TOSKAR NEWSLETTER

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THE ORCHID SOCIETY OF KARNATAKA
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Front cover *– Arachnocentron "*Tipi Jubilee Star*" by* Dr K.S. Shashidhar

From the Editor's Desk

21st December 2016

Cross pollination between different species of the same genus (intrageneric crossing) resulting in hybrids does occur in Nature. However, it needs specific pollinators to carry the pollen from one plant to another, making self-pollination the more common form of reproduction. Curious by nature and always in the pursuit of bettering Nature, man intervened and the first intrageneric orchid hybrid was produced by an English gardener John Dominy in 1850s. He successfully crossed *Calanthe triplicata* with *Calanthe masuca* and in his honor this hybrid was named as – *Calanthe* Dominyi. Ever since there has been no looking back and today we have hundreds of thousands of orchid hybrids! Not merely intrageneric but also **inter**generic hybrids involving more than two genera have been produced and became much sought after for their unique beauty.

Arachnocentron Tipi Jubilee Star is one such Intergeneric hybrid produced by none other than Dr Hegde by crossing *Arachnis labrosa* with *Cleisocentron pallens*. Dr Sastry gives an illustrated account of Dr Hegde's work.

Hybridization in orchids is big business at a global level. Dr Sucharita Ranganathan, a recent member of TOSKAR availed of an opportunity to visit an orchid farm in Taipei where many commercially important hybrids are produced and sold all over the world.

While hybridization has commercial value it is also of paramount importance to conserve the natural species *in situ* for their germ plasm as also for maintaining ecological balance as illustrated by Dr Hegde. He enlightens orchidists assembled at the World Orchid Conference at Johannesburg, South Africa on the rich diversity of orchid flora in the subcontinent.

The establishment of an orchidarium for *ex situ* preservation and study is an urgent need and the efforts of scientists of GKVK is timely and a much-needed initiative.

Meghalaya – the Abode of Clouds abounds in a wealth of bewitchingly beautiful blooms of orchids in their natural habitat and Valli Muthuraman takes us on a tour of this wonderland of

orchids.

Sriram Kumar recalls how a lost species of Vanda was rediscovered more than a hundred and fifty years later in our very own forests near Mangaluru.

Paphiopedilums - natives of Southeast Asia have become the favorites among amateur orchid hobbyists not only for their uniquely shaped blooms but the ease with which they adapt. S.G.Ramakumar instructs us on the endearing idiosyncrasies of these slipper orchids and how to grow Paphs successfully.

Shashidhar shares his experiences with Paphs. His exquisite photographs are a feast for the eyes making this issue special for Paphiopedilums.

It is noteworthy that Sabitha Reddy's Paph has won the first prize in the hybrids category and so also Lakshmi Jagadeesh's.

While Sita Srivel enumerates her experiences in finding the proper microclimate to grow orchids successfully in our balconies, Nalini Kottolli alerts us on the snail menace. Shakuntala Manay elaborates on *Cattleya* and medicinal importance of its fragrance captured in a bottle. Nandita Lakhani's efforts to grow the dainty almost glass-like *Podangis dactyloceras* in hot and dry Hyderabad is laudable.

Ever since TOSKAR renewed the publication of the Newsletter in 2014, three issues have come out each year instead of the intended four **due to the lack of timely article submission**. The editorial committee regrets its inability to release the September 2016 issue on the scheduled date for similar reasons and it is hereby combined in the December issue. We hope 2017 puts a stop to this "tradition" and four individual robust issues could be brought out – with redoubled support from all members of TOSKAR.

Happy orchid growing and a fulfilling 2017 to one and all!

Vani Hardev Ph. D
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In This Issue

CONDOLENCE MESSAGE

SRI. L SRIHARI KHODAY

(26th April 1939 - 31st October 2016)
Vice Chairman & Managing Director
Khoday Group of Industries
President – Akhila Karnataka Kshatriya Maha Sabha

For most people, becoming a renowned leader in two disciplines can be considered an exceptional accomplishment, a dream shared by many but realized by few. It is a nothing short of a wonder that Shri. L. Srihari Khoday has managed to excel in two distinct fields.

Srihari Khoday can be aptly termed as a multi-faceted personality, from being a successful businessman and industrialist, a socially conscious philanthropist, to a patron of performing arts, in its varied forms be it literature, music, drama, folk-art or other forms.

The House of Khodays has etched itself a prominent place in business and industry from its beginning in 1906. Srihari's role in this business group is closely linked to his vision and pragmatism. He is in no small measure responsible for the Khoday Group of Industries into becoming one of the most diversified business groups in Karnataka.

His foresight into venturing into future businesses away from the mainstay of Khodays has seen several companies under the Khoday Group – Contact Centers, Biotechnology, IT and Travel and Tourism add value to the term 'diversification'.

One of his passionate fields has been that of orchids and promoting it as a commercial venture that would benefit the people. He has been a patron of The Orchid Society of Karnatka right from its inception in 2006 and extended help in strengthening the Society in the initial stages. His active participation and help in organizing the National Orchid Conference in April 2008 by TOSKAR is worth mentioning. In tune with the recommendations of the Conference, he initiated tissue culture works on some selected orchids in their Biotechnology facility. Today, his son, Radhesyam Khodey has taken up further expansion and commercial growing of some selected orchids.

Srihari's concern for social justice for deprived sections of society is well known. His clear stand on many current social issues and his pragmatic approach to these have naturally resulted in his taking a keen interest in the welfare of the Dalits and Backward classes of our society.

National Conference on Orchids being inaugurated by Padmashri Prof. K. L. Chopra, while other dignitaries look on (Srihari Khoday 2nd from right).

No reference to Srihari Khoday's personality is complete without a mention of his contribution to the cultural scenario of Karnataka. Numerous are the artists, young and old, who have received his patronage. Four of the outstanding Award Winning Kannada Films, viz. Santha Shishunala Shareefa, Mysooru Mallige, Nagamandala & Eshwara Allah Neene Yella, testify to Srihari's abiding interest and involvement in Art Films with social and cultural messages.

Srihari took upon himself the titanic project of relocating & restoring the Sri Venugopala Swamy Temple, near Mysore, which was inundated under the waters of the river Cauvery when the KRS Dam was built across the river in 1924. The temple was visible only when the waters were very low. People from across the region considered Venugopala Swamy as their family deity and were distressed by the temple, a heritage, being lost under the waters of the dam. Srihari commissioned a project that involved mapping the sub-merged temple complex and shifting the temple, stone by stone, onto higher grounds and re-erecting the temple exactly true to its original design and structure. A huge workforce of structural designers, civil engineers and construction workers worked day and night in turning a wish into reality. This labour of love from Srihari for people in the region has won all round appreciation &admiration.

He is a firm believer in philosophy and takes pride in quoting M. K. Gandhi, "Strength does not come from physical capacity. It comes from an indomitable will."

Khodays has transformed from what had a modest beginning into a modern conglomerate through this indomitable will of Srihari. His approach and skills have won accolades from many counterparts in the business and the industrial world.

He has written more than 1000 songs on natural life & devotion, which have been sung by great singers, converted into CDs Cassettes, and have gained immense popularity.

Srihari has produced many movies based on famous novels, written by great authors of Karnataka, namely SANTHA SHISHUNALA SHARIEFA, NAGAMANDALA, MYSORU MALLEGE ETC., which have brought STATE & NATIONAL AWARDS. Srihari has also produced T.V. Serials on "SANTHA SHISHUNALA SHARIEFA" which has been telecasted in DOORDARSHANA.

Young at 77, and besides being the Vice-Chairman & Managing Director of Khoday Group of Industries, Srihari Khoday has been President of Akhila Karnataka Kshatriya Mahasabha. He was born on 26th April 1939 and lived an active and purposeful benevolent life till 31st October 2016.

Let his soul rest in peace.

We, the members of the Orchid Society of Karnataka(TOSKAR), pray Almighty to grant strength to the bereaved family to bare this great loss.

- THE ORCHID SOCIETY OF KARNATAKA (TOSKAR) BANGALORE.

Growing *Paphiopedilums* in Bengaluru – My experience

Dr. K S Shashidhar

The beginning……

It all started few years ago when one of my senior colleague who had some collection of Paphiopedilums (Paphs) was to go out of the country, and he asked me whether I was interested in taking them!!! Alas, what a question! I immediately and readily agreed to and grabbed the opportunity and took away the plants. But I had a problem, then I was working in Nagaland and was on a visit to my home town (Bangalore), but this did not desist me from the enthusiasm and I went ahead and made some temporary arrangements on my terrace to host the Paphs (Picture1). I thought, I will take care of them better when I am back in Bangalore for longer period. That is the beginning of the unending obsession for Paphs, as if the craze for orchids was not adequate!

All of us when we started growing orchids we try to get some basic information as to how to go about, similar was my situation when I started with Paphs. For all I knew they were terrestrials (though not in true term!) and they need to be potted in a terrestrial medium. I went ahead with a medium which was a mixture of soil, sand and small pieces of charcoal, the bottom one third portion was provided with brick bats and pot shreds for good drainage. Those days, neither pine bark nor coconut husk chips (or other potting materials as available readily now) were not available. Fortunately, the paphs I had was *Paphiopedilum exul* which is a hardy plant. With this mixture, believe me they not only survived but produced some excellent blooms (you can see that in picture2). I had them under 50 percent shade net on benches in my farm at a later stage and they did very well and I also divided them and gave it to other friends.

