



TOSKAR NEWSLETTER

A Quarterly Newsletter of the Orchid Society of Karnataka (TOSKAR)
Vol. No. 5; Issue: iii; 2018



THE ORCHID SOCIETY OF KARNATAKA
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TOSKAR NEWSLETTER

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(Vide Circular No. TOSKAR/2016
Dated 20th May 2016)

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Front cover –

Habenaria rhodocheila Hance
by Dr K. S. Shashidhar

From the Editor's Desk

21st September 2018

We are almost at the end of South West monsoon here and it has been a happy season for orchids with plenty of moisture and also day's being warm with the exception of few continuous cloudy days. I feel any amount of watering of plants cannot surpass nature's watering! few good rains and it is a sight to see in the mornings lush, green vibrant plants. Now we have to gear up for returning monsoon as Bangalore gets good rains from North East monsoon also. The months of June, July, August, September and October get good rains in Bangalore, to some extent even in November. As rains are predicted for another month, take care of your potted orchids which are exposed to rains.

Habenaria have been in full bloom this season and we saw some wonderful postings of the flowers in various forums and also in our Bi Monthly Meeting Displays. Our members are becoming expert in growing some of these orchids successfully. For the ensuing months, growers with *Habenaria* (especially new growers) watch out for the completion of flowering and then after that the leaves start dropping off, till then keep watering. Once all the leaves are gone, keep the plant aside and do not water till next spring when they start growing again. Sparingly spray some water to keep some moisture.

Many growers are reporting problems of slugs and snails and the damage due to them. On several occasions it has been explained that not one single method will be adequate enough to take care of them, it has to be an integrated approach. Better take a serious note of this and save your orchids.

Personally, I have made all efforts to improve the quality of the newsletter in all aspects. But as pointed out in the last Bi Monthly Meeting, which was followed by a mail to all the members to contribute to the Newsletter has not yielded the desired results. I have explained to the Executive Committee in the last meeting that under the circumstances (of not getting articles from members) it may be difficult to bring out the Newsletter. I once again appeal to all the members to contribute article and share their experiences. Unless, things improve in terms of articles for the Newsletter, it would be difficult to come out with quarterly publication on time.

However, after much efforts I could get about four articles for this

issue. Our friend from Germany, Alexander Bazing shared his experience in using coco chips in growing his Paphs and Coelogynes. Agni Mitra has written about use of inert media in orchid culture. Nageshwar has shared his experience in growing Lycastes in Bangalore. I have written on use of Sphagnum Moss in orchid culture as its use is showing an increasing trend.

Orchids are not just flowers, they are feelings!

The South Indian Soul

Dr. K. S. Shashidhar
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Coconut-chips as orchid growing medium

Alexander Bazing, Stuttgart, Germany

Most recommended media for orchid culture are on a bark basis. Years ago I found a translated article about coconut-chips as a growing medium for Paphiopedilums on the homepage of our local orchid society. The original article is from Bob and Lynn Wellenstein from AnTech Laboratories, famous for their fantastic Paphiopedilum culture. Unfortunately the homepage of AnTech Laboratories is no longer available . But I remember very well that on this homepage one could see perfectly cultivated Paphiopedilums with their healthy roots filling the whole pot.

Few years ago I started with some experiments involving different genera and media with different additions to the media about which I can share some of the status. Though there are still some things to be completed, and observations to be made, from my point of view few answers are available as an output. Growing in coconut-chips is not the secret of orchid growing and it is not the absolute certainty of better plant growth, healthy roots and successful growing at all. But there are some benefits and it is worth looking into.

It is also true that one has to remember that different growers with different growing conditions like light level, temperature, ventilation, water quality, fertilizer etc. might be experiencing the results differently.

Coconut-chips are not easily available in Germany but the author could manage to find a supplier who delivers dry chips in approx. 1cm chopped