



# TOSKAR NEWSLETTER

A Quarterly Newsletter of the Orchid Society of Karnataka (TOSKAR)  
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THE ORCHID SOCIETY OF KARNATAKA  
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## TOSKAR NEWSLETTER

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*Paphiopedilum fairrieanum* (Lindl.)  
Stein  
by Dr K. S. Shashidhar

### *From the Editor's Desk*

21<sup>st</sup> December 2017

### **Greetings for a merry Christmas and a Happy New year to all my friends!**

Well the show has come to an end and so also with that the year of 2017. I am told that it was yet another fantastic orchid show for the orchid lovers from Bengaluru and also the visitors. I really missed it, as I was away and requested Dr. Hegde to brief all the people who missed with a note and pictures. Thanks Dr. Hegde. Organizing a show is a humongous task, it is not only logistics, there are umpteenth issues to be coordinated and put together on time. Well, the team has done it again, once again congratulations for the entire team to have done it successfully for the fifth time. TOSKAR has successfully created interest amongst the hobbyists and which is also one of its objectives.

Winter has really set in here, for the last fortnight (from Dec 10 onwards till now) the night temperatures are hovering between 12-14 C. In a way this is good for species from North East as they need cool and dry nights, hopefully Bangalore growers should be happy with this. Among the few tips to take care of your orchids during winter is go slow on watering. Check on the seasonal requirements of your orchids as some species need either partial or complete dormancy. If this is not provided it will affect flowering. Another important factor is the cold draft and this might result in bud blast. Many of you may be eagerly waiting for your prized *Paphiopedilum* bud to open and next morning it is gone. Take care about this as this winter is more chill due to drafts.

Of late we have been seeing plenty of lists of orchids species and hybrids in circulation through our phones, mails etc. My suggestion is please do some research before you buy any orchid, all orchids look very attractive and tempting to possess, but make sure the conditions where you are growing suits it. This will prevent from losing not only the plant but substantial price you paid for it, they are expensive!!!

Few of us are always talking about the hobby we are all pursuing – orchid growing, we feel life was much easier, simple and enjoyable when you have few orchids and REALLY TOOK CARE of each of them, but fortunately or unfortunately we have been sucked into the whirlpool of orchids and (though enjoying) the collection is ever growing with most of us. Of course, I also fall into this category.

This issue is slightly delayed for some reasons, but never the less, we wanted it to be posted as early as possible. This issue contains a nice article on *Coelogyne speciosa* from Ms. Bala of Kew gardens, who has been a regular contributor to our news Letter and we thank her for

enriching our NL with her immense experience of orchids. Benefits of DNA bar coding of orchids in India, has been explained by Dr. Deepti and Sri. Manjunath in their article. I have briefly brought out the appealing foliage and beauty of Jewel Orchids. Ms. Nalini has an interesting note on organic feeds for orchids. We have details about the show and pictures of the dignitaries and also some of the exhibits displayed. Overall, we have a New Letter which has something interesting for the readers. Any suggestions on this is most welcome.

Wish all the readers a Happy New Year – 2018 with adding more to your collection. **Keep Calm and Buy orchids.** Happy Orchid growing.

Dr. K. S. Shashidhar  
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## Care and culture of *Coelogyne speciosa* (Blume) Lindl.

Bala Kompalli M.Sc., RBG, Kew

This beautiful orchid comes from SW. Malesia (Java, Malaya, Borneo and Sumatra) growing as an epiphyte or rarely terrestrial in lower montane forests and semi-open areas. It occurs in both wet and dry habitats. *Coelogyne speciosa* (Blume) Lindl. can be seen around 760-2000 m altitude range.

This is an easy growing orchid species tying it horizontally on a flat bark (Oak bark is preferred), in wooden slated hanging baskets or in pots. Free draining potting medium with components like fine to coarse graded bark, pumice stones and some charcoal added to it works best. For wooden slated baskets, stuffing sphagnum moss in the gaps of the basket will help in retaining the moisture for little longer and keeps the roots hydrated.

*Coelogyne speciosa* (Blume) Lindl. flowers all most round the year once settled and starts growing well can produce 1-3 greenish-yellow to pale pink flowers in each inflorescence usually, with lip red-brown or dark brown with a white apex: column white.

Watering them more often when the new pseudobulbs are in growth and adding some chopped living sphagnum moss to the medium will encourage the bulbs to grow quicker and larger while the leaves glossy. Watering should be reduced when the pseudobulbs are fully grown and during cold winter months but a fine foliar mist spray once or twice a day ensures the moisture. Water should preferably rain water or reverse osmosis water with conductivity around 50-60  $\mu\text{S}$  (microsiemens) and feed with weak NPK solution round the year about 500  $\mu\text{S}$  with pot feeding once a week and foliar misting twice a month will encourage good flowering.



*Coelogyne speciosa* (Blume) Lindl.