Sourcing of mature Paphs (both species & hybrids) of choice at Bengaluru is rather difficult and also expensive. Paphs generally takes a long time to produce blooms and if it is a small plant with single span and no suckers (as we get here), it easily takes 2-3 years to bloom, this is apart from taking care of the plant' s survival. Flasked seedlings will take lots of time to grow to a mature plant size. I have some flasked seedlings in community pots (picture.3) which has taken almost 2 years. Here, I would say that unless you have patience and time, growing genus or even hybrids of Paphiopedilums, Vandas and Cattleyas will take considerable time. Trust me, if you have time and patience, you can enjoy them growing.

My experience of the performance of Indian species of Paphs (*Paphiopedilum insigne, P. venustum, P. villosum, P. hirsutissimum and P fairrieanum*) (Picture 4) is that they tend to do well in earthen pots probably because of good aeration and any excess moisture will be drained and thus providing comparatively better water management vis a vis plastic pots. Initially till these plants settle down in any new environment, one has to be careful with watering as excess moisture and soggy conditions will result in poor aeration for the roots resulting in rotting of roots. Here, I emphasize that a good root system is the foundation for an excellent specimen

plant in growing a specimen plant (Picture 5), this holds true for all the orchids whether epiphytes or terrestrials.

Picture 1. Beginning of the Paphiopedilum craze, started with few plants on my terrace

Picture 2. *Paphiopedilum exul* in bloom

Picture 3. Paph hybrid seedlings in CP

Picture 4. *P. insigne*

Pic.4 *P. villosum*

Pic 4 *P. fairrieanum*

If by any chance due to crown rot or other diseases, your Paph loses its leaves leaving behind some healthy roots, remove the plant and wrap it up in a moist sphagnum moss and keep it aside and wait for the new sprout. To get a good root system with Paphs, two points to be noted, one is the watering regime, this depends on earthen or plastic pots, of late, all of us are using plastic pots and the other being the potting media. Potting media basically should provide aeration and retain moisture and not make the conditions too wet. When CHC came into the picture as a component of potting media, most growers started using this as a major constituent and without sticking to proper watering regime. This resulted in soggy condition, poor aeration, death of roots and eventually loss of plants. Subsequently, the CHC was mixed with charcoal and this composition to some extent provided aeration and kept the media consistently moist but not so wet. The key here is whatever may be the media composition, if you can manage watering in a prudent and judicious way, you have done it. Charcoal is a good constituent of media and acts as a filter and absorbs excess moisture, salts and other toxic substances. Over a period of time the charcoal pieces will be saturated with these toxic substances and when the roots come in contact with the media, the root growth will be hindered due to the presence of salts on the charcoal. Thus it is important to change this after some time even though being an inert material it may not decompose. This used charcoal should be discarded and should not be reused. When I was growing *P. exul* in a compost based media in earthen pot, the root growth was excellent.

We all want to keep orchid growing including Paphs as simple as possible (as our good friend Mr. Ramakrishna from Sydney keeps saying) but it is easier said than done. Many times I have seen the more you pamper them, the more things get complicated. As I had mentioned as long as these *P. exul* plants were grown under shade net in full sun the blooms were excellent and you protect them by bringing it under poly sheet roof house, they react differently.

Later years…….

With passage of time and losing plants finally some wisdom has dawned as to how to take care of the Paphs to the extent if I am not producing wonderful blooms, at least I am not losing them. Subsequently, I had been growing my Paphs under 50 percent shade net on the roof top where they use to get good light, but the problem was the rainy season. At times the incessant rains more so in the months of November would make the media soggy and resulting in onset of diseases. This resulted in my losing some valuable plants. The problem with the crown rot and the collar rot is difficult to control and even before you take remedial action the plant will have almost reaches beyond retrieval and if they survive, the major damage is already done with plants taking lot of time to recover. It is always better to take precaution in such cases. With Paphs, the saying is ‘if you are in doubt about watering, postpone to the next day’.

I have both plain green leaved and mottled leaved species and hybrids in my collection, it is observed that plain green leaved varieties need bright light and the mottled leaved ones need little shade. In my experience also, mottled leaved species like *P. venustum* likes little shade than plain leaved ones such as *P. exul* and *P. insigne*. As a cultural practice it is advised that when the mottled leaved varieties flower, after enjoying the flower few days, it is advised to pinch the

flower. If not done, the flower remains on the plant anywhere from 20-45 days, might eventually slow down the growth of the plant.

While potting the Paphs one has to take care that the collar region is not buried in the media and preferably kept above the media (Picture.6). This will prevent the onset of collar rot. The issue of repotting of Paphs has always been debatable, some says it needs repotting every year and others say they hate to be disturbed. In my experience, some of the species like *P. exul* hates repotting and division, they will take lot of time to recover from the shock. But at the same time I have been repotting some of the Indian species and hybrids and they appear to take it well. While dividing the plants one should not be 'greedy' with paphs. if you divide with 2-3 suckers the chances of the plants quickly establishing are good, contrary to this, if you divide a plant with only one fan without any suckers, not only it takes considerable time to establish, but survival also would be difficult.

I fertilise my Paphiopedilums on a weekly basis with a combination of macro and micro nutrients. As a source of Nitrogen I use both ammonical and Nitrate forms. Phosphorus and Potash along with Calcium, Magnesium, Zinc, Manganese, Sodium and Molybdenum, Boron and Iron. A concoction is prepared at a particular percentage of each nutrient and a stock solution is fed on a weekly basis along with watering. Every fourth watering is done thoroughly to wash away any deposited excess salts.

Paphs dislike water with salts especially in Bengaluru conditions if growers are using borewell water which will generally have about 300 ppm of dissolved salts, the plants will suffer in the long run, I water my paphs which has a TDS of around 80 ppm. Provide them clean water and you will be amazed at seeing the results.

If at any point of time your paphs drop their leaves and only roots remain, the best remedy would be remove the plant, trim all the dead roots and then wrap it up in moss and keep it moist. Over a period of time the roots will settle and then new leaves emerge. I had divided my *P. exul* and the divided plant shed its leaves showing its resentment for disturbing! I removed it and put it in a small pot with moss and it kept moist, slowly new roots also started emerging as you see in the picture (Picture 7). You take care of the plants and they will respond very well.

Although Paphs are generally tropical, they need diurnal variation in temperature to initiate blooms. There should be a drop in temperature during winter for many species and even hybrids. This is difficult to provide naturally in Bengaluru conditions. For some species it is withholding water and also drop in temperature which primes them for blooming. This is a kind of rest given to the plants after the growth matures and then ready to enter the reproductive phase of flowering.

At present, I have some collection of species and hybrids (picture 8) and all of them are doing well and I am looking forward to the multifloras to bloom. I welcome any suggestion and sharing of care and culture experience of Paphs in Bengaluru conditions.

Pic 4. ***P. exul***

Pic 4. ***P. insigne*** **variant**

Pic. 4. ***P. hirsutissimum***

Pic.4. ***P. venustum***

Pic 5. Well-developed root system of P. exul

Picture 6. Planting Paphs in Media

Pic 7. Paph division with new root

Picture 8. Some of the Paphiopedilum species & hynrids from my collection

STATUS OF ORCHID CONSERVATION IN INDIA
PART – I: Introduction to Indian Orchidology, Phytogeography & Distribution

Dr. Sadananda Hegde

Orchids are known in India as plants of ornamentation and of medicinal value right from Vedic period. Flowering spikes of *Rhynchostylis retusa* (Vern. Seeta pushpa, Kopou phul, Seetale/seete dande) and *Aerides maculosa* (vern. Gopi dande) are adorned by women in India as a symbol of sanctity and love (Hegde 1984). Some of the orchids like *Bulbophyllum neilgherrense, Cymbidium aloifolium, Dactylorhiza hatagerica, Epimerantha macrae, Eulophia nuda, Malaxis versicolor, Orchis latifolia,* etc have been used in the traditional system of medicine especially in Ayurveda (Charaka & Shushruta Sanhitas), as general tonic, aphrodisiac, expectorant, treatment for insanity, healing wounds and allergies (Hegde 1984, Koushik 1983). There are more than 50 species in India which have been used in various traditional systems of medicines and other ethno botanical usage (Hegde 2001, Rao, 2014). Vanilla is one of the important commercial orchids used in aromatic & flavor industry.

INDIAN ORCHIDOLOGY: In India, systematic compilation of orchids is seen from *Roxburgh's* work, "Flora Indica" in 1832 that enumerates 57 species of orchids for the first time. Further, a perusal of literature reveals that it was John Lindley (1840, 1857) who marked the beginning of Indian Orchidology by describing all the then known species of orchids. Followed by him, Griffith (1851), Hooker (1890-1894), King & Pantling (1898), Cooke (1908), Gamble (1928) and Bruhl (1926) contributed significantly to the understanding of Indian Orchids. However, there was a gap of about 26 years until Ghose (1953) brought out a book entitled "Beautiful Indian Orchids". With the revival of Botanical Survey of India in the year 1954, after independence of India, lot of information on orchids started pouring in from various parts of the country resulting in regional Orchid Floras and enumeration of new species and new records (Santapau & Kapadia 1966, Pradhan 1976-1979, Rao 1979, Raizada *et. al* 1981, Abraham & Vatsala 1981, Joseph1982, Seidenfaden & Arora1982, Jain & Mehrotra1984, Hegde, 1984, Kataki, Jain & Sastry1984, Ghatak and Devi1986, Kataki 1986, Kataki & Hynniewta 1986, Joseph J. 1987, Misra S. 1989, 1990, Singh, *et al*. 1990, Rao, A. N. 1991, Satish Kr. & Manilal 1992, Hegde 1997, Chowdhery 1998, Satish Kr. & Manilal 1999, Hegde 2001, Manilal & Sathish Kr. 2004, Rao & Hegde 2004, Hegde 2005, Rao, T. A. & Sridhar, S. 2007, Hegde 2007, Misra 2007, Pande, *et al*. 2010). Thus, as on today, about 1350 species in 186 genera have been reported from India. Further, out of 1350 species only about 200 species are cultivated and are of commercial value while about 53 species are medicinally useful. Others are biological/botanical curiosities contributing to Biodiversity of the region. However, many of these species have become rare in the wild because of over exploitation of orchids and the diminishing forest habitat warranting conservation measures to be in place.

