factors such as potting medium, light, moisture, and temperature. Providing more light and moisture will enable the plants to absorb more nutrition and grow better. Orchids are slow growers and the plants may not show immediate symptoms of nutrient deficiency. Eventually if any of the nutrients are lacking, they may exhibit symptoms depending on the need for a specific nutrient. For example, if the plants do not receive adequate Potassium, the deficiency symptom may not manifest immediately but the symptoms are exhibited at flowering stage in lower leaves as the flowers and the reproductive growth have utilized whatever potassium was available. Similarly, Nitrogen is a mobile element and its deficiency symptoms are yellowing of lower leaves.

Nutrient feeding can be done through roots by applying fertilizers to the media along with watering as well as by foliar feeding. Root feeding is done by dissolving the fertilizer in water and watering the plants with every watering or as per schedule. But the dose has to be weak. This method of feeding is more practical for potted plants. Foliar feeding is done by spraying on the leaves. Generally it is a combination of both the methods of application which gives better results. Nutrients are absorbed readily when applied through foliar, especially if the plants suffer from deficiencies which needs immediate remedy. After every three or four applications of fertilizers, a thorough watering and flushing needs to be done to avoid build up of salts near the root zones in the pots. Roots of orchids are sensitive to the presence of excess salts which may injure the plant.

To sum up the growth pattern and the fertiliser schedule,

The growing season of an orchid which starts somewhere from spring onwards is the longest and very important phase of growth. During this phase with proper nutrition your orchid plants will put out good vegetative growth with lots of leaves which will be the store house of energy for the ultimate function of producing flowers. A good foundation will ensure a good and healthy plant with lots of flowers

The above phase is followed by reproductive phase when the plant attains maturity. This is signalled by production of flower spikes indicating the beginning of the bloom. In the earlier stages, you have given adequate nutrients especially Nitrogen for good foundation of the plant and has built sufficient energy for production of flowers. At this stage, reduce the Nitrogen and increase Phosphorous and Potash. This will initiate bigger and better quality blooms. Initiation of blooms depends on light, temperatures during day and night. The nutrients (low Nitrogen and high Phosphorous and Potash) will enhance the quality of flowers.

Once the blooming is completed, orchid goes into a kind of rest indicating that during this period no nutrients are required. This is also a period when they require less water. This period may last for about 4-6 weeks and the completion of the rest period is indicated by new growth, then the cycle of watering and fertilisation continues.

Potting and Media

Orchids under cultivation are being grown successfully in various types of pots, mounts and in all imaginable ways. The culture and success of growing orchids depends mainly on the media used and the way you water as it is the most crucial factor. As mentioned earlier 'Kindness kills plants". If you over water your plants, it is just a matter of time before the roots start suffering and it will be reflected through poor growth and eventually loosing the plant. Hence the pot you use, the media and the frequency of watering will all decide the growth of your orchid. Let us look at the various advantages and disadvantages of kinds of pots and also the mounting.

The size of the plant and the selection of container is important

Generally orchids like to be under-potted, in the sense, the pot size should be able to hold just another year's growth and not more as we do in case of conventional plants. What is important here is the size and growth of the root is related to the pot size and not the leaf growth or pseudobulb growth. Plastic pots or containers are increasingly used now due to easiness in carrying, long life. But one has to be careful about watering in such containers. It also has the advantage of humid conditions for the root growth. It is always better to provide media with lots of aeration in these pots. Compared with this, the clay pots which were and are still being used, have better aeration and stability when potted and kept, less fear of overwatering as water evaporates and escapes faster. These issues have to be considered along with the media you use in these pots.

For seedlings which are freshly hardened always it is better to use community pots where 4-5 seedlings can go in one community pot as seedlings at that stage likes to be in a community. The seedlings will also require seedling mixture which is much smaller in size than the one used for grownups.

Care to be taken while potting the plants. Sympodials like Dendrobiums, Cattleyas and Paphiopedilums have the growing buds at the bottom of the pseudobulbs and burying them will either delay the process of new growth or else the buds may rot. Hence, the collar portion (where the stem and the root separates) should be above the media and should not be buried. In case of Paphiopedilums if the plant is buried collar-rot will occur and the plant may be lost.

Mounting is a common form of growing orchids as orchids especially epiphytes like to have their roots spread in the air. In most of the cases, plants like to be mounted. Most of the orchids take to mounting naturally. Mounting can be literally on any piece of wood or other suitable material. Two things are essential for mounting of orchids; the humidity should be adequate around 40-50%. Then while mounting preferably (to begin with) a wad of moss needs to be kept to provide some amount of moisture initially. When mounted, plants need to be almost watered every day, there is fear of overwatering when plants are mounted.

Above: *Dendrobium pierardi* mounted
Right: Another mounted orchid

Vandaceous orchids do very well in baskets. Genera like *Rynchostylis, Vanda, Aerides and Renanthera* do well in baskets. But they should all be provided with adequate humidity, by spraying of water for the roots everyday and also by keeping trays filled with water to provide micro climate.

Basically orchids grow in well drained conditions with lots of aeration which is a must for the roots. Keeping this condition in mind, one has to resort to an ideal potting mixture suited to their growing conditions. Hosts of materials are being used as potting media. Among the organic materials, bark, Coconut Husk Chips, Sphagnum moss, Tree Fern bark chunks are used depending on what is locally available. In our conditions, Coconut Husk Chips are commonly used in combination. When it comes to inorganic materials, brickbats, pot shreds, charcoal, LECA are widely used. An ideal potting profile would be to have the bottom one third with big pieces of brickbats and charcoal (to allow free drainage) then follow it up with medium size materials of combination of CHC, charcoal and LECA for most of the epiphytes. After placing the plant with its roots spread the top portion is covered with small size mixture (less than one inch, but not powder) of the media. Gently press the mixture so that the plants do not wobble or stake the plant to avoid any kind of disturbance. In case of seedlings of *Phalaenopsis*, Vandas, a wad of moss near the root zone helps to retain the moisture to promote better rooting. In case of slipper orchids, a layer of leaf mold near the root zone helps the roots to establish faster. Growers use combination of LECA, CHC and Charcoal for growing Paphs. It is the watering which is very important and crucial in culture more than the media. Hence, if you have a tendency to overwater or wet hands, it is always advisable to go for a media which is free draining so that overwatering is avoided. A word of caution is that CHC has ability to absorb large amounts of moisture and hence it has to be used in combination with other materials.