*Coelogyne speciosa* flower



*Coelogyne speciosa* potted

## Jewel Orchids and their appealing foliage

K S Shashidhar

It is a well-known fact that orchids are recognized for their exotic flowers in every form, shape and color. Indeed, one may think it is bizarre to talk about orchids as foliage plant!! But, little is known about the attractive foliage of some of the orchids where flowers could be secondary. In fact, growing orchids for foliage could be against the spirit of orchid growing as unanimously orchids are grown for their fantastic flowers. I am sure many of you agree that orchids for foliage is not normal. Almost all of the jewel orchids are intricately beautiful and makes any body interested with their most attractive foliage. This appealing foliage makes them as a potential foliage plants. At the same time many of them have both characteristics of striking foliage and beautiful flowers. With the known orchid numbers of 27,135 (out of which 18, 814 are epiphytes identified species of Orchids, there are some who have appealing foliage and attractive flowers. Earlier in 60's and 70's there was some interest in growing these jewel orchids but now it has been sidelined and very few are interested. But it appears that the interest is picking up again as there are some fantastic hybrids are being produced.

Well known orchid expert Harold Koopowitz coined the term "jewel and painted leaf orchids'. One of the common jewel orchids all of us start is with *Ludisia discolor* (earlier known as *Haemaria*). The jewel orchids comprise of some of the terrestrial species belonging to the subtribe Goodyerinae and most of them are from South East Asia and Pacific Islands. These grow on the damp floors of the jungles with plenty of humidity, shade and amidst leaf litter. The pattern on the leaves appear almost like the nature had time to sit and paint each of the leaf. Different genera exhibit contrasting colours of leaf and veins with fantastic appeal. The most common of the jewel orchids is *Ludisia* which is there for quite some time under cultivation. *Ludisia discolor* also known as *Haemaria discolor* is the common cultivated one. There are variations in the leaf color and the vein colors ranging from var *nigrescens* to var. *alba*. Some of the common genus under this group is *Ludisia* (*Haemaria*), *Macodes*, *Dossinia*, *Goodyera* and *Anoectochilus*.

Let us get to know briefly about these different genera and their culture.

**Ludisia.** Ludisias are known as Haemarias earlier. They are the most commonly cultivated of the jewel orchids. Easy to grow one. **Distribution:** *Ludisia* is widely distributed from Northeast India, across southeast Asia, northward into southwest China, and southward through Malaya into Indonesia. In China, in the Provinces of Yunnan, Guangxi.

**Habit:** Ludisias generally are small plants either lithophytes or terrestrial with a creeping habit. They do not have any pseudobulbs and have red color stems. They produce



flowers in winter with a spike bearing several white flowers. There are some reports of the flowers being fragrant. The inflorescence is a treat to watch in a specimen plant with numerous spikes. It is reported that the newly cultivated var. *nigrescens* 'Ámbrosia' is fragrant. *Ludisia* has velvety foliage with a bronze green hue and parallel rosy red veins the *alba* form does not have the red pigment and thus has pale green to silver color veins. The *nigrescens* form has much darker leaves with single midrib.



**Light:** The *Ludisia* grown in dappled light of 800-1500 fc with very diffused and filtered light. It should not be exposed to direct sun. They like good aeration all the time. They prefer a day temperature of maximum of 27° C and a night temperature of 20-22°C. As their natural growing conditions being heavy rainfall throughout the year except 3-4 months. Plants under cultivation needs lots of water while growing and humidity levels of 50-70 %. The media should not become soggy or stale. During winter the plants cannot tolerate very low temperatures, it prefers a low of 10-12°C. They need watering but allow dry between watering in winter.

**Fertiliser:** Under cultivation it is advised to use one fourth or half of the recommended dose of a balanced fertilizer. But one can also go in for high Nitrogen during the growth period of spring and summer and then switch over to high phosphorus.

**Media:** Plants under cultivation is generally grow in a porous well drained media with the bottom line being good drainage. Range of media used varies from compost based media with porous material, and some in a mixture of bark, perlite and shredded moss. Charcoal is also used. Depending on the media watering should be done. As some of them have a creeping habit, it is preferred to use a shallow pan type container. Repotting the plants should be done when new growth starts and the plants are overgrown in the pots or there is a breakdown of media.



**Propagation:** Can be done by cuttings planted in a well-drained moist media and big plants can be divided and repotted.

**Macodes :** It was named in 1840 by Lindley in "Genera and Species of Orchidaceous Plants" and this is one another most popular jewel orchid genus. It has about 11 reported species. Of these *Macodes petola* is a popular species with its green leaves and contrasting shining veins. *Macodes* is also closely related to *Ludisia* and *Goodyera*. The name *Macodes* is derived from Greek word, *Maccros* meaning long due to elongated mid lobe of lip. It is distributed throughout Malaysia, New Guinea, Philippines, and Sumatra. Reports are available that this plant grows in damp forests without long dry season. Produces small flowers with numbers and blooms in winter. *Macodes* are real miniature plants and needs to be taken care not to dry out completely which will result in losing the plant.

*Macodes petola* is the common species under cultivation and it is beautiful species. Different varieties include, var *petola* with yellow veins, var. *robusta* with longitudinal veins. The Sumatran form is reported to be red to somewhat burgundy. The orchid has very nice yellow green leaves with good netting and probably one of the best amongst the jewel orchids. They grow in warm to intermediate temperature conditions.

An easy to grow genus provided the media is maintained moist and can be grown in shallow pans to accommodate the creeping habit. They need a humidity of 50 -70 %. Most of the jewel orchids after flowering may disappear and one way of preventing this is to reduce the watering after flowering.