PHYTOGEOGRAPHY AND DISTRIBUTION: India is essentially a tropical country with varying climatic conditions influenced by the monsoon rainfall in June to October and trade winds blowing in winter bringing scanty rains over Tamil Nadu and parts of Andhra. While peninsular region is surrounded by the Arabian Sea on the West and Bay of Bengal on the East, the northern part is surrounded by the Himalayan ranges from Jammu & Kashmir to North-eastern parts of India, bordering China, Bhutan, Burma and Bangladesh. North western part bordering Pakistan is dry plain receiving scanty rains. In Peninsular India, Western Ghats Hills rise from the narrow West coast to a height ranging from 200 m to 2100 m MSL, forming the vast Deccan Plateau gradually sloping towards East coast and play a vital role in receiving Southwest monsoon. There are large numbers of rivulets and rivers like Ganges, Yamuna, Brahmaputra, etc. and their tributaries from the Himalayas and Narmada, Godavari, Krishna, Cauvery, Kali, Gangavali, Aghanashini, Netravati, so on, and their tributaries from the Western Ghats that drain down to Bay of Bengal and Arabian Sea. These river systems influence the vegetation, human habitation and biodiversity of the region. Elevation is one of the important features ranging from sea level to the Himalayan snow clad peaks giving rise to varying Phytogeographical regions with in the country. Some of the important Phytogeographical regions are: (i) Eastern Himalayas, (ii) Western Himalayas, (iii) Northeast region, (iv) Eastern India, (v) Western India, (vi) Ganges river basin/plains and Central India, (vii) Eastern India/Eastern Ghats, (viii) Western Ghats including West Coast & Nilgiri Hill Ranges and (ix) Andaman & Nicobar Islands. These regions have their own physiography, soil type, elevation, amount of precipitation, humidity, temperature and microclimate giving rise to various types of vegetation and forests.

Although Champion & Seth (1968) classify the entire country into several Forest Types, following are the main Forest/Vegetation Types that abound in rich biodiversity.

a) Tropical Mixed Ever Green Forests
b) Tropical Semi Evergreen Forests
c) Tropical Scrub and Deciduous Forests,
d) Sholas & Grasslands
e) Subtropical Forests (Broad leaved/Pine).
f) Tropical Wet Evergreen Forests
g) Alpine Forests

While Tropical Forests are found in the Western Ghats and Foot hill ranges of Northeast Region, Subtropical Forests are essentially seen in the Himalayan Ranges. These regions abound with rich biodiversity – flora and fauna, thus making one of the Mega Biodiversity Regions in the world with two Biodiversity "Hot Spots" viz. (1) Eastern Himalayas and (2) Western Ghats. These Hot spots with varieties of evergreen, semi evergreen and deciduous trees (phorophyte) in association with varieties of herbs, shrubs, climbers, lianas etc. growing in diverse ecological situations are the richest orchid habitats of this country. However, some orchids occur even in other phytogeographical regions with thin distribution. While trees support large number of epiphytic orchids, forest floor and open grass lands with Sholas form a good habitat for varieties of leafy terrestrials and saprophytes. Depending upon their habitat requirements like humidity, light, temperature, phorophyte, soil and humus, mycorrhiza, availability of site specific micro

and macronutrients, besides corresponding pollinator bees, butterflies, birds and varieties of insects, various orchids are found in diverse ecological situations, microclimate and niche of Warm humid tropical conditions of the West Coast, East Coast, Western Ghats and Eastern Ghats of Peninsular India extending to cooler subtropical, temperate and alpine conditions of the Himalayas. There are about 1350 species in 186 genera occurring in various States and Union Territories of Indian Union spread over various phytogeographical regions of India in varying concentrations (Table – 1).

Table - 1: Distribution Pattern, Number & Threat Status of Indian Orchid species as per IUCN Categories in various Phytogeographical Regions and States of India.

(E = Endemic; R = Rare; En = Endangered; T = Threatened; V =Vulnerable; I = Indeterminate; Ex = Extinct or nearly extinct)

Phytogeographic Regions	**Name of State**	**Number of species/ genus**	**Number & Threat Status of Species as per IUCN Categories**						
			E	**R**	**En**	**T**	**V**	**I**	**Ex**
Northeast Himalayas	Arunachal Pradesh	614/133	99	3	3	91	3	5	6
	Assam	231/82	27	12	11	26	1	8	7
	Manipur	314/93	10	2	6	29	1	-	-
	Meghalaya	380/113	44	5	2	50	3	15	2
	Mizoram	253/86	3	4	4	27	1	-	1
	Nagaland	387/107	11	1	2	45	1	-	-
	Sikkim	561/144	101	6	4	71	4	-	6
	Tripura	52/34	-	-	-	2	-	-	-
Eastern India	West Bengal (Darjeeling Hills)	322/82	53	-	3	-	-	-	-
TOTAL:	**9**	**960/170**	**209**	**33**	**32**	**108**	**14**	**28**	**18**
Western Himalayas	Himachal Pradesh	85/44	-	-	-	-	-	-	-
	Jammu & Kashmir	51/27	-	4	-	1	1	-	-
	Uttaranchal	237/72	5	8	-	-	1	9	2
TOTAL:	**3**	**250**	**5**	**12**	**-**	**1**	**2**	**9**	**2**
Western India	Punjab,	21/12	-	-	-	-	-	-	-

	Haryana, Rajasthan, Gujarat Plains	03/03 10/06 01/01							
	4	39/21							
Gangetic Plains & Central India	Uttar Pradesh, Bihar & Jharkhand	30/19 100/36	-	-	4	-	39	-	-
	Madhya Pradesh & Chattisgharh	89/34 68/27	-	-	-	-	-	-	-
TOTAL	**4**	**150/40**	**-**	**-**	**4**	**-**	**39**	**-**	**-**
Eastern Ghats	Orissa	127/82	5	7	21	-	-	-	-
	Andhra	67/33	-	-	-	-	-	-	-
	2	**180/90**							
Peninsular India Western Ghats & Nilgiri Hills	Kerala	252/79	103	15	9	-	4	3	-
	Tamil Nadu	206/69	90	6	1	-	2	-	1
	Karnataka	176/49	67	-	-	-	2	6	-
	Goa	29/18	20	-	-	-	-	-	-
	Maharashtra	110/34	20	3	-	-	-	-	1
	Part of Gujarat	26/10	8	6	-	-	-	-	-
TOTAL:	**6**	**283/79**	**155/30**	**30**	**10**		**8**	**9**	**2**
Andaman & Nicobar Islands	Andaman & Nicobar Islands (UT)	132/58	30/19	9	-	-	-	-	-
GRAND TOTAL:	**29**	**1350/186**	**404**	**91**	**67**	**109**	**102**	**46**	**24**
				415					

Note: Figures shown in the TOTAL/GRAND TOTAL in the above Table are after removing the overlapping distribution of species in various States and Phytogeographical regions.

As can be seen from the table – 1, out of 1350 species found in India, North- East India with eight states alone contributes +/- 960 Species in 170 Genera in six sub families and 17 tribes under the Family Orchidaceae (Hegde 1997, 2000, 2001, 2007, Kataki, *et al* 1984, Manilal & Sathish Kumar 2004, Pradhan 1976 & 1979). Arunachal Pradesh in the extreme northeast tip of India exhibits maximum number with about 614 species in 133 genera making it an orchid paradise (Hegde 1984, 2000, 2001, 2005, Rao, 2013). On the other hand, Eastern India consisting West Bengal including Darjeeling Hills has 322 species in 82 genera distributed mainly in the hill ranges of Darjeeling & Kalimpong (Hegde, 2005).

Western Ghats with six States has 283 species in 79 genera (Rao TA & Hegde, 2006, Rao TA & Sridhar 2007, Joseph 1982). Eastern Ghats along the East Coast on the other hand has thin distribution with 67 species in 33 genera in Andhra and 127 species in 47 genera in Orissa (Misra 2007). Andaman & Nicobar Islands also have 132 species in 58 genera so far recorded (Singh, *et al*. 2013).

Besides, Orchids are also distributed in the Western Himalayas with about 250 species (Seidenfaden & Arora 1982, Deva & Naithani 1986, Jalal 2005, 2007), in Ganges River basin with about 100 species and in the Central parts of India with about 89 species 34 genera. Western part of India which is mostly dry has about 39 species in 21 genera (Singh, 2001).