Different containers and potting materials

Repotting is advised when the plants have outgrown the pots and when more of organic materials are used which eventually breaks down resulting in clogging of the drain holes. If you are growing the plant as a specimen and do not want to divide, then repotting in a fresh mixture boosts the growth. Sometimes an orchid refuses to put out any signs of new growth either in terms of leaves or roots, in such cases repotting in a fresh mixture may help to initiate new growth. For Paphiopedilums many growers and specialists advice repotting every year, it is left to individual grower to decide as I have not repotted my Paphs for years now, but they are doing fine.

Propagation

If you are a hobby grower and wants to have numerous flowers and a good specimen plant, then refrain from dividing unless you have to do it for other reasons. Orchids are propagated through vegetative means and also through seeds (in laboratory conditions). Vegetative methods are simple and can be done at any time when your plants are well grown and either you want to exchange or increase the numbers in your collection. Monopodials such as *Vanda, Aerides, Rynchostylis* all grow in one direction and they are propagated by top cuttings. In case of sympodial orchids such as Dendrobiums, Cattleyas, Oncidiums, you can divide and separate the plants. Let us look at the major methods of propagation of orchids

Division

It is the most common method practiced in sympodial orchids. such as Dendrobiums, Cattleyas, Oncidiums, Coelogynes, Paphiopedilums. A well grown plant with numerous suckers or well developed side shoots is selected for division. Some growers start dividing plants with few suckers which may result in setback for the growth of the plant and also difficulty in establishment of new ones. After division each plant should have at least 3- 4 pseudobulbs or suckers for better establishment. Then each divided plant can be potted freshly and kept in shade for a few days till it develops new roots.

Paphiopedilum through Division

Keikis: Keikis meaning babies, are small plantlets that develop on the canes in case of Dendrobiums. They develop leaves and pseudobulbs first and then the roots, these can be separated after they grow for about 6-8 inches with roots and can be treated as individual plants. In case of *Phalaenopsis*, the already flowered stalks sometimes develop small plantlets from the nodal region, these can be separated after they develop roots.

Keikis of *Dendrobium moschatum*

Top cuttings: This is resorted in case of monopodials such as Vandaceous orchids. Well grown plants with plenty of aerial roots are selected for top cutting and then cuttings are taken out of about one to one and half foot with 3- 4 aerial roots and planted.

Monopodial propagation

Old *Dendrobium* canes which have flowered can also be used as a propagating material. About 8 inch canes are cut and placed in a bed of moss and is provided humid conditions. The dormant buds will develop into small plantlets.

Seeds of orchids can be used as material for propagating under controlled conditions in Laboratories. The pod culture or capsule culture or tissue culture is a technique used for mass propagation of selected plant material. As orchid seeds germinate in nature with the help of mycorrhiza, in the absence of this, nutritive media is provided under lab conditions for the germination of seeds.

Right: *Phaius tankervillae* seedlings from Pod culture
Above: Seedlings of *Oncidium* in a community pot

(In the next part a detail account of common Pests and Diseases on orchids will be dealt)

Cleaning Leaves of Orchids

Sriram Kumar

Orchid leaves left in the open catch a lot of dust, dirt, and residual salts from water and also chemical residues from fungicide/pesticide, and over a period of time the leaves look rather ugly.

Keeping orchid leaves clean is an integral part of orchid care. Periodic cleaning of orchid leaves makes them look happy and pleasing to the eye.

I am not for using chemical sprays nor any expensive sprays to clean the leaves. The following is a very simple procedure to clean the leaves.

Items required

1) 10-20 ml of full fat milk
2) 200 ml of water
3) Baby wipes or tissue
4) 2 empty cups to hold water

Step 1: Mix 10-20 ml of full fat milk and 100 ml water in one of the cups and 100 ml plain water in another cup.

Step 2: Dip the baby wipes/tissue and gently wipe the upper side of the leaves in a circular motion

Step 3: Dip the baby wipes/tissue in plain water to clean the tissue before dipping it in milk solution.

Step 4: Exercise care and don't wipe with force especially on the underside of the leaves as stomata are located here.

Important points to consider

1. Wipe newer leaves first and then the older leaves to prevent any dormant fungal/bacterial spores on older leaves to spread to newer leaves.
2. As much as possible do not reuse wipes/tissues across plants as there are chances that it could enable spreading of any infections
3. Cautiously keep away any infected plants from this treatment

Other alternatives

1) Use lime juice or orange juice 1:10 in water for similar use
2) Mayonnaise
3) White Vinegar 1:10
4) Banana peals

Before treatment

After treatment

Orchid leaves can be cleaned once in a quarter or so. If cleaning is not possible, spraying a milk solution followed by water works as an alternative.

Epidendrum radicans Pav. ex Lindl.

Suresh Kalyanpur

This terrestrial orchid can be grown successfully by following a few simple rules and adapting them to your conditions. Of course, growing this outdoors will be easier, but a bit harder for those in apartments and balconies. Often called the Poor man's orchid, it is affordable and widely available; it can also be very easily propagated, yielding many plants from one stem. *Epidendrum radicans* also has the advantage of being relatively free of insects and flowers reliably throughout the year. If you are new to orchid growing, Epidendrums can give you a riot of colorful orchid blooms all year with minimal care.

Light

This is one of the most important factors for good flowering of any orchid, more so in the case of an *Epidendrum*. With too little light, the plant will become wiry and does not flower well. The level of light should be what you would give for growing Cattleyas. If you give the plant too much light, the foliage may turn yellow/reddish. Ideally it should receive some hours of morning sun, bright light during the rest of the day – best grown perhaps on a window sill or under a big tree as these are ideal conditions for an *Epidendrum*.

Water

Epidendrums, like most tropical orchids, have two seasons - a hot, wet growing period followed by a cooler, drier, flowering season. You will see new growth initiating around the beginning of March. At this time increase the water to every 3 or 4 days, keeping the plant moist but not soggy. By the end of the growing season, say around September or October, decrease the watering to a 7 day interval, allowing the plants to dry out between each watering.