*Macodes sanderiana* another beautiful species is from Sumatra, New Guinea and Vanuatu islands is also a popular species known for its foliage.

**Dossinia:** Dossinias are found in Borneo and are somewhat difficult to grow. Plants which are cultured are known to do better than wild collected ones. These have dark green leaves with iridescent color. Dossinias are very prone for rotting. They do not like dry air but needs good air movement. If there is some water standing on the leaves they tend to rot. They are preferably grown in terrariums with more of moss to keep them moist. Limestone is added to the media as they grow in nature on lime stone substrates. These can take more light than most of the other jewel orchids.

**Goodyera:** *Goodyera* is named after 17<sup>th</sup> century botanist John Goodyer. It is a large and diverse genus. About 25 species are reported under the genus worldwide. They are commonly known as lady's tresses.

The habit is one of creeping rhizomes and rosettes of evergreen leaves. Flowers have a saccate nectary lip with a beak shaped apex.

They are distributed in alpine valleys of Scandinavia, North America, Europe, Asia, and Australia. There are several attractive species which are under cultivation. *Goodyera hispida* from the Himalayas and *Goodyera daubeniensis* from Taiwan are some of the species.

**Anoectochilus:** another beautiful jewel orchid comprising of about 50 species. They are found in Himalayas, China, New Guinea. Most of them are small sized terrestrials and some are lithophytes. They have green colored velvet like intricately veined leaves. Flowers have large prominent lip. They grow in shaded areas and among the leaf litter. They are one of the most attractive species with some fantastic leaf patterns of mostly dark greenish-red background with bright gold or copper veins. The name *Anoectochilus* originates from the Greek "Ániktos" meaning "open" and "Cheilos" means lip, referring to open aspect of flowers.



Under cultivation *Anoectochilus* requires proper potting media. It should comprise of typical jewel orchid mixture with fine bark, sphagnum moss, peat moss, perlite and some plant debris in the form of leaf mold. Watering is the key for its success, neither it should be under watered nor over. The best way to grow them is in terrariums. They require more light than *Ludisia*.

**Pests and Diseases:** Among the diseases, stem rot caused by *Fusarium* has been reported under cultivation

### ***Anoectochilus elatus***

**Jewel Orchid Hybrids:** Of late there are some attractive hybrids among the jewel orchids have been produced. It is reported that the first hybrid was involving *Ludisia* and *Dossinia*. There are commercial nurseries which have number of jewel orchid hybrids. The hybrids have attractive foliage and are vigorous growing. Some of the hybrids are,

Anectodes Charlotte's Web (cross between *Anct. brevilabris* x *Mac. Petola*),  
Dossinochilus Dreamcatcher (*Doss. marmorata* x *Anct. Brevilabris*),  
Dossisia Dominyi 'Judy' (*Doss. marmorata* var. *dayii* x *Lus. Discolor*)  
Macodyera Amphisilva (*Mac. sanderiana* x *G. pubescens*)

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## ORGANIC FEEDS FOR ORCHIDS

Nalini kottoli

TOSKAR Newsletter is the forum to share experience and experiments on growing orchids. If you Google [www.aos.org](http://www.aos.org) on fertilizing orchids, the culture sheet gives the mantra of fertilizing weekly, weakly. As most of the members grow orchid in the balcony, terrace of the house it is better to avoid inorganic fertilizer, pesticides and insecticides as a precautionary measure. Use of organic feeds saves the environment and protects the family members from health hazards. I have started using organic concoction to grow and protect my plants.

I have been using the following to grow orchids.

- ✓ Fruit enzymes: - Peels of papaya, banana, pineapple, over ripe fruit can be used. to prepare buzz peels and fruit with little water in a blender. Make a fine paste. Strain it, add more water in 1:5 ratio. Water your plants on the roots early in the morning. No need to pre-watering, as it will not burn the roots.
- ✓ Compost tea: - You can add used coffee and tea powder to the compost to make black tea. Immerse compost in water for a week, take a mug of compost water, add 9 mugs clear water, strain and use to water or spray plants, this can be used twice a week.
- ✓ Green tea: Collect weeds, fallen leaves in a bucket of water. You can grow Azola in a tub to make green tea, as Azola has Amino acid, and nitrogen. Paste the soaked leaves and azola, dilute with water and water the plant, no need to ferment. Fresh green tea peps up the growth.
- ✓ White tea: -Ferment thick buttermilk for a week. dilute in 1:10 ratio to water the plant. It as acts as probiotic fertilizer as well as fungicide. But the down side is its stink. Use it early in the morning, then light agarbatti to ward off the smell.
- ✓ Panchagavya:-It is not only to purify the humans but also the plants. It can be purchased from organic shops and used as fertilizer. it acts both as fertilizer and pesticide.
- ✓ Oil cakes: - Neem cake, groundnut cake and Pongamia cake can be used by mixing in equal proportion. Ferment it by immersing in water for a week. stir it twice daily, morning and evening. then take out the clear water to feed the plant in 1:10 ratio. It also performs double role as fertilizer and pesticide.