***This paper was presented at the World Orchid Conference 2014 in Johannesburg, South Africa.**

PAPHIOPEDILUM - GROWING TIPS

S. G. Ramakumar

Introduction

Paphos is an ancient city famous for the temple of Goddess Venus. And *pedilon* is Greek for slipper.

The pouch like labellum of this orchid flower resembles the slipper/sandal of a lady, it is named thus *Paphiopedilum* – Slipper of the Goddess Venus. Besides this characteristic pouch like lip *Paphiopedilum* flower has a very prominent dorsal sepal too.

Majority of Paphs are sympodial terrestrials. A few epiphytes and lithophytes too are recorded. Instead of pseudobulbs, five to six waxy or leathery glossy green leaves (or sometimes the tuft of leaves are beautifully mottled) emerge in the shape of a fan. When the leaves are fully formed from the center arises a new shoot which has a single exotic looking flower. Sometimes more than three flowers are formed on a single spike.

More than a hundred species are distributed in the tropics - from the hill ranges of Northern India to the lowlands of Philippines. Some 27 natural hybrids too have been recorded.

Paphs are easy to cultivate and so they have become favourites of amateur orchidists. Their popularity prompted more and more hybridization resulting numerous man made hybrids.

Paphs are grouped into two categories the glossy green leaved ones which are the cool-growing ones and the warm-growing mottled-leaf ones.

Paphiopedilum is a relatively trouble free orchid genus to grow as long as you establish an environment that it appreciates and management practices that suit its needs. I grow all types of paphiopedilums from the large exhibition type to the smallest of species and find basically their culture requirements are similar. Paphiopedilums do not seem to suffer from insect attacks and diseases of many other genera, especially if they are grown well. How do you grow them well? Here are helpful tips that I find work for me and I am sure they will for you too.

Environment

Start off with a good environment. So often we are caught up with acquiring plants, plants and more plants. After all plants are that the hobby is all about. How sad it is when plants hastily purchased are lost because our housing was not suitable. Overcrowding, inadequate cover from the weather and incorrect shading have killed many a *paphiopedilum*.

Acquiring Stock

Always start off with healthy well rooted plants that appear to be growing well. Look for evidence of new growth and try to establish that the plant is firm in the pot. If the top growth looks healthy and shiny, usually the roots are OK. Purchase both seedlings and mature plants so you have same excitement with plants flowering and the expectation of growing seedlings on to first flowering.

Repot Regularity

This is the single most important hint for success. Use good quality mix and new pots. It is a false economy to reuse some of the old mix and leave plants until they look like they need repotting. This is often too late. I repot seedlings every year and mature plants every two years. It is sometimes hard to do this when they look to be growing so well, however you will be rewarded with even better growth.

Potting should be done about every two years, or as the medium decomposes. Seedlings are often repotted annually. Mixes vary tremendously; most are fine and/or medium-grade fir bark, with varying additives – perlite(sponge-rock), coarse sand, sphagnum peat moss, etc. Moisture retention with excellent drainage is needed. Divide large plants, by pulling or cutting the fans of the leaves apart, into clumps of 3 – 5 growths. Smaller divisions will grow, but they may not bloom as well.

Light

Light is easier to provide for Paphs as we call them, than many other types of orchids. They like shady conditions, as in the home in an east or west window, or near a shaded south window. In the greenhouse, heavy shade must be provided - giving them about 1000 to 1500 foot candles. They are often grown under the bench, provided precautions are taken to prevent rot.

Watering

Water must be available at the plant's roots constantly, since they have no pseudobulbs, and therefore store most of their water in their leaves. They need a moist medium—never soggy, but never dry. Water once or twice a week. Humidity for Paphs should be moderate, between 40% to 50%, which can be maintained in the home by setting the plants on trays of gravel, partially filled with water, so that the plants never sit in water. In dry climates, misting (in the morning only) can help increase humidity. In a greenhouse, average humidity is sufficient; spraying the floor or using an evaporative cooling system in warm climates can increase the humidity. Air movement is essential, especially when humidity is high. Never over water especially in cool to cold weather. If you have any doubt about whether to water or not, don't leave it for another day or two. Water them early in the morning on a sunny day.

Temperature
Temperatures for Paphs range considerably. Many growers separate Paphs into two groups, the warm-growing mottled-leaf types and the cool-growing, green-leaf types. Warm-growing types should be 15.5°C to 18°C at night, and between 24°C to 30°C or more during the day. Cool-growing types should be 10°C to 15°C at night, 24°C to 30°C during the day. Many growers grow all plants in the same temperature range with excellent success. The plants can stand night temperatures up to 5°C, if necessary (when grown outside in mild climates), as well as temperatures to 35°C. Care must be taken to protect the plants from rot when cold (keep humidity low, and do not let water stand on leaves or in the crowns of the plants), and also to protect from burning when hot (shade more heavily and increase humidity and air movement).

Inspect your Plants

It is important that you regularly inspect your plants. If you visit your growing area regularly you become very skilled at spotting problems before they escalate. Like most things, successful orchid growing is proportional to the amount of effort you put in. I try to look over my plants every day if it is after work under lights!

Fertilizer
This is a key factor in successful *paphiopedilum* growing. I have found that paphiopedilums like a weak, regular and varied fertilizer program. I fertilize them with a very weak solution every time I water with them, rotating organic and chemical fertilizers from week to week. Although my plants slow down their growth in winter, I still fertilize as there is some growth and they are building up reserves for the main spring- summer growing season and later winter flowering season. I fertilize over the leaves too as paphiopedilums like foliage feeding.

High nitrogen fertilizers (like 30-10-10) are recommended when potted in any fir bark mix. In warm weather, some growers use half-strength applications every two weeks; others use 1/4 strength every watering. It is important to flush with clear water monthly to leach excess fertilizer, which can burn roots. In cool weather fertilizer applications once a month are sufficient for paphiopedilums.

Growing Medium
I use a basic bark mix and nothing else! I have tried everything in just about every combination but am convinced that the medium you grow in is not that important, what is vital is that it is fresh, well drained and regularly replaced. Use a finer bark for seedlings and medium grade for the mature plants. It always amazes me that some growers will spend big rupees for a plant, yet not want to spend a few rupees on regular repotting as the bark/pot will cost too much!

Uniform Growing
Repot all new purchases into your potting medium. In this way when you come to water / fertilze there is uniformity in drainage and nutrient acquisition. So many people just bring home a new plant put it on the bench, often ending up with several different mediums (Sphagnum moss to bark/rock mix) next to one another. They then try to water and fertilize them the same. It doesn't work.

Dividing Plants
I always repot and divide the bulk of plants in January/February, as they are usually finished flowering and are in active growth. Make sure you divide big plants into two or three growths. Do not separate into a lot of single growths. Often the shock results in growths that sit for years and never make new growth. Repot your divisions (in fact all Paph plants) according to the root mass size, not the size of the top growth. You have to discipline yourself to do this, but it is vital to successful *paphiopedilum* growing.

Read (Ask) Learn
Read as much as you can about *paphiopedilum* growing and find out what works in your conditions. When you find a successful formula don't change it, maintain it. Always be a good listener, you may not agree, but it all adds to the cumulative knowledge that may be invaluable at some stage. Ask successful growers about the success, most are only too pleased to share their knowledge. Successful Paph growing is proportional to establishing a good environment, regularly inspecting your plants and having good ongoing management skills.

Figure 1 Paph incharm (Photo by Nageshwar)

Figure 2. *Paphiopedilum fairrieanum* Photo by Ms Nandita Lakhani

Figure 3. *Paphiopedilum concolor* (Photo by Ms Nandita Lakhani)

Figure 4 and5 Paph (Photos by Ramakumar)

Cattleya : L.C. Mari's Song

Dr. Shakuntala Manay

Addicts of Orchids know, William Cattley grew the first of this kind in 1818. Swainson has named the first flower honouring William Cattley as *Cattleya labiata*.

Cattleyas are large, showy flowers measuring 8 to 10". Some are fragrant too. Because of the ease with which one can grow them, they are one of the most hybridized of all orchids.

Although this particular *Cattleya* came into my garden, I knew it is there only when it flowered in 2011. Its exotic colour combination captivated my attention when I was particularly grey in my moods. It cleared the clouds and cobwebs in my mind. Bewitched by its beauty I brought it indoors into my living room. Since then it has bloomed four times. Nobody could give me any information on its background or hybridization then and I left it at that.

I made renewed efforts to know only when Sriram kindled the interest in me to write a brief note for the third prize it received in the last BiMM.
Finally the missing "Chip" of the puzzle came from The Orchid Tree! I got some authentic information. This variety I came to know is L.C. Mari's Song, which is a hybrid, between Irene Finney (1964) and Cattleya Cherry Chip!

This hybrid needs medium (56%) to high light (91% .)
It grows in warm temperature range between 14 C to 24 C night temperature.
50 to 60% of humidity is ideally suited. Mature plants need to dry out between watering. A porous earthen pot with good drainage (rain water), charcoal, bark, moss and pieces of bricks are the medium in which the plant has grown since 2011. It has given two flowers in the beginning, now it gives four to five.

What I like most is its very honey-like sweet fragrance. To sniff the fragrance is in itself an experience! I was so fascinated with the sweet fragrance I decided to extract the essential oils from this flower with the help of a friend. The extract was deep violet in colour like sparkling wine! It had no taste. But the fragrance made a profound impact on my mind. It surely has aromatic properties which bring about changes in moods. The needle goes from extreme -0 degree to +0 degree.
This essence is stored in a phial, also in globules, in the fridge for the last two years. The sample in a tube and also as globules is displayed with the photograph of the flower!