Potting Media

There are a lot of options available today as potting media. However I believe that since the frequency of your watering is dependent upon the potting mix you use, you must adjust your watering schedule to suit your particular needs. For Epidendrums, use medium grade soil. Sand and perlite equal volumes and then add an equal volume of charcoal and brick pieces to ensure good drainage. With our conditions and with our watering practices, Epidendrums should enjoy an open mix. Repot every 2 years, in summer when the new growths start. Avoid using too large a pot. After potting keep plants shaded and on the dry side until new roots start to grow.

Fertilizer

It is recommended to use any brand of fertilizer with a 20-20-20 formula once every fortnight. Foliar feeding is also helpful. If you are using rain or RO water you could give your Epidendrum an occasional dose of calcium. By around October or November, you could reduce the amount of fertilizer to the plants so as to limit cane growth in the winter.

Temperature

Though most people think of Epidendrums as outdoor plants, the more recent hybrids do better with more moderate temperatures. It is suggested you try to maintain a high of no more than 28C. These plants are fairly hardy and have proven to be able to grow well under a wide temperature range.

Pests

Two pests are commonly associated with Epidendrums. Aphids and the hard brown scale are known to infest these. The latter can sometimes appear, as the flowers exude a sweet fragrance which attracts ants, which commonly carry scale. During the warm weather flowering season, aphids can quickly become a problem. Fortunately, they are easy to see and deal with. Make sure to provide plenty of air circulation and you may not even have this problem.

References: American Orchid Society; Orchid Nursery Magazine; Home Guides and Orchid Mall

NATIONAL CONFERENCE ON ORCHIDS AT SHRI MATA VAISHNO DEVI UNIVERSITY KAKRYAL, KATRA (J & K): NOTES & RECOMMENDATIONS

Dr. Sadananda Hegde
E-mail: sadanandnhegde@gmail.com.

A National Conference on **"Orchids - Science and Commerce: Integration of Medicinal Orchids, Sustainable Development and Societal Benefits**" was organised by The Orchid Society of India jointly with School of Biotechnology Shri Mata Vaishno Devi University (SMVDU), Karkyal, Katra, Jammu & Kashmir, at the Auditorium of SMVDU, on February 13-15, 2015. The conference was inaugurated by Shri A. K. Singh, PCCF, Jammu & Kashmir and presided over by Prof. Sudhir K. Jain, Vice Chancellor, SMVDU.

In his inaugural address, Mr. Singh expressed the ignorance of the people of the State about the importance of Orchids in floriculture and their medicinal usage and called upon the delegates to come out with concrete recommendations to sustainably develop this natural resource in the state of J & K and India at large. Prof. Jain, Vice Chancellor, expressed the view for validation of the medicinal properties of the orchids known traditionally in India and develop suitable package & practice through scientific intervention for the benefit the Society.

The conference consisted of invited lectures by experts in the respective field of specialization in Orchids and divided into four Technical Sessions, viz. I. Orchid Diversity, Assessment and Taxonomy, II. Orchid Biology & Ecology, III. Propagation, Improvement and Conservation, and IV. Medicinal Importance, Commercialization and Societal Benefits.

The conference highlighted the orchid diversity of India in various phyto-geographical regions and emphasized the need for systematic & correct identification of species to avoid ambiguity in the names for breeding and medicinal usage. Importance of cytological, phyto-chemical and DNA bar coding technique was emphasized besides taxonomical information based on field and herbarium data for correct identification of our orchid resources. Although there are about 1,350 species of orchids in India, distributed in various phyto-geographical regions, only about 200 species are considered ornamental which could be utilized in breeding, improvement and floriculture.

It was noted that there is a need for taking cognisance of the ecological and environmental conditions for growing commercial orchid crops. Based on the scientific trials, suitable crops for various States and UTs are to be recommended. In this venture, ICAR organizations (ORC Pakyong, Sikkim, IIHR Bangalore) and Agricultural Universities (Kerala, Karnataka, Assam, West Bengal, Sikkim) have a major role to play besides concerned government agencies and NGOs for extension programs to reach to the growers/farmers/entrepreneurs. Appropriate package & practice of growing commercial orchids like Cymbidiums in temperate region, Vandas & Dendrobiums for tropical region and Paphiopedilums, Cattleyas, Phalaenopsis, etc. for the intermediate climatic conditions should be developed and recommended. R & D organizations in the country should prioritize their research works based on the above criteria to reach to the growers/farmers/entrepreneurs.

In the ancient systems of medicines like Ayurveda & Siddha, numbers of orchids have been used as ingredients, besides, the ethno-botanical usage of nearly 200 species by various communities in the villages. It has been noted that many of these medicinal orchids have not been validated for their active ingredients/chemical components and require systematic study and clinical

evaluation. Further, there is a need for standardising technique of growing and propagation of many of these medicinally important orchids, especially tuberous/rhizomatous ground orchids like, *Cremastra acuminata, Dactylorrhiza hatagirica, Eulophia nuda, Habenaria species, Malaxis, Orchis,* etc. which have been used as important ingredients in Chavanaprash and other Ayurvedic formulations. The conference noted, tissue culture protocols are to be standardised both for commercial propagation and rehabilitation in the wild habitat for conserving them as they have been extensively exploited from their natural habitat and are threatened of their existence. Extensive work in tissue culture work is being carried out in Punjab University and SMVD University, Katra.

The conference emphasized the need for bar-coding of all the ornamental and medicinal orchids in India to protect the IPR of the traditional practitioners. Good work in this direction is carried out in Delhi University. Other Universities and R & D Centres need to take up such works in a coordinated manner to achieve development of orchid based commercial enterprises.

Noting the dwindling orchid resources in their natural habitat due to various developmental activities and over exploitation for ornamental and medicinal purposes, it was emphasized that Orchid Reserves and Sanctuaries are created in "Biodiversity Hot Spot" Areas of our country, especially in the Western Ghats and the Northeast Regions. Exhaustive case studies on Western Ghats, Western Himalayas and Northeast region were presented suggesting the need for conservation *in situ* and *ex situ.* Good work is being carried out by the Botanical Survey of India, Pune, G.B.Pant Institute for Himalayan Environment & Development, Himachal Pradesh, Kashmir University, Kashmir and Orchid Gene Conservation Centre, Senapati, Manipur.