If the plants are infested by mites' neem oil can be used. take hot water in a glass bottle, add one teaspoon of neem oil and 10 drops of liquid dishwashing soap. Shake to make a cocktail, till it is emulsified. Then make it to one liter and spray the infested plant, both the sides of the leaves. Repeat every week, till the insects vanish.

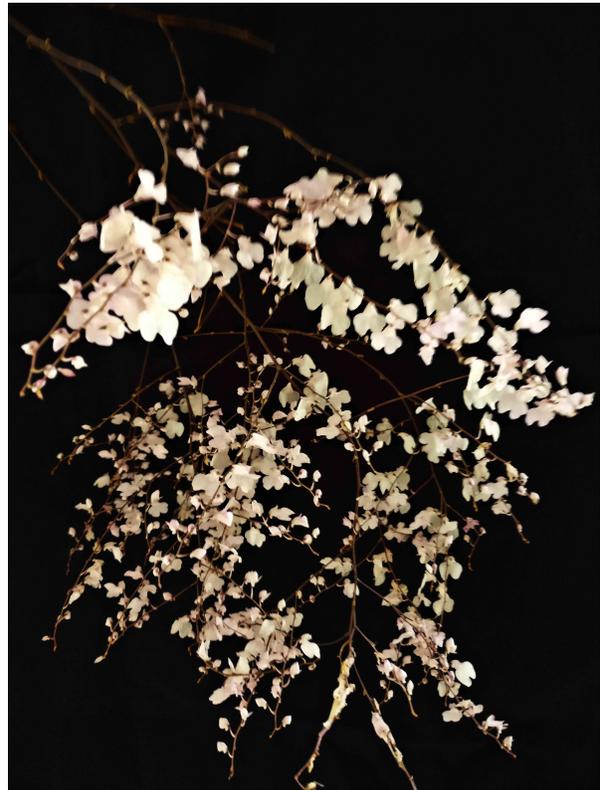
Last but not the least, to safeguard your plant from snails and slugs do not use the chemical, poisonous pellets. At night after dinner go to your plants to say goodnight, with a torch. pick up the dirty pests in a bowl of salt water and in the morning, throw it off.

I don't want to give more tips at a go, will reserve for the next issue. Most of u may wonder on these tips. I assure you they are tested and tried by me with success. Patience should be exercised to concoct the beverage for your lovely orchids. The state of Sikkim is very proud to get the honor of Organic cultivation. We shall follow them, to save our environment, birds and bees to present a beautiful world to the younger generation. Think and act.

HAPPY ORCHID GROWING.



*Brassavola nodosa*



*Ionopsis utricularioides*

## DNA BARCODING OF ORCHIDS IN INDIA: BENEFITS AND REQUIREMENTS

Deepti Srivastava & K. Manjunath

Orchids comprise a unique group of plants having exotic, rare, beautiful, colourful and long-lasting flowers used for floricultural trade, whereas other plant parts are useful for traditional medicinal practices. India is loaded with more than 1,300 orchid species dwells in the country with Himalayas as their main habitat and others scattered in Eastern and Western Ghats<sup>1</sup>. Most of the endemic orchid species which are top in the list of ornamental and medicinal values have become endangered and several are at the verge of extinction due to various activities such as indiscriminate cutting of forest, shifting agriculture and ruthless exploitation of orchids for illegal trade. Most of the orchids from India are currently listed in Convention on International Trade in Endangered Species (CITES) Appendix 1 and 2. Indian Government has prohibited the export of wild orchids whereas plant and plant portions of cultivated/ artificially propagated orchid species listed under App.2 are allowed for export subject to production of a certificate of utilization from Regional Deputy director (Wild life), or Chief conservator of forest of state Government<sup>2</sup>. Unexpectedly, many species of *Cymbidium*, *Dendrobium*, *Paphiopedilum*, *Phalaenopsis*, *Vanda*, etc. are mentioned in import list of Japan, Germany, Kuwait, Malaysia, Singapore, United Arab Emirates and United States but not allowed to export from India. It confirms clandestine trade of Indian orchids are continued without check.

Identification of orchids is very challenging at vegetative stage or in fragments. It is difficult to identify species even at flowering stage also which accelerates illegal trading of orchids. DNA barcoding is an effective method to permanently stop illegal trading. It is a method deliberating quick, precise, and automatable species identification by using short, universal and uniform gene regions as species tags. In DNA barcoding, the unique nucleotide sequence patterns of small DNA fragments (400–800 bp) are used as specific reference collections to identify specimens and to discover overlooked species. Thus, the initial goal of the DNA barcoding process is to construct on-line libraries of barcode sequences for all known species that can serve as a standard to which DNA barcodes of any identified or unidentified specimens can be matched.

The DNA barcoding of plants has been focused mainly on plastid genome and Internal transcribed spacer genes (ITS). Several small regions of plastid genes, ITS and intergenic spacer which are conserved among flowering plants are considered as “candidate barcode genes” for flowering plants including orchids<sup>3</sup>. Few important candidate barcode genes are listed below.