The essence is extracted in an alcohol medium. To prevent it from evaporation the essence is stored in pellets thus the essence can be kept for longer periods. When taken orally one experiences a shift of moods. And also it is one of the Bach Flower remedies. Many of the Bach

Flower remedies are available both in liquid form and also as pellets. The pellets are cheaper than liquid.

This mild fragrance is very powerful to change the mood profile instantly.

Cattleya L.C.Mari's Song

Inauguration of Orchidarium at University of Agricultural Sciences, Bengaluru

Dr. A.N. Sringeswara

Orchids are a fascinating group of plants with peculiar and long lasting flowers. They are the largest group of flowering plants in the world. In India Western Ghats is one of the important habitats for orchids and harbors around 310 species, and Karnataka in particular has 175 species.

Orchids are highly sensitive and are susceptible to the slightest change in environmental conditions and are thus excellent indicators of health of an ecosystem.

Conservation of them in natural habitat, *in situ*, yields far-reaching and long lasting benefits. However, this has to be supplemented with *ex situ* conservation to aid in species restoration and hybridization programs. To this end an initiative has been taken up at Mahatma Gandhi Botanical Garden, University of Agricultural Sciences, GKVK, Bengaluru. An Orchidarium is established with a view to represent the entire orchid flora of the state; and also to help in the study of various aspects of orchids; and for species restoration through exchange and reintroduction programs.

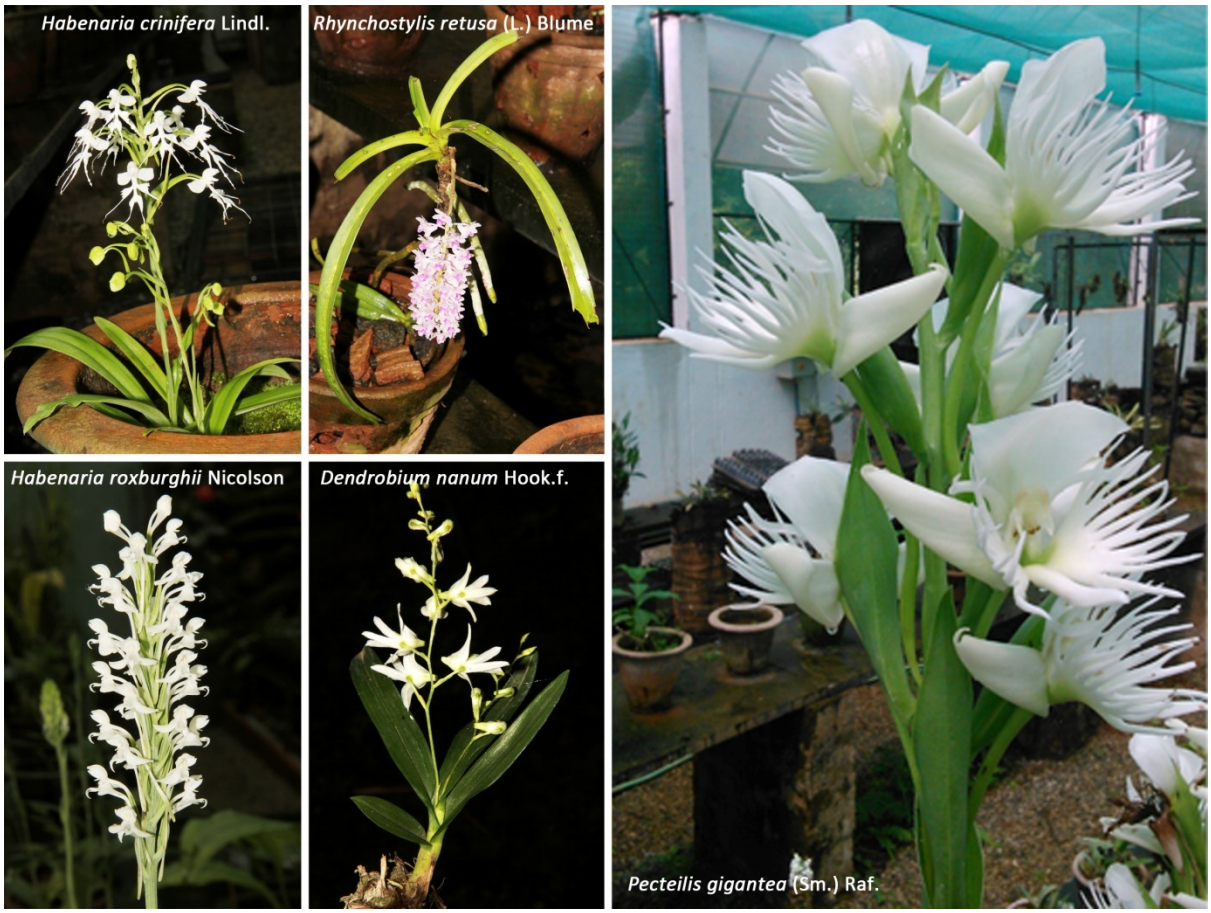
Orchidarium at UAS, GKVK has a collection of over 100 species including a few north Indian species and cultivars. This Orchidarium was inaugurated along with Balsam and Ginger Houses on 19th August 2016 by Vice-Chancellor of the University Dr. H. Shivanna in the presence of Chief Guest Mr. R. M. N. Sahai, Chairman, Karnataka Biodiversity Board, followed by the release of a booklet on "Orchids of Karnataka Conserved in the Orchidarium" by Vice-Chancellor of the University.

Dr. D. P. Kumar, Director of Education and Dr. H. Khader Khan, Dean (Agri) of the University were Guests of Honour. Dr. M. D. Rajanna, Professor & Curator welcomed the gathering and made a power point presentation on the activities of Mahatma Gandhi Botanical Garden.

Apart from the booklet on Orchids of Karnataka, other publications such as "*Impatiens* L. (Balsaminaceae) of Karnataka", "Plants of Mahatma Gandhi Botanical Garden", "A Handbook on Weeds of Karnataka" and "Medicinal Plants of Mahatma Gandhi Botanical Garden" were also released during the function.

Orchid lovers such as Dr. Sadananda Hegde, President, TOSKAR, Dr. M. Sanjappa, Former Director of Botanical Survey of India, Dr. K. S. Shashidhar, Former PCCF Wildlife, Nagaland, Mr. Balanarasimha, Dr. V. Bhaskar, Administrative Officer and Estate officer of the University, Dr. Balakrishna, Professor (Rtd.) Dept. of Microbiology, Mr. Anand, Publications Dept., and Mr Eshwar Prasad; staff and students of Mahatma Gandhi Botanical Garden, Department of Forestry and Environmental Science and other Departments of the University, graced the inaugural function.

Dr. K. T. Prasanna, Professor and Head of the Dept. of Forestry and Env. Science gave a vote of thanks to all for their presence and participation.



Plants flowering at the facility

A Note on Hybrid *Arachnocentron* (Act) 'Tipi Jubilee Star'

Dr K.S. Shashidhar

Arachnocentron (Act) 'Tipi Jubilee Star' is an intergeneric hybrid developed by Dr. S.N. Hegde, former Director, State Forest Research Institute, Arunachal Pradesh. This is a cross between *Arachnis labrosa* and *Cleisocentron pallens* (= *C. trichromum*) and is registered with RHS in the year 2001. Some basic information about the parents of the hybrid is as follows.

***Arachnis labrosa* (Lindl. & Paxton) Rchb.f.:** The species is from Eastern Himalayas mainly growing in Assam, Arunachal Pradesh and Sikkim. Apart from these places, it is also found in Bhutan, Myanmar, Thailand, China, and Vietnam. This is a tall, warm growing monopodial epiphyte with a stem which is almost woody and about 2-3 feet, often pendulous. Leaves are bilobed unequally and clasping the stem. Flowers are borne on the axils, well-spaced at a distance of 2-3 cm on the long, pendant inflorescence. Flowers are fragrant and are waxy with sepals and petals yellow in colour with dark brown marks.

Under cultivation the species needs bright light like other Vandaceous orchids with 4000-5000 fc, especially for better flowers it needs brighter light. For better flowering a diurnal variation in temperature of 8-9 C is required. The plants need to be grown in a well-drained medium.

***Cleisocentron trichromum* (Rchb.f.) Brühl.,**
Accepted Name: *C. pallens* (Cathcart ex Lindl.) N.Pearce & P.J.Cribb:



C. pallens (Cathcart ex Lindl.) N.Pearce & P.J.Cribb

This species is found in North Eastern part of India including Sikkim and North Borneo. This is a warm growing huge sized epiphyte with lot of branched growth. The leaves are narrow and oblong with sheaths. The species blooms in summer producing a long inflorescence with a few flowers arranged on either side of the rachis. Flowers are pale colored with a pink center. Plant can be cultivated in intermediate conditions with bright light and in a well-draining media.

As the hybrid gets 50 percent of characters from each of the parent, the plant can be grown in filtered light and in cool to warm conditions. In Bangalore conditions it flowers during the month of August. It can be grown either mounted or in a basket. Needs watering heavily during the growth period and as winter approaches watering is to be reduced. The characters of both the parents are evident from the arrangement of individual flowers on either side of the raceme (*Cleisocentron*) and the individual flower pattern with more resemblance to *Arachnis labrosa,* however, the lip appears to follow *Cleisocentron*.