In my talk, I highlighted the challenges in conserving the orchids in the Western Ghats of Karnataka where, about 176 species are reported to occur with about 65 species being endemic and five species found only in Karnataka. Causes of depletion – like deforestation, plantation of exotic species like Mangium & Eucalyptus, Hydro electric projects, Irrigation dams, roads, urban development, natural fire, flood, etc. have destroyed the orchid habitat. Existing Orchid Centres also have not been maintained adequately. There is no involvement of local communities while implementing the projects and thus there is resistance and agitation for any development or conservation initiatives. Even the Gadgil Expert Committee Report and Kasturirangan Reports on Western Ghats Conservation and Development have been opposed, besides opposing the recognition of The Western Ghats in the "World Heritage List". Hence, implementation of Biodiversity Protection Act of GOI should sincerely be implemented which provides for the involvement of local communities and protects the traditional rights of the indigenous people. In the Biodiversity Village Committees, provision for creating Village Orchid Reserves could be incorporated along with establishing growing orchids as a floriculture activity supplementing their economy. Development without destruction or Sustainable development involving the communities with societal benefits must be the criteria for any conservation program which would avoid tug of war between communities and the government or the conservationists. Hence, it has been recommended to adopt the policy of developing Orchid Reserves and Sanctuaries in the Orchid rich areas with in Western Ghats and Northeast region and submit the proposal to the government of India to establish the same in the pattern of Tiger Reserves with adequate support to the State Governments concerned.

Besides the above, there were interesting poster presentations on pollination biology of *Phaius tankervillae*; four different colour variants in the same population of *Vanda tessellata* and production of offshoots from roots in *Vanda tessellata*; Conservation status of orchids of Western Ghats; Micropropagation protocols for *Dactylorrhiza hatagirica, etc.* Painting Competition for

School children, College students and PG students added colour and created awareness among the local public. Orchid cut Flower exhibition highlighted the floriculture potentials.

Such conferences certainly help train the young researchers to take up new challenges for development and conservation of orchids and create awareness on orchids and their potentials in trade. This is also a good platform for discussing the various issues relating to orchid biology, conservation and development; besides appreciating the nature's marvel – the Orchids.

LET US CONSERVE, CULTIVATE AND PROPAGATE ORCHIDS.

My journey towards conservation:

Propagating orchids from tissue culture/ flasks

Srinivas Garudachar

Agenda

Overview of types of orchid propagation

Micro propagation Tissue culture (from explants)

Process of propagation through culture flasks

Note/disclaimer/acknowledgements:

- I am no expert in the field. Have very little “qualifications” in botany or wildlife.
- Presentation based on first hand experiences of 7-8 yrs of raising orchids by this method.
- There may be other alternate materials and approaches.
- Happy to discuss, share and learn.
- Key is to grasp concepts and extrapolate, use imagination.
- Thanks to Dr Shashidhar for sharing materials and advice.

Propagation is a means of keeping the plants healthy and produce new stock

Orchids can be propagated in several ways depending on their growth habit

Propagation –a few ways – ***vegetative, seed and tissue culture***

Vegetative propagation is common, easy, popular and can be done with minimum facilities : The numbers of plantlets offsprings obtainable are minimal (1:1)

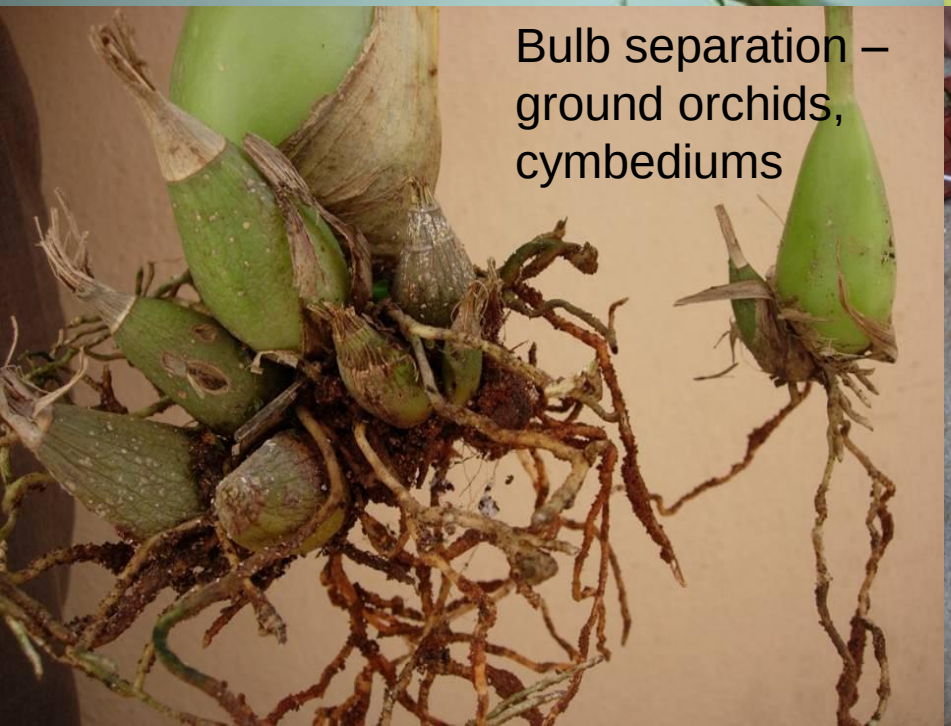
For ***massive multiplication***: seed culture and tissue culture are best methods… eg resulting in cloning

However, this entire artificial process to set up from scratch is expensive-

But we can take *advantage of flasks being available in retail-* to raise new plants in reasonable numbers: process is still long drawn out and taxing on the patience, but can be fun and great learning experience for the enthusiast…

Pains and Pleasure : Akin to raising a baby or a pet!


Den keikis


Bulb separation – ground orchids, cymbediums


Stem cuttings eg arachnis, vanda, epidendrum

The second method is through seeds..