- *accD*: encodes the  $\beta$ -carboxyl transferase subunit of acetyl-CoA carboxylase
- *atpB*: Mitochondrial gene sequences
- *atpF-atpH*: Intergenic loci *atpF-atpH* is localized in the large single copy (LSC) of the plastid genome where genes *atpF* and *atpH* encode ATP synthase subunits CFO I and CFO III, respectively

- *ITS 1& 2*: Internal transcribed spacer (ITS) refers to the spacer DNA situated between the small-subunit ribosomal RNA (rRNA) and large-subunit rRNA genes in the chromosome. ITS1 is located between 18S and 5.8S rRNA genes, while ITS2 is between 5.8S and 26S rRNA genes.
- *matK*: MaturaseK gene is involved in group II splicing
- *nad1b-c*: Mitochondrial intron sequences
- *ndhJ*: NADH-plastoquinone oxidoreductase subunit J coding gene
- *psaB*: Plastid gene sequence codes for PSI P700 apoprotein A2
- *psbK*- This intergenic spacer is localized in the large single copy (LSC) of the plastid between two small membrane-spanning proteins *psbK* and *psbL* of photosystem II.
- *rbcl*: encodes the large subunit of the ribulose-1,5-bisphosphate carboxylase/oxygenase (RuBisCO)
- *rpoB*: encode B subunits of the plastid-encoded plastid RNA polymerase (PEP)
- *rpoC1*: encode C1 subunits of the plastid-encoded plastid RNA polymerase (PEP)
- *trnH-psbA*: Chloroplast intergenic *psbA-trnH* spacer 5'-region, situated directly after the *psbA* gene is more conserved in length compared to the 3'-region, which has greater sequence variation.
- *Xdh*: Low-copy nuclear protein gene
- *ycf1a* and *ycf1b*: Two coding regions of the plastid gene *ycf1*: *ycf1a* and *ycf1b* are the most variable loci
- *ycf5*: It is conserved region of chloroplast which is required for cytochrome biogenesis

The 'DNA barcode genes' are signature sequences which must be amplified for each known plant species and amplified sequences must be submitted to GenBank databases and BOLD (Barcode of Life Data System) to create on-line accessible library<sup>4,5</sup>. After compiling huge data of DNA barcoding and providing their on-line accessibility to folks, DNA barcoding can be practically useful. At this stage DNA barcoding will provide a practical, standardized, species-level identification of samples from unknown phenotypically alike species.

Although, DNA barcoding may be effective technique to identify ornamental, medicinal, endemic and endangered orchid species, a few reports are available on orchid's barcoding from India. A few barcodes for some species of *Dendrobium*, *Paphiopedilum* is reported from India. Singh et al (2012) compared seven loci of plant DNA barcodes among multiple accessions of 36 Indian *Dendrobium* species and identified 100% species using *ITS*. Another locus *matK* resolved 80.56% of 36 species. They recommended combination of *matK*, *rpoB* and *rpoC1* to resolve the maximum number of species<sup>6</sup>. Parveen et al (2012) tested the efficiency of *nrITS*, *rpoB*, *rpoC1*, *rbcl* and *matK* with in Indian species and hybrids of *Paphiopedilum* 'Lady's or Venus's Slipper' orchids and found *matk* as signature sequence for their identification<sup>7</sup>.

Expansion of DNA barcode library to huge will be potent tool in the hand of agencies entrusted with the responsibility of trace and monitor illegal cross-border trade of wild orchids by identifying morphologically unidentifiable orchid materials such as immature vegetative plant parts, potted plants, dry/ damaged plant parts. It helps in protection and conservation of a unique fauna of India- "ORCHIDS". Accurate identification of orchids using "barcode library" of known species will help researchers' and conservationist to regenerate endangered species and matching them with unknown sample. It can be used for biodiversity monitoring, ecological studies, and identification of new species. DNA barcoding is perfectly suitable to verify, authenticate or certify any plant material from potted plants, roots, tubers, seeds to crude, dried, processed or packaged contents. It promotes the use of medicinal orchids in pharmaceutical industry by certifying accuracy of species. The upcoming option of modern business in India: "Dried flower craft" by using orchid flowers will also be profited. Although, DNA barcoding will not create the "encyclopedia of life," it will generate its index and table of contents. Hence, DNA barcoding of orchids is a need of hour in our country to help their users to compete in contemporary world.

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## A REPORT ON THE FIFTH ORCHID SHOW – 2017 HELD IN LALBAGH BANGALORE

The Orchid Society of Karnataka (TOSKAR) organised the **Two-Day Orchid Show on 28 - 29 October 2017 in Dr. Marigowda Memorial Hall, Lalbagh Botanical Gardens**, Bangalore. The Show was inaugurated at 9.00 a.m. of 28<sup>th</sup> October 2017, by Sri. R. Ramalinga Reddy, Hon'ble Minister for Home, Government of Karnataka by cutting the ribbon and lighting the inaugural Lamp in the presence of Dr. A. N. Yellappa Reddy, noted environmentalist and Chairman, Bangalore Environment Trust. Other dignitaries present were Commissioner & Director Horticulture Govt. of Karnataka, along with senior officers of Department of Horticulture at Lalbagh, Chairman & Vice-chairman of Mysore Horticulture Society, Invitees and Members of the Orchid Society of Karnataka.