***Arachnocentrum* "Tipi Jubilee Star''**

Arachnocentrum "Tipi Jubilee Star''

My misadventures with orchid growing

Sita Srivel

Orchids are the most attractive flowering plants. The blooms, especially Phalaenopsis, capture people's attention and compel them to buy, try and grow them. I am not an exception. I have a small balcony in the first floor of an apartment and I have plants that have survived for 30 years. (Same plant with multiple repotting).

Those who have grown plants like roses, begonias, ferns or cacti, think that orchids can be grown much like other plants. One has to unlearn that experience and start afresh. Culture requirements of light, humidity, fertiliser, are very different and specific to each species.

Micro climate plays an important role as it is one of the factors affecting growth and flowering in orchids. Macro climate is Bangalore weather in general; and the micro climate is the particular climate or 'created' climate in my balcony. A good example of created climate is Nageshwar's garden. You will realize this when you look carefully at the pictures posted.

I realized that the micro climate in my balcony was not suitable for orchids. A plant here and a plant there, did no good. Cacti did not survive in the climate provided to the orchids. Lot of trial and error and research helped to put together plants of similar culture requirement. The plants now are a mix of orchids with African violets, Impatiens, ferns and begonias. All these other plants require semi shade, humidity and rain water just like orchids, *Phalaenopsis* in particular.

Once again, I realized that my plants have stopped blooming. I could not figure out what was going wrong. I observed the light conditions in the balcony and realized that the apartment next door had shifted their lights to shine on my balcony and it is lit throughout the night. A shift in plant positions brought a single flower in the spike instead of the customary seven.

Now once again there is no flowering. The flat below mine, the one with a private garden has installed an automatic sprinkler system that goes on for a minute regularly at every three-hour intervals. My balcony is surrounded by these sprinklers. The daytime and night temperatures have been artificially altered and the orchids requirements are not met with.

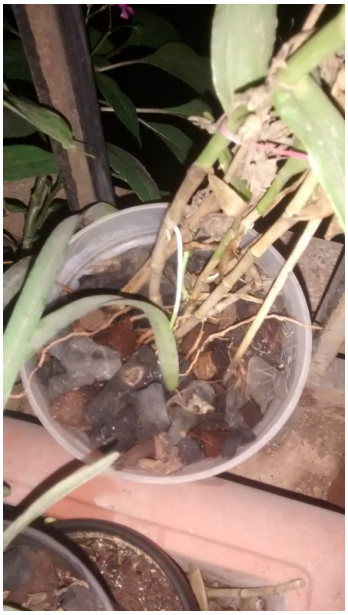
The trick to successfully grow orchids and get good blooms is to provide them with climate found in their habitats and to mimic it as closely as possible.

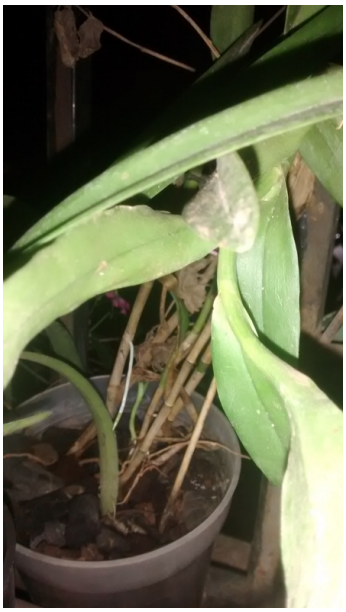
The silver lining is Orchids are real survivors.

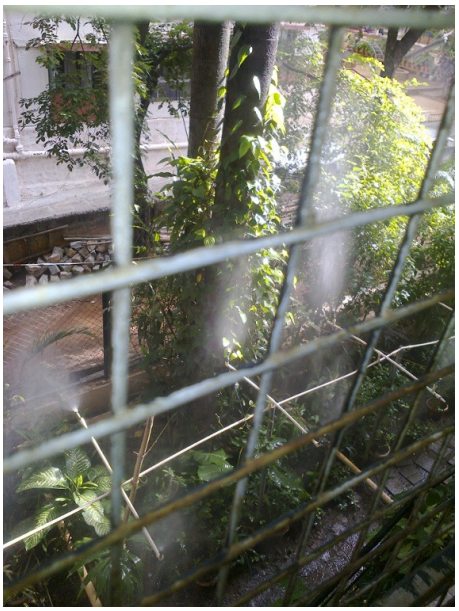
I wanted an Epidendrum and asked my friend Dr. Gita Rao to give me a small plantlet. Her *mali* does not understand orchids and chucks out large lush clumps. I picked them on July 21st when I visited her. They were then stored inside the house for nearly a month, with no watering, no access to sunlight, no 100% ventilation. Several of my friends who were hankering after the Epidendrums took a few. Three more plantlets were left with me. To my surprise, there were new

shoots and new roots, sprouting after absorbing the moisture from the mopped floor and the light from a 9 watt LED bulb 6ft above! That is when I checked how long they remained there unattended. I realized that it was there from 21st July to 25th August! Almost five full weeks. Totally uncared. I then placed them into more favourable conditions and they are doing so well.

On this optimistic note, I end and hope that my other orchids will bloom when I am able to provide their culture requirements in the near future.







Podangis dactyloceras

Nandita Lakhani

Podangis dactyloceras is native to Africa with a fan shaped growth habit and fleshy leaves growing in the rainforests near waterfalls and rivers. Occasionally it grows on rocky soils too as a lithophyte. This orchid has translucent glass like white flowers with spurs. The plant does well in hot to warm temperature in semi-shade conditions. It likes bright filtered light and good air movement.

My plant is in a tiny pot in sphagnum moss and its doing well in this media. I bought this plant in March from Orchid Tree.

Hyderabad is very hot during March and April (40 to 45C), so I watered it twice a day during that time. The plant is kept on the terrace between Phals and Paphs. Once it started raining in mid-June I reduced watering. I saw buds appear in the axils of the leaves during that time.
Podangis flowers are arranged in a sub-umbellate inflorescence; they are long lasting in spite of their delicate glass like appearance. It has been more than two weeks and I am still enjoying the blooms.
I use dyna grow and dyna bloom, sea weed extract, fish emulsion fungicide for all my orchids.
Happy Orchid Growing!

Podangis dactyloceras (Rchb.f.) Schltr.

Lost and Found – Vanda wightii Rchb.f. 1864

Sriram Kumar

Robert Wight (1796-1872) was a Scottish surgeon and botanist who spent 30 years in South India. He was the Director of The Botanical Garden in Madras between 1826-1828.

He published the *Icones Plantarum Indiae Orientalis* (Illustrations of the Plants of Eastern India) in six volumes in 1856.

He founded the Madras Agri-Horticultural Society and contributed a lot of articles to the *Madras Journal of Literature and Science* in the form of short letters and full articles on botany and related subjects between 1835-1840.

He had collected many plant specimens and sent them along with illustrations to London and parts of Europe.

One of his unique collections was a Vandaceous Orchid in 1849 near Coimbatore which he sent it to his friend Reichenbach, a German Professor and Orchidologist.
Reichenbach described this species in 1864 and named it after his friend who discovered it as *Vanda wightii.*

For the next 150 years or so, the species was never to be collected or reported. In 2000 again it was rediscovered at Kukke Subramanya in Mangalore.

Vanda wightii is rare in wild (endangered) and equally so in collections. Current populations are isolated and limited to low land deciduous forests or Karnataka, Kerala, Tamil Nadu and parts of Sri Lanka

Blooming season is between September through December. The flowers are fragrant at dusk and are pollinated by a nocturnal insect.

This unique species was in bloom in one of the members' (Mrs Lakshmi Jagadeesh) collection and was displayed at the August 2016 BiMM.

References: Rheedea Vol.16 (1) 49-54 2006

Rediscovery of Robert Wight's *Vanda wightii* Rchb. f. (Orchidaceae)
C. Sathish Kumar, P. C. Suresh Kumar and E. George[1]

Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram 695 562, India.[1]Merry Land Garden, Alattil P. O., Thalapuzha 670 644, North Wayanad, India

Vanda wightii Rchb.f.

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*The Orchid Society of India (TOSI) is organizing a National Conference cum Workshop on "**Recent Trends in Biology, Culture, Conservation, Commercialization, and Sustainable Utilization of Medicinally and Floriculturally Important Orchids**" jointly with Graphic Era University (GEU), Dehradun (Uttarakhand), during March 10-12, 2017. Several orchid scientists, growers, entrepreneurs, enthusiasts, and policy planners are expected to deliberate on its theme. The technical sessions shall comprise both oral and poster presentations. The abstracts of the accepted papers (posters) will be made available during the conference. The full papers shall be published as proceedings/special volume of The Journal of The Orchid Society of India.*

You are also requested to send the abstract(s) of your paper(s), preferably through e-mail **ptosichd@yahoo.com**, so as to reach the Secretary, The Orchid Society of India (TOSI), Department of Botany, Panjab University, Chandigarh - 160 014 (U.T.), latest by December 25, 2016.

Report of BiMM August 2016

Sriram Kumar

The bimonthly meeting was attended by 45 members and as the designated guest speaker Mr. Ramakrishna of Rynco Orchids was unable to come, Dr. Hegde, President of the Society, delivered a talk on 'Orchid Breeding".

Dr Mythri Shankar has joined as Life Member and Ms Gayathri J.Reddy as Annual Member. Welcome Mythri and Gayathri!