In nature, orchid seeds germinate through a process of symbiosis with mycorrhiza (type of growth accelerating fungus) because…

- Orchid seeds are non endospermic – without nutritive tissues
- Orchid seeds have only embryo
- Seeds need nutrition for its germination – achieved through mycorrhiza

Seed culture or propagation through seeds can be achieved by…..

i. Natural, symbiotic method (as it occurs in nature)

- can be done by sprinkling the seeds over the prepared surface of a mother plant – possibility of the association and chances of small quantity germinating

Natural germination of *Spathoglottis plicata*

ii. **Artificial or asymbiotic method (tissue culture)**

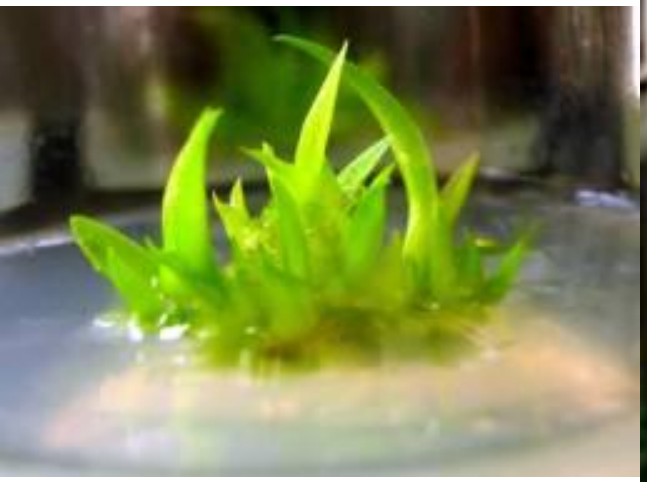
- **Involves sowing the seed or "explant" (eg bud, root, stem, leaf) in a sterile, nutritive media (agar gel) to get clones**

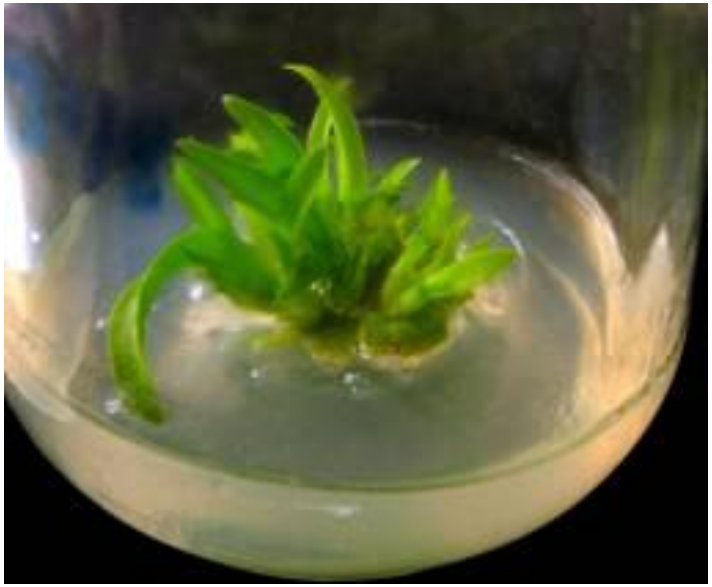
Need for artificial micro-propagation and advantages

- *Great demand for orchid plants*
- *Maintains true to type*
- *Plants will be free from diseases*
- *Method of conserving the orchids*
- *Pod culture helps in maintaining genetic diversity*

•However- this process in whole is quite expensive for the hobbyist
•Involves laboratory investment and complicated processes, far out of reach to the individual, and yields literally lakhs of plantlets/seedlings (in flasks)
•However because of the volume nature of the biz, it is possible to buy flasks containing rare and quality species at relatively low cost/per plant
•Great way for a hobbyist to experience nurturing and growing plants from the very beginning.
•Also excellent for conservation of natural species in wild…does away with need for poaching from the wild

Plant and flower of
Phaius tankerville
(nun orchid)





Plantlets of phaius and Cattleya

Plantlets of Phalaenopsis hybrid

What does it take to take advantage of tissue culture flasks and to turn these into the flowering plants, we all so covet?

THE MATERIALS REQUIRED

*Sealed Flask containing tissue/seed culture plantlets in agar gel

*Potting materials:

1. Small sized netted pots (allows drainage/ aeration)/ small regular plastic or earthen well drained pots
2. Clean Brick pieces (to retain moisture)
3. Charcoal pieces (to balance the humidity, provide support to roots)
4 (Optional) Moss / cocopeat/coco husk… maybe used at a later stage

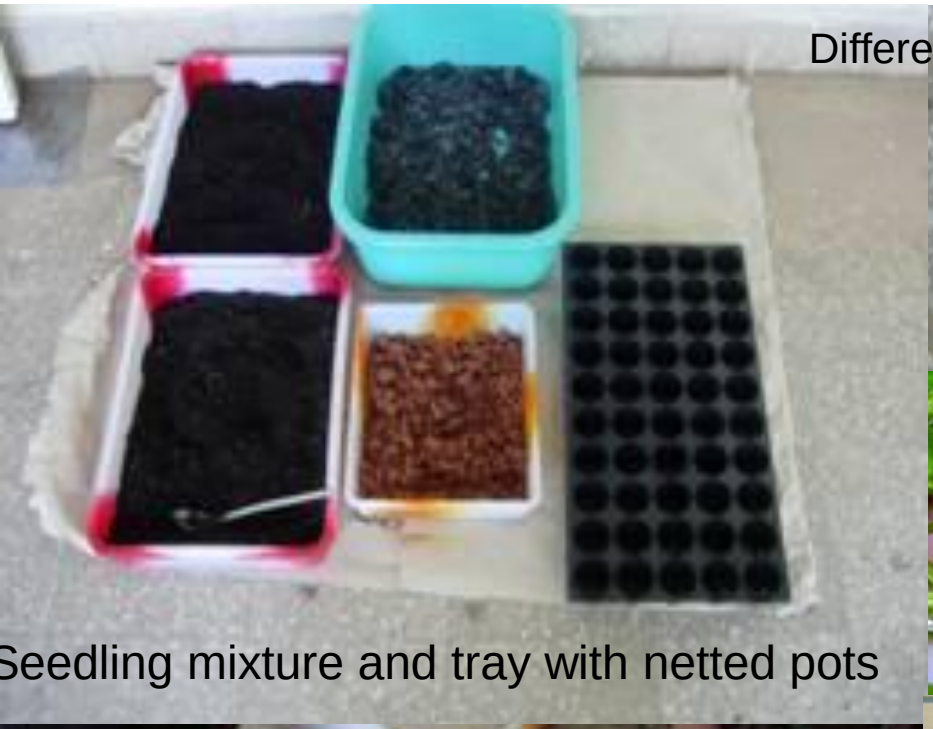
*Bavistin (fungicide) (have used neem oil also!)
*A couple of buckets & running tap water
*A Hardening chamber/ greenhouse (I have improvised with a fish aquarium) which was obtained from a pet store.
*A transparent glass lid/cover for chamber
*A few bricks to form the bottom absorbent layer