Thus, the grand show was kick started unveiling the wonderful world of Orchids to the dignitaries, show-cased in its diversity & beauty in the Historical Dr. Marigowda Memorial Hall of Lalbagh, exhibited by the Members of TOSKAR, hobbyists, enthusiasts and entrepreneurs. The lovely orchids were decorated & exhibited with proper background bringing out their beauty in varied colours, shape & size. Dr. Sadananda Hegde, President, TOSKAR, lead the VIPs & dignitaries explaining the importance of Orchids in floriculture and Pharmaceutical Industry, besides their ecological significance in the environment.

As we moved from the inaugural site, the first display at the entrance was that of Mandara School of Floral Arts depicted artistic beauty in floral arts & floriculture, followed by Nageshwar's display which show-cased habit & habitat of orchids from ground to the tree tops and the ecological significance. On the right side, Palm Grove Nurseries of Khoday Group displayed biotechnologically developed Phalaenopsis Orchid hybrid varieties along with tissue culture seedlings – thereby highlighting the importance of Science & art in the development of Orchid Industry. Adjacent to it was Photo Window bedecked with orchid flowers – a star attraction of the Show for the visitors.

Besides the above, the entire hall was full of **Orchid Floral display** by TOSKAR members viz. Anil Kubear, Srinatha Rao, Shakunthala Mane, Shashikala Sathyamoorthy, Gajalakshmi Murgesh; and others. Professional flower Decorators also contributed to the beauty of the Show: They are: 1. Agriunlimited 2. Sandhya Yadav 3. Peal Orchids from Kerala, 4. Vayu Blossoms 5. Ryncho Orchids, 5. Krishnendra Nurseries 6. Ryncho Orchids. Huge & tall floral structure with glittering lights installed by Agri-unlimited has also been one of the star attractions of the Show. Shakunthala Mane's Display with huge drift-wood structure installed on the stage was another attraction for posing selfie. All these display shows have been voluntarily managed by a team of TOSKAR members.

On the stage in the hall, **Display competition of orchids grown by the members** of TOSKAR was organised. As many as many as 77 orchids in bloom were displayed in 12 Categories of Orchid hybrids & species under the genera *Brassolaeliocattleya*, *Bulbophyllum*, *Catasetum*, *Cattleyas*, *Dendrobium*, *Oncidium*, *Phalaenopsis*, *Vanda*, besides, Terrestrials like *Calanthe*, *Paphiopedilum*, *Phaiocalanthe* & *Spathoglottis*. *Epicattleya*. etc. Some Orchids were exhibited as specimen. Some species have also been exhibited under Other categories. All of them have been neatly labelled. As many as 20 members participated in various competitions.

All the exhibited specimen for the competition were **judged by the eminent persons** in the field of Orchids. They are: Dr. Amey Bhide from Pune and Mr. Ramakrishna, a professional Orchid Grower from Kerala.

Outside the hall, there were **nine commercial stalls** who have come from neighboring States viz. Kerala (AVT Co, Pearl Orchids & Ryncho Orchids), Tamil Nadu (Rajesh Mootha), besides Karnataka (Florence Flora, Krishnendra Nursery & Orchid Tree). Varieties of orchids were on sale along with accessories for growing them including fertilizers, pots, moss, growing medium, decorative materials, etc., besides literature on Orchids. TOSKAR also has put up a stall for sale of plants & accessories and literature, books, CDs on orchid growing & orchid calendars, etc. brought out by the Society on the occasion.

After going around various stalls, all assembled in the adjacent Meeting hall where the **Orchid Show Souvenir**, brought out by the TOSKAR was **released by Dr. A. N. Yellappa Reddy in the presence of Honorable Minister and other Dignitaries and invitees**. The Souvenir, edited by Dr. K. S. Shashidhar, included articles on various aspects of orchid growing, conservation and commercialization from eminent Orchidologists from across the world. All were impressed with the Orchid Show and realized the importance of Orchids in floriculture & significance in our environment, so beautifully exhibited.

On this occasion, **a memorandum for establishing a state-of-the-art State Orchidarium in Lalbagh was submitted by TOSKAR** to work in collaboration with Department of Horticulture for its development. Honorable Minister Sri Ramalinga Reddy and Dr. Yellappa Reddy realized the importance of Orchids and competence of TOSKAR for taking up this development Program and suggested the concerned Departments of the Government of Karnataka to consider the proposal.

After **the hi-tea** Honorable Minister and other dignitaries were seen off and the Orchid Show was thrown open to the public for two days from 10 a. m to 5 p.m.

Another important aspect of Orchid Show has been **Training & Demonstration on Orchids with the objective of introducing orchid growing to the beginners along with some of the specific requirements of popular genera under cultivation in India.** The training included lecture, demo and 'hands on' about various cultural aspects. There were two sessions of one hour each on 28<sup>th</sup> November and three sessions on 29<sup>th</sup> November 2017 and five resource persons viz. Sanjeev Dharwal, Nalini Kottalli, Nageshwar, Sriram Kumar & Ram Kumar imparted training and demonstrated how to grow various orchid genera viz. Dendrobium, Cattleya, Paphiopedilum, Vanda and Advanced Orchid growing, respectively. Whole program was coordinated by Kalyanpur. Candidates were registered at the Entrance Counter of TOSKAR. In all 125-people attended the training program.