In continuation of the objectives of the society, members were encouraged to exchange plants and also to bring their problematic plants.
A few members brought infected Cattleya plants. The infection is diagnosed as Fungal Rot. And remedies were suggested.
Products such as Mycotol H – a bio-fungicide/bactericide was procured as per members' requirement.
Another product Clotol H – a bio-pesticide which is neem based was also procured for the members.

Biotech division of Khoday laboratories had a sales counter with 20 varieties of *Phalaenopsis* hybrids along with a few other orchids and the response was very good.

The display of plants in the two categories – species and hybrids grown by members was wonderful.
Following are the winners:

Species category:
1. *Rhynchostylis gigantea* 'spot' grown by Mr. Sanjeev Dharwal
2. *Encyclia radiata* (Lindl.) Dressler grown by Dr. Shashidhar Sastry
3. *Vanda wightii* Rchb.f. grown by Ms. Lakshmi Jagadeesh

Hybrid Winners
1. Paph multifloral hybrid (sanderianum x phillippensis) grown by Ms. Lakshmi Jagadeesh
2. *Cattleya* grown by Ms. Nandini
3. *Cattleya* grown by Ms. Shakuntala Manay

For the benefit of the other members, the winners are requested to share a small write up on the culture they followed for the award-winning plant.
To enable this a short template was shared with them.

Report of BiMM October 2016

Sriram Kumar

The October Meeting of TOSKAR was somewhat subdued as only 35 members were present.

Mr. Ramakumar, Secretary, gave an excellent talk on *Paphiopedilum* culture and tips for growing them in Bangalore conditions. A short note in this regard was printed and shared with the members, and for the benefit of the absentees, the same is published in this NL.

Considering the interest shown by the members for this group of orchids, it was proposed to create a *Paphoipedilum* Special Interest Group under TOSKAR to interact and share on specifics of *Paphiopedilum* culture.

A separate WhatsApp group is also planned in this regard.
Interested members were asked to register with the EC members for the same.
Similar Special interest group is planned for other popular genera grown by members.

As always there was an enthusiastic participation in both the categories and the following are the winners for this BiMM display and competition:

Species Winners
1. *Phaius wallichii* Lindl. grown by Mr. Ramakumar
2. *Paphiopedilum concolor* (Lindl. ex Bateman) Pfitzer grown by Mr. Sriram Kumar
3. *Paphiopedilum liemianum* (Fowlie) K.Karas. & K.Saito grown by Mr. Ramakumar

Hybrid Winners
1. *Angraecum* Crestwood "Rising Star" grown by Mr. Nageshwar
2. Paph multifloral hybrid (sanderianum x anitum) grown by Mr. Sriram Kumar
3. *Renanetia* 'Sunrise' owned by Mrs Juliet Fontes.

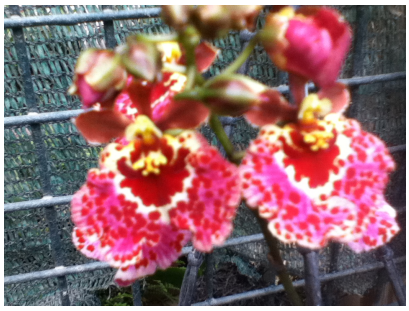
My Tolumnias and snails!

Nalini Kottolli

It was 9PM. I was on my terrace busy picking up the crawling snails with the help of a torch; when I got a call from my sister. “Where are you? Why do you take such a long time to pick the phone?” the angry voice thundered, being elder to me she thinks it is her birthright to yell at poor me. I told her what I ventured out to do on my terrace and her mood changed to hearty laughter. “Oh! you don't have better work to pass your time!” was the remark.
But what does she know of my frustration to see the bare spikes of my cute Tolumnias and *Phalaenopsis* in the morning.

Snails are at their best in Bengaluru, during rainy season. They hide during day time and come out at night to have a sumptuous dinner of roots, leaves and flowers of my orchids. I don't use snail bait as it is taboo at home. Therefore, after dinner I go to my terrace to walk around with a flashlight and bend down to pick the snails for some time, which is a good gym to me.
When I moved some ferns to sit under the Orchid bench, attack of snails on my orchids has reduced, considerably. But when they need a feast they attack orchids, I suppose.

The newest addition to my collection are the tiny Tolumnias, which display long spikes of colorful blooms, similar to Oncidiums. These were formerly known as Equitant Oncidiums.
The foliage is 6 to 8 inches in length. The thick narrow leaves with a slight fold are arranged in pairs, overlapping at the base.
The fold in the leaves seems to be there to invite mealybugs, if the culture is not good.
Like the Orchid Queen Cattleya these tiny Tolumnias also need bright light, but they appreciate dryness like Vandas. They are best on mounts with little moss and good ventilation around.
Best time to water them is before the day temperature rises allowing time for the leaves to dry, as the clump may hold water. Fertilize lightly once in three days to get more blooms.
If infested by mealy bugs spray with neem oil, emulsified with soft soap.
When the multicolored inflorescences sway gently with those beautiful blooms all those who tease me for my snail picking forget their remarks and now exclaim “Oh! What lovely blooms!”
I feel rewarded and happy



Monsoon Magic in Meghalaya

Valli Muthuraman

The lure to travel to the picturesque North Eastern state of Meghalaya was strong. We had heard a lot about how the monsoon there created magic and mystery on the plateau. We finally managed a week-long trip in June, 2016 to this magical land Meghalaya - The Abode of Clouds.

During the monsoons, giant clouds that arise from the Bay of Bengal bring over unending rainfall, with short breaks during the day, making it the rainiest place on the planet. As a result of this, there are many picturesque and scenic vistas created! Cascading waterfalls, meandering crystal clear streams, emerald green moss covered forests and cloud hugging folds of mountains.

Our base was the charming hill town of Shillong. We set out every day to visit many interesting places. One morning we embarked on a drive towards Cherrapunji (Sohra) which is officially declared the wettest place on the entire planet. We were astounded to see the boundless beauty that rolled out in front of us. As the roads snaked through the mountains, at each bend and curve the scenery was breathtakingly beautiful! Puffy white clouds seemed in no rush to move from the folds of never ending green hills, as though they had comfortably settled upon the mountain tops. White waterfalls dramatically pranced from the cliffs. Tall wispy grasslands danced in the direction of the cool billowing breeze. At times we seemed to be literally above the clouds.

Absorbing this mystical and enchanting ever-changing scenery, we continued our drive towards Sohra. Wanting to take a tea break, the driver was on the lookout for a roadside tea stall. Soon, having spotted one he pulled over to a quaint little tea stall. It was built skilfully using locally sourced bamboo and dried grass, on the hillside, with a stunning view of the green valley adorned with pristine clouds. Kudos to the rural architect of this house cum tea stall which exuded style in simplicity. I was envious of its beauty.

As we waited for hot tea being brewed, I went a few steps to capture the stunningly beautiful scenery that surrounded us in my lens. Across the road, I found there was a rocky cliff that glistened, being wet with the steady silent spray of light rain that was constantly falling. High up on the rocks, I was thoroughly excited to find little demure white flowers blooming from plants that clung strongly to the cliff. Zooming in with my lens, I was delighted to find that they were indeed white orchids!!!

Being passionate about collecting orchids from all my travels, I struck up a conversation with a young boy who seemed to live in the hillside home. He told me that he and his friends climbed up the rocks to collect these fragrant white orchid plants and then showed me a little mound of rocks where they had displayed them with clumps of soft wet moss. Absolutely thrilled to bits, I told him that I would buy two clumps of these delicate blooming plants that i adore!

He brought a bag from his home and packed the plants with care, throwing in a lot of wet moss - to my delight! I was surprised to hear that he was charging me as little as Rs.60 for the plants!! I was doubly astounded and very touched with what followed, when I paid him Rs.100 instead!

The young rural lad ran to wash his soiled hands at a tap adjacent to his shop, came back to shake my hands and say - the warmest and heartfelt words to me ‘Thank You Madam!’ This was indeed rural etiquette at its best!!
This sweet small episode – of thoughtfulness of this little lad - from my travels would remain etched forever!
To my delight I noticed how he brought a bag from his home and packed the plants with care, throwing in a lot of wet moss as well!

Having cared for my priceless purchase with utmost tenderness during the rest of my stay in Meghalaya, I brought it home with me carefully to Bangalore. Getting back into my usual mundane routine, after a refreshing holiday, I was excited to settle the orchids into their new environment, miles away from their original home.

I divided the clumps of plants into two halves. Potted one half in a clear plastic pot, using potting media that was a mix of charcoal, brick and dried coconut husk. To this I also added some moss that came with it. I watered the pot at intervals, depending on the weather. A few weeks later, I was glad as it had settled in well, showing signs of being happy in its new environs. New shoots appeared and flourished!

The other half, I had interesting plans! I found a round glass fish bowl vacated recently by my son’s goldfish. I laid a layer of charcoal and brick pieces at the base topped with moss from Meghalaya and planted the clump of orchid plants there firmly. Threw in a creamy rosette shaped shell which I collected as a memoir from my sea side travels earlier. Sprayed enough water on the soft moss and closed the bowl with a plastic plate that fitted snugly. Soon, I noticed moisture droplets form on the sides of the bowl in which I had created a terrarium environment. In a few weeks, to my great joy I found new shoots looked and happy healthy in its cozy new home.
I am now waiting to see if these orchid plants will bloom. That would definitely add to the incomparable, inexplicable joy that we orchid enthusiasts experience when the plants that we lovingly care for spring forth with lovely blooms!