PREPARATION :

Ensure that all materials being used are first sanitized/sterlized in boiling hot water
Allow these to cool to room temperature
Ensure that all operations are conducted in a cool, clean and dry surrounding

DEFLASKING & HARDENING PROCESSES

• Break open the jar carefully, separating the glass from the plants
• Plantlets with well developed shoots and roots to be taken out of the jars
• Wash the plants thoroughly under tap water to remove the agar gel completely
• Keep the plants dipped in a weak Bavistan soln /disinfectant
• They are planted in trays / individual pots with well drained media
• Media: brick and charcoal pieces in lower half of pot, plant inserted delicately on top, embedded within the coco peat or coconut husk pieces or even moss
• Place the plants so potted, in the hardening chamber & cover it up
• Ensure that the chamber doesn't get direct sun light or heat
• Spray water frequently, ensuring that there is no sogginess around the rots
• Esp in case of vanda and phalenopsis, make sure that water doesn't stay on the "crown" …risking rot
• DO NOT spray any fertilizer at this stage



Seedling mixture and tray with netted pots

Different Genera Seedlings at the time of washing

Bavistin treatment

Bulbophyllum seedlings in hardening chamber (very fine roots)

TRANSPARENT GLASS AQUARIUM ACTING AS A GREENHOUSE/ HOT CHAMBER

• Trays kept in green house with temperature of around 26 C and humidity of 95 percent with for a few months.
• Gradually,the humidity is brought down in a phased manner to the ambient conditions
• During this period, spraying of water is resorted to maintain humidity.
•Simultaneously, the greenhouse is opened to atmosphere- with duration lengthening over time
• After this the seedlings are brought out and repotted
•Care should be taken to ensure that ambient conditions are favourable when exposing the plant
•Esp in Bangalore, using moss at this stage would help in maintaining humidity





Trays kept in hardening unit under controlled conditions

Various Post-Hardening stages (6 mos- 2 years)

Currently in bloom (Feb ‘13)

Cattleya (BLC) specimen (~7 yrs), started flowering 3-4 yrs back

Cattleya (BLC) specimen (~5 yrs), started flowering 2-3 yrs back

7 year specimen flowering annually for last 3 + years

Vanda coerulea x vanda sanderiana

Vanda sanderiana (flowered twice this year in space of 6 mos)

Started flowering 5 yrs after deflasking

Rhynchostylis Gigantea

Rhynchostylis gigantea (Pink var)

Brassavola Nodosa


SPATHOGLOTTIS FROM WYNAD, KERALA


SPATHOGLOTTIS


Den primilinium


Dendrobium aggregatum


Den primilinium and Den aggregatum


Aerides odorata


vanda velthuis


Eria flava


Eria flava


Paphiopedilium spiceranum: Geographic Distribution::Bhutan,

My Orchid Species Pictures

Many of these have been grown from tissue culture flasks

For viewing full pictures…please go to below link

https://plus.google.com/photos/112490990837812780961/albums?banner=pwa&gpsrc=pwrd1#photos/112490990837812780961/albums/5537451413120561473

Rhychostylis Gigantea spotted

Paphiopedilium exul

Paphiopedilium exul

Pomatocalpa spicata

Epidendrum

Haemaria discolor is native to Indonesia and Burma. Jewel

Jewel orchid: note the incricate design and colours of the

Den candidum: this scented flower appears almost uncannily

Pomatocalpa spicata

Pomatocalpa spicata

Dendrobium pierardii

Vanda coerulens

Dendrobium pierardii, shorn of its leaves exhibiting the flower

D secundum : Flower Size to 1/2" [to 1.25 cm] This semi-pend

Paphiopedilium exul

Bulbophyllum medusae- Scented flower, small sized, warm to

Brassavola nodusa spikes closeup- growing on the bottlebrush

variant of vanda sanderiana

The Dendrobiums

Nalini Kottolli

Dendrobium is considered the second largest genus of orchids containing about 1,500 species. The first being *Bulbophyllum*. Dendrobium was first described by the Swedish Botanist Olof Peter Swartz in 1799. The name *Dendrobium* means "that which grows on trees" so the majority of Dends are epiphytes although a few lithophytes are also known to exist.

It is widely distributed in Asiatic tropics in India, Burma, Thailand, the Philippines, Sumatra, Australia and Polynesia. Because of their vast natural habitats, Dends are broadly categorized into Cool-growing and Warm-growing species.

They are also highly variable in their size and shape. Some can grow as tall as 10 feet while there are some Dends which need a magnifying glass to detect their blooms.

There are great variations among the species. Hence it is difficult to describe a typical *Dendrobium*. Generally the plants possess thickened pseudo bulbs, but the majority of the *Dendrobium* species have stems of varying height without any pseudo bulbs. Their long erect or pendent stems are called Canes. The leaves too vary in size and shape.
The blooms too come in a wide range of colours – from white, cream, yellow, orange, pink, red, lavender, purple, blue and all possible mix of any of these colours. Flowering shoots arise from the upper portions of the canes.

Dendrobiums can thrive happily in small containers and therefore they do not need much repotting.

I don't want to probe into the botanical details as this article is meant for hobbyists. I will list some of them which I am growing.

Dendrobium aggregatum Kunth is a pretty, dwarf, evergreen plant with single-leaved clustered pseudo bulbs which are 10 cm. long. Flower spikes are slender, drooping with 6-12 flowers, 5cm. across. Flowers are bright yellow with a dark orange-yellow lip. Flowers last for about 10 days. Flowering period is March-April. It can be grown mounted on bark.

Dendrobium amoenum Wall. ex Lindl.: A very charming orchid with slender, pendulous stem slightly thickened at nodes, about 60cm long with thin leaves. Inflorescence with 1-3 fragrant flowers have whitish petals with violet tips and lip is greenish yellow. June is the flowering period. This is best grown mounted to have a natural fall of the stems.