In all, about 2500 people visited the Orchid Show. Overall impression of the visitors has been wonderful, interesting, educative, eye-opener, impressive, looks like a fairy land, so on.

On the last day at the end of the Show, winners in various Orchid Display Competitions were given away Awards & Certificates by the Society. It was followed by a talk on Orchids- modern tools for growing orchids through a mobile app developed by him.

#### **Results of the Display Competitions by TOSKAR members**

✓ **Winners in Table Floral Display of Orchids**

**1<sup>st</sup> Nageshwar**

**2<sup>nd</sup> Anil Kubear**

**3<sup>rd</sup> Shakunthala Maney.**

✓ **Category-wise orchid plant with flower Display Competitions by Members of TOSKAR**

Category/Genus	Number of Plants in Display	Winners	Name of plant exhibited
Dendrobium	12	Everest D'souza	Dendrobium NOID
		Everest D'souza	Dendrobium NOID
		Everest D'souza	Dendrobium NOID
Oncidium	7	Sucharitha Renganathan	Zygopetalum NOID
		Nageshwar	Oncidium Gower Ramsay

		Nageshwar	Oncidium Sharry baby
Catasetum	4	Nageshwar	Cynochesh Jumbo Puff
		Nageshwar	Mo. Painted Desert x Orchid Glade
		Nageshwar	Cynodes Wine Delight
Species	7	Nageshwar	Bulbophyllum lasiochilum
		Sriram Kumar	Vanda coerulea
		Nageshwar	Thecopus maingayi
Others	5	Nageshwar	Cymbidium Valarie Albasanova
		Lakshmi Jagadish	Cymbidium HTC NOID
		Nageshwar	Lycaste NOID
Phalaenopsis Hybrid	10	Arun Kumar	NOID
		Arun Kumar	NOID
		Arun Kumar	NOID
		Shyamgiri Hebbar	Giant white
Vanda Hybrid	7	Nageshwar	Renantia Sunrise
		Lakshmi Jagadish	Merrillii Hybrid
		Lakshmi Jagadish	Merrillii Hybrid
		Sriram Kumar	Trichovanda Thai Velvet
Paphiopedilum Species	7	Nageshwar	Paphiopedilum spicerenium
		Nageshwar	Paphiopedilum primulinum var. purpurascens
		Lakshmi Jagadish	Paphiopedilum delenati
Paphiopedilum Hybrid	7	Nageshwar	Paphiopedilum primulinum x complex hybrid
		Lakshmi Jagadish	paphiopedilum Ruby Lepord
		Lakshmi Jagadish	Paphiopedilum NOID

Cattleya	8	Nageshwar	Brassavola David Sander
		Nageshwar	Blc. Village Chief North
		Dr.Parvathi	Cattleya Luckystrike
		Dr.Parvathi	Cattleya Orange Delight
Terrestrial	5	Lakshmi Jagadish	Phaiocalanthe Kryptonite
		Lakshmi Jagadish	Calanthe rosea
		Nageshwar	Spathaglottis Hybrid
Specimen	2	Nageshwar	Epicattleya Rene Marques

✓ **Grand Champion. Nageshwar.**

#### ACKNOWLEDGEMENTS

It has taken over six months for the Executive/Organising Committee of TOSKR for preparing the members along with their orchids to make them ready for the Orchid Show 2017. Series of meetings and training & orienting as to how to prepare their exhibits for the Show has yielded good results. Following are the members of the Organizing Committee chaired by Dr. Sadananda Hegde, President, TOSKAR: Sabita Reddy, S.G.Ramkumar, D.V.Sureshbabu Donthi, S.S. Kalyanpur, Sriramkumar, Dr. G.D.Chandan and Vimala D'Souza, Besides, Dr. K.S. Shashidhar as Adviser & Editor of the Souvenir. In this regard, all the Organising Committee members deserve appreciation.

The hard work by the members of TOSKAR in tending their plants to full bloom so beautifully without blemish & disease, coinciding with the Orchid Show is indeed commendable. Kudos to them.

Following members of TOSKAR volunteered to manage various arrangements and Orchid Display, Stalls, guiding the visitors, managing registration at the entrance counter and Training programs, etc. Thanks to all of them.

Name of volunteers who helped in the TOSKAR stall/entrance counter: Rajalakshmi, Rama, Sanjeev, Gayathri, Everest, Rao, Geeta Bali, Mallikarjun, Shankar Hegde, Sujatha Suresh, Latha Ravishankar & Suresh K.S.

Names of people who put up flower arrangements: Shanta Nair, Gajalakshmi and Shashikala

People who volunteered and helped in the Hall: Sandhya, Shabari, Vimla, Nandini Ashok, Sundari, Nalini, Lakshmi, Diwakar, Nandita, Nagesh.

Radheshyam Khoday, Patron, TOSKAR, for arranging display of orchids grown in his farm and cultured in his lab; besides sparing green pot plants as filler pots to add beauty to the Show.

Coordination with Office of the Minister & Dignitaries and arrangements for Inaugural function: Sundari Ishwar, Lakshmi Jagdish, Sreenatha Rao.

All office bearers of Mysore Horticultural Society for sparing the Dr. Marigowda Hall and all other logistic support – electricity, water, store rooms for organizing this Two-day Orchid Show. Besides, Ramanna, Contractor for Stall erection and Display tables, table cover, shamiana and background cloth for the exhibition.