My Sojourn into the World of Orchids

Dr. Sucharita Ranganathan

I needed an activity outside the house after my retirement and I enrolled in Japanese classes and learnt that language for a while. I always liked gardening but it was not until I quit academia could I indulge in these hobbies. And then my son brought me an orchid from the Lalbagh show. Unlike other cut flowers this orchid's blooms lasted for several days and I wondered why not I grow some orchids as a hobby!

As it happened I also had an occasion to visit a friend in Yelahanka. I was surprised to see her place full of flowers everywhere. Some highly fragrant flowers that spread a gentle scent around her living room and some with such resplendent colours matching the shimmering drapes in her large windows. And she lived in a flat on the third floor with no real garden to speak of! The small sky garden where she said she was growing her herbs earlier is now turned into a tiny orchidarium.

I am now certain, No longer wondering if I should or not.

I decided to take up this as my new hobby.

She encouraged me to join TOSKAR. I accompanied her to the next Bimonthly meeting held at the Marigowda Hall, Lalbagh in April this year. I bought a few orchids that day both at the meeting and also from the next door nursery in Lalbagh. My orchid collection slowly began to grow. Instead of Japanese language which I started to learn post-retirement I am now learning the Latin names of these lovely plants and also some tips to grow them successfully.

A new world has opened up for me.

By chance, I was able to accompany my husband to Taiwan as he was attending a conference in Hsinchu south of the Taiwanese capital of Taipei. It was again this friend who alerted me to the fact that Taiwan is rich in orchids and I could try to see the Ten Shin Gardens if possible.

Our hosts were very indulgent and on Nov 6th, after a sumptuous 12 course vegetarian lunch (each course came with a flower!) I set off with two English speaking girls Serena Jong and Michelle Wei to the orchid gardens. These girls had never heard of the Gardens but by the end of the day they were hooked on orchids.

We were made very welcome by Mathew Wei-Yi Chen and his parents who own and run this huge Orchid farm.

We were given a full one hour tour of their four vast silos. This family is one of the big exporters. They mainly propagate and hybridize and export orchids to all parts of the globe. They are major players in exhibitions around the world. It was not the season for blooms. Further, since their main aim is to export, they would like the flowers to bloom when they have

reached their destinations. They showed us how they hybridize. The gardens had the largest and smallest orchid I have ever seen.

Our tour ended with their gifting us some orchids native to Taiwan.

I am including some photos I took and in particular the ones of orchids that I have. I am hoping that they survive in this beginner's hands. I am cultivating patience and learning on the way. Thanks to my friend and thanks to TOSKAR, I am thoroughly enjoying my new hobby.

Ah! The famous Ten Shin Gardens… I look forward to the next visit to Taipei.

Haraella retrocalla is a miniature epiphyte native to Taiwan. I am told that this does best mounted on a piece of driftwood. But I am keeping it in a pot for now. Its yellow flowers with a scarlet center have a nice citrusy fragrance.

Dendrobium linawianum is another native of Taiwan. Each inflorescence has two to three large showy blooms. It is also called the Cherry blossom Dend as the flowering of this orchid coincides with that of Cherry blossom.

Phal amabilis: Many wonderful cultivars are emerging from Taiwan. My hosts told me they are tetraploids (twice the number of chromosomes) and therefore the blooms are to be rather large and robust. I am keeping my fingers crossed!

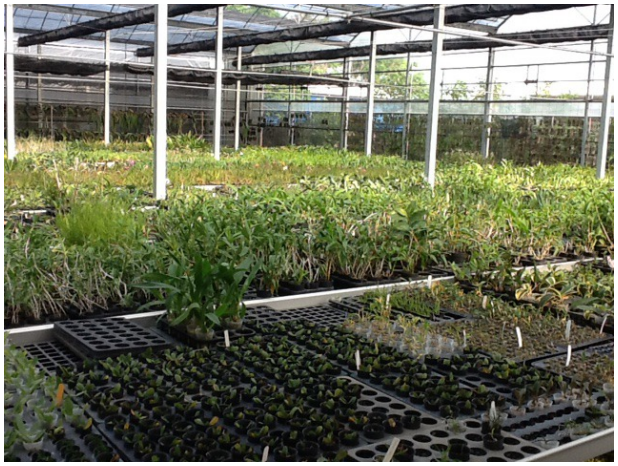
Phal tetrapsis – this moth orchid has white and pink flowers on one shoot. The other is yet to bloom. I am waiting for it to produce many fragrant spikes with white blooms with random red sepals or petals or all red.

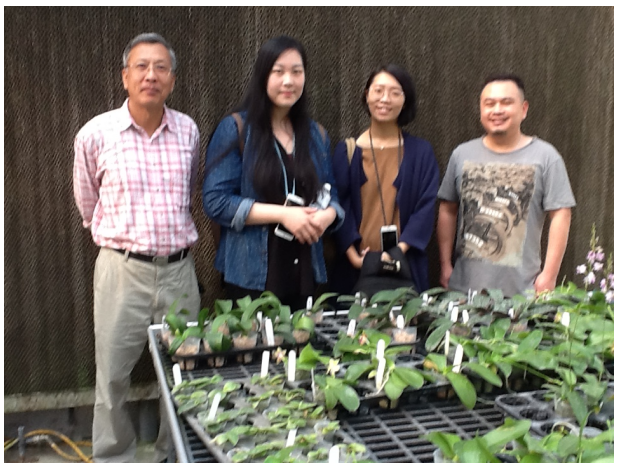
Doritaenopsis Sogo Vivien 'marginata' as the name implies has yellowish white striped margins on its leaves. It is an intergeneric hybrid between *Phalenopsis* and *Doritis*. This small compact plant is expected to produce an abundance of long lasting lavender coloured flowers with magenta stripes.

If I had more knowledge I could have written about the hybridization happening in those bottles

With Mathew Wei-Yi Chen and his parents

Serena Jong and Michelle Wei with the Tolumnias presented to them





Paphiopedilum Michael Koopowitz

(Paph sanderianum 'Show shan' X Paph phillipense 9F)

LAKSHMI JAGADEESH

This hybrid Paph seedling was gifted to me by my daughter six years back and I never thought that I will be able to make it flower. After nurturing for six long years finally Paph has bloomed now and I hope it will continue to bloom regularly in future.

I kept this plant in the northeast corner in bright light where it gets one hour morning sun.
I spray once in 10 days along with other orchids.

I repotted it last year with bark, charcoal and perlite. A little sphagnum moss was used as top dressing. I use a mixture of well water and rain water for spraying fertilizer.

A few vital stats: The leaf span is 36 cm; number of growths: 5; Number of spikes: 1
Number of flowers per inflorescence: 5
Measurement of petals: 35 cms

Happy orchid growing!

Paphiopedilum and *Gongora*

Sabitha Reddy

Hello, this is Sabitha N Reddy.

I am very glad that my Paph (*Paphiopedilum)* has been chosen for first position in the Hybrid category and *Gongora* got a second place in the Species category at the Bimonthly held in June 2016.

Well I was into orchids since the past three decades but in the beginning I did not know how to take care of these plants. I killed a few plants too. My sister introduced me to TOSKAR and I became a member about 16 years back. After that I was elected as an EC member in which capacity I served the EC for 10 years.

My passion towards orchids started with the influence of my daughter who lived in London. So it was then that she taught me how to take care of these special plants; basically just watering.

I attended an Orchid Show when I visited my daughter in London and we bought quite a few plants. I picked up a *Gongora* for 10 pounds in 2005. I split the plant and brought a few bulbs with me back to India. For five long years the plant that grew from the bulb just sat there and then one fine morning I was thrilled to see one stalk. I felt highly rewarded to see the first blooms.

I brought some Paphs too from my daughter's collection. They were in bloom there. But here at my house the *Paphiopedilum* did not bloom at all. I got a Green House too for my Paphs. I tried putting it in so many places hoping it would produce flowers. But it simply sat there. No blooms! So out of frustration I just put it in a corner and ignored it. Seven long years later it bloomed. From then on I get one stalk with 3 flowers every year.

After I provided misting three times a day my plants have improved a lot, and with Sriram's guidance I fed them with fertilisers such as NPK, calcium, magnesium and also used pesticides. Sriram's advice was very helpful. My *Gongora* too has given about 10 stalks. I am very happy and my grateful thanks to Sriram for his guidance.

I have been collecting orchids from abroad wherever I have traveled and so also my sisters and daughters have been collecting orchids for me. Thank you!

New Members of TOSKAR

TOSKAR welcomes you all who have joined our ranks this year.
We hope you will gain from the expertise of some of our experienced members in growing and enjoying the unparalleled beauty of these unique group of flowering plants.

We also hope you will make it convenient to attend the Bimonthly meetings and also contribute to the Newsletter.

Mr Edison Oswald,
Ms Kalpana Sugara,
Dr Prashant Chandrakant Arade,
Mrs Premeela A,
Mrs Preeti Pandey,
Ms Rekha Chari
Dr Mythri Shankar and
Dr Sucharita Ranganathan have joined as Life Members;
and the following enrolled as Annual Members:
Mr Antony Manoj S,
Ms Nalini Nanjundaiah,
Ms Sandhya Sanatkumar,
Sushant Chandrakant Arade and
Ms Usha Thomas
Ms Gayathri J Reddy

Happy orchid growing!