Dendrobium crepidatum Lindl. & Paxton: Also commonly known as Shoe lip orchid has a thick drooping stem, strongly jointed and thickened upwards about 30 cm long. Flowers are small about 2-5cms, borne in pairs in short clusters, at the nodes. Sepals and petals are white, tipped with pink; the deep yellow lip is roundish. Flowering period is April-May.

Dendrobium chrysanthum Wall. ex Lindl.: It grows tall up to 90cm with a dark green slender stem, having small deciduous leaves. Flower spikes have 4-6 rich yellow flowers with brownish purple spots from the nodes; lip with two red-purple blotches. Flowering in July-Oct. The mature plant with several stems covered with golden yellow flowers look very beautiful.

Dendrobium chrysotoxum Lindl.: Also known as Fried Egg orchid or Golden-bow Dendrobium is a very colourful orchid with clustered, furrowed pseudo bulbs, 30cm tall with deep green shiny leaves. The flower spike comes from the top of the stem bearing 10-12 bright yellow flowers with roundish lip, nicely fringed with orange-yellow disc. Blooms in March-May and the flowers last for 2-3 weeks.

Dendrobium densiflorum Lindl.: It is an evergreen orchid with four angled pseudo bulbs slightly swollen at nodes, 30cm long. It has pendulous spikes with densely crowded blooms arising from the top of the pseudo bulbs which last for a week. Flowers are roundish with pale yellow sepals and petals; the lip is rich orange-yellow. Flowering in April-May.

Dendrobium farmeri Paxton: named after W.S.G. Farmer - the then Director of Botanical Gardens of Calcutta resembles *Dendrobium densiflorum* in its habit. The pendulous spike is produced from the tip of the leafless pseudo bulbs. Pale mauve and yellow flowers are produced in April – May.

Notes on North-Eastern Dendrobiums – By Suresh Kalyanpur

Many of our members have recently been trying their hand at growing the NE species of Dendrobiums in their collections. As we know, these plants by their very nature go through a period of hibernation during the winter months. Some of the plants that come to mind are *D. anosmum, D. aphyllum, D. bensoniae, D. chrysanthum, D. crepidatum, D. densiflorum, D. devonianum, D. falconeri, D. fimbriatum, D. heterocarpum, D. lituiflorum, D. nobile, D. parishii, D. primulinum, D. pendulum, D. secundum, D. thyrsiflorum, D. transparens, D. williamsonii* to name a few.

If you have put your plants through the period of winter rest - and hopefully sprayed/watered them once in 7 to 8 days to keep the pseudo bulbs from shrivelling and dehydration - you will very soon notice that on the leafless stems, small buds will soon start making an appearance. Within a few weeks the buds will yield beautiful flowers, something we have all been waiting for a year long. In my collection the *Dendrobium pendulum* (earlier known as the *Dendrobium crassinode*) has already thrown up beautiful flowers. It is a joy and a reward for the patience and the effort all of you have put in these past few months.

The purpose of my sharing this little bit of information is to share with you how to go forward from this stage. As long as the buds/flowers are present keep the earlier schedule of spraying/watering the plants once a week. Once the flowers fall you can then resume watering the plants regularly with the weekly or bi-weekly dose of fertiliser to help and encourage new growth. Keep this practice going till the onset of fall or shall I say the month of October when the leaves again start turning yellow and falling off.

Till then enjoy your flowers and happy growing.

What is in a Name? – Naming of Orchids

K. S. Shashidhar

As you and I have names, orchids also have names. We have all come across and probably experienced ourselves that when we begin our collection, names of most of the orchids will not be known to us, even though it has one. When somebody asks you what comprises your collection? The answer may probably be "I think some Dendrobiums, few Cattleyas and some plants with grass like leaves with yellow flowers or red flowers with spots." If the orchid is able to express itself then it will shout at you, 'Hey man I have a full name, why don't you get it properly?' Yes, the orchid is very correct, just as we don't have any right to call a person other than by his or her name, we should also be taking proper note of every orchid's name. I know it will be difficult for a beginner to know the correct names, and it is also true that the species numbers and the hybrids are far too many, nonetheless, we should try to learn the names and keep track of them because we are growing orchids. It is only a matter of time before you get used to it.

Orchids can be grouped broadly into two categories: the Species, which are naturally occurring in the wild and they have both generic and specific epithets; the Hybrids which are man made have a generic name and the hybrid name.

This article will be incomplete if a basic explanation about the binomial nomenclature is not introduced. Carolus Linnaeus - the Swedish botanist - in his work Species Plantarum published in 1753 introduced the binomial nomenclature – that is giving two names to one plant or organism; one name for genus and the other for species. Both these could be Latin names or at least one of them always is. The first part of the two names is that of the genus – a genus comprises of a group of plants with similar characteristics. The genus name is in Latin and the first letter is always in capital such as '*Dendrobium*'. The second part is the species name or specific epithet, referring to plants with similarities within a larger group and with many characters similar to the genus. The species name is always in a lower case such as '*densiflorum*'. Both the names are in italics. Some of the examples are *Paphiopedilum insigne*, *Phalaenopsis mannii, Vanda coerulea*. The species name generally indicates a place from which the orchid was sourced such as *himalaicum* from Himalayas, or a person who has found the orchid such as in *Vanda denisoniana* named after Lady Denison a British Orchid enthusiast. Sometimes the characteristic of the orchid plant also is shown in its name for example *hirsutissimum* indicating the hairy nature of the orchid. Names also have been given after well known botanists, collectors and patrons of collectors such as: *Dendrobium hookerianum, Phaius wallichii, Phaius tankervillae, Paphiopedilum druryi, Arachnanthe cathcartii, Arachanthe clarkii.*

Names like *Oreorchis indica, Bulbophyllum singaporeanum, Cypripedium himalaicum and Taeniophyllum khasianum, Anoectochilus sikkimensis* are named after the places where they grow.