## Photo Illustration of the Orchid Show



Hon'ble Minister Shri Ramalinga Reddy (2nd from the right) and Dr. Yellappa Reddy (first from the right), after inauguration and lighting the lamp, look on the lamp being lit by Dr. Hegde.



Dignitaries enjoying the Orchid Show.



After releasing of Souvenir by Dr. A. N. Yellapa Reddy, the book is being displayed by the dignitaries.



Hon'ble Minister being led through the Orchids Show Stalls and Display of Orchids.



Dr. Hegde explaining the various Orchids on display in the Show to Hon'ble Minister



Orchid Display by Palmgrove Nursery, Bangalore



Orchid table display by Members of TOSKAR and Non-members



Orchids Display by Pearl Orchids, Kerala



Central table Display of various ornamental orchids



TOSKAR members Orchid display



Commercial Stall by Krishnendra Nursery, Bangalore



Photo window bedecked with Orchid Blooms



Importance of orchids in Floriculture & landscaping: by Mandara School of Floral Arts, Bangalore



Orchids & their habit & habitat, a table display: by Mr. Nageshwar, Member, TOSKAR

**Photo Feature - *Bulbophyllum* Species**  
K S Shashidhar



*Bulbophyllum affine* Wall. ex Lindl.



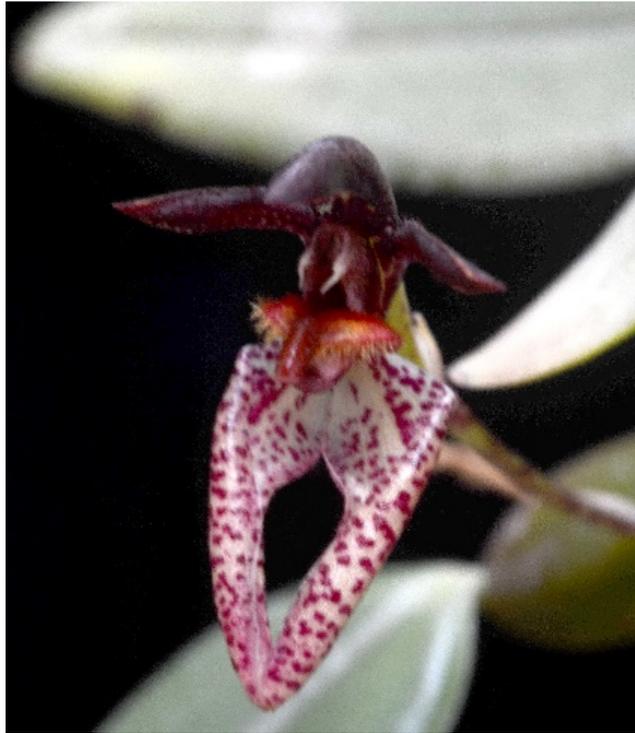
*Bulbophyllum auratum* (Lindl.) Rchb.f.



*Bulbophyllum corolliferum* J.J.Sm.



*Bulbophyllum* Kalimpong



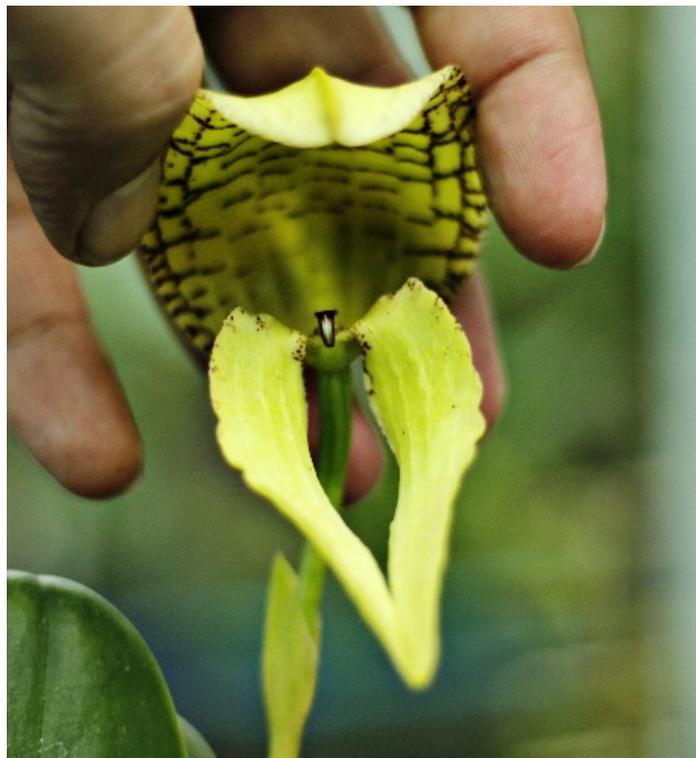
*Bulbophyllum lasiochilum* E.C.Parish & Rchb.f.



*Bulbophyllum mastersianum* (Rolfe) J.J.Sm.



*Bulbophyllum ornatissimum* (Rchb.f.) J.J.Sm.



*Bulbophyllum grandiflorum* Blume



*Bulbophyllum crassipes* Hook.f.