Next to genus and species comes variety, which is a variant in wild differing in growth habit, size etc. For example, *Dendrobium fimbriatum var. occulatum, Dendrobium nobile var. Alba*

Instead of going into more technical details, let us look into some interesting facts about the names of the orchids and how they originated. Trust me, it is not only interesting but quite meaningful too. The famous lady slipper orchid derives its name from the peculiar lip and was given the generic name as *Cypripedium*, meaning 'virgin' 'foot'. Later Pfitzer, a German orchidologist changed the generic name as *Paphiopedilum* referring to the Greek god Venus and pedilum refers to the foot. *Epidendrum*, was a group under which most of the Indian orchids were grouped by Linnaeus. *Epidendrum* means 'on the tree' referring to the epiphytic nature of the orchids. *Coelogyne*, the

generic name was given by Lindley to orchids whose flowers have a hollow column. *Dendrobium densiflorum* is named after the dense inflorescence. *Vanda coerulea* is named after its blue coloured flowers. *Vanda teres* describes the cylindrical branches and leaves. *Cymbidium elegans* after the elegant flower bunches, similarly *C. grandiflorum* is due to its large sized flowers. Some more are described below.

1	*Renanthera*	From the Latin word Renes meaning Kidney and anthera meaning anthers, referring to the kidney shaped flower.
2	*Oncidium*	From Greek word onkos meaning barb or hook referring to the swollen callus of the lip
3	*Vanda*	From Sanskrit word referring to Vanda orchids as epiphytic nature
4	*Disa*	After the mythical queen Disa of Sweden, who appeared in fish net before king of Sveas – the seeds have a netted appearance.
5	*Paphiopedilum*	From the Greek Paphio (Aphrodite whose main place of worship was on the island of Paphos) and pedilon meaning shoes/sandals
6	*Cypripedium*	Described by Linnaeus in 1753, from the Greek word Kypris meaning Venus and Pedilon meaning sandals/slipper
7	*Goodyera*	Named after John Goodyer a 17th century botanist
8	*Anoectochilus*	From the Greek word anoiktos meaning open and cheilos is lip
9	*Habenaria*	From the Latin word Habena meaning rein or strap, referring to the shape of rein of orchid's spur
10	*Platanthera*	Refers to the Flat or wide anthers
11	*Orchis*	Resemblance to the shape of a testicle
12	*Vanilla*	From Spanish word meaning little pod
13	*Thunia*	Named after count Thun-Telschen – orchid collector
14	*Arundina*	From the Latin word Arundo meaning reed like
15	*Calanthe*	Meaning beautiful flower
16	*Coelogyne*	From the Greek word Koilos meaning hollow and gyne refers to female
17	*Pleione*	Named after Pleione mother of Pleiodes in Greek mythology
18	*Brassavola*	Named after Antonio Muso Brassavola – a 16th century Venetian Botanist
19	*Cattleya*	Named after William Kattley, the 19th century Englishman who imported the plant from Brazil
20	*Laelia*	Named after one of the vestal virgins
21	*Schomburgkia*	Named after Sir Robert Hermann Schomburgkia, 19th century German born British explorer who discovered Victoria amazonica - water lily
22	*Epidendrum*	From the Greek word Epi meaning upon and dendron meaning tree referring to the

		epiphytic nature of the plant
23	*Brassocattleya*	Combination of Brassavola named after Wiliam Brass and Cattleya named after William Kattley
24	*Eria*	From the Greek word Erion meaning wool referring to the wooly appearance of the flowers
25	*Dendrobium*	Coined by Swartz in 1799, from the word Dendron meaning tree and Bios meaning life – Tree of life
26	*Bulbophyllum*	Described by du Petit-Thouars in 1822, from the Greek word bolbos meaning bulb and phyllon meaning leaf, referring to the leaves growing from pseudobulbs
27	*Phalaenopsis*	From Greek word Phalaina meaning Moth and opsis meaning like
28	*Aerides*	From the Greek word meaning wind
29	*Rhynchostylis*	From the Greek word Rhyncho meaning beak and stylis meaning small pillar, referring to the beaked column of the plant
30	*Arachnis*	From the Greek word Arachne meaning spider referring to the spider like flowers
31	*Ascocentrum*	From the Greek word Ascos meaning bag/sac and centrum meaning centre or spur
32	*Acampe*	From the Greek word Akampes meaning inflexible/brittle and refers to the brittle flowers
33	*Cymbidium*	From the Greek word Kymbe meaning boat referring to the hollow recess in the lip of the flower
34	*Grammatophyllum*	From the Greek word Grammen meaning grass and phyllon meaning leaf
35	*Eulophia*	Good or beautiful flowers
36	*Stanhopea*	Named after Rt. Hon. Philip Henry Stanhope, 19th century President of the London Botanical Society
37	*Brassia*	Named after William Brass, 18th century English Botanical illustrator and botanist who may have collected from Africa for Sir Joseph Banks
38	*Odontoglossum*	Meaning toothed tongue
39	*Masdevallia*	Established in 1794 by Ruiz and Pavan named after Dr. Jose Masdevall, Spanish Physician and botanist of 18th century

Naming of Hybrids

Hybrids are produced by crossing different species and genera. Orchids are known to breed easily within as well as between the genera. Depending on the number of genera used, each genus is added to the name of the new orchid. Crossing *Cattleya* with *Laelia* produces new generic hybrid *Laeliocattleya* and further crossing this with genus *Brassavola* will produce a generic hybrid called *Brassolaeliocattleya* and often abbreviated as *'Blc'*. Some of the other examples are, *Ascda* for *Ascocenda* a hybrid of *Ascocentrum* and *Vanda*. Bigeneric hybrids are also common such as *Laelia x Sophronitis* known as *Sophrolaelia (Sl)*, *Moirara* is a trigeneric hybrid with *Phalaenopsis x Renanthera x Vanda* and named in honour of W.W. Goodale Moir

At times more than three genera may be involved in producing a hybrid, name given to the hybrid may be of the person who registered it first and it normally ends with words adding 'ara' to the name. Example: *Beallara* (or *X Beallara*) is a hybrid of *Brassia x Cochlioda x Miltonia x Odontoglossum* and the hybrid is registered by Beall and is abbreviated by *Bllra*.

Some intergeneric crosses are given completely new names than what is mentioned above, some examples are, *Potinera*, a hybrid between *Brassavola x Cattleya x Laelia x Sophronitis*. *Christieara*, is a hybrid between *Aerides x Ascocentrum x Vanda*.

Differentiation of hybrid genus from the natural genus is done by prefixing an 'x 'in the hybrid name. All hybrids produced are to be registered with Royal Horticultural Society to make it official.

Pictures of some of the orchid species

Reference:

Shashidhar, K. S., 2012. Beginners Guide to grow Orchids. Pub: International Book Distributors, Dehradun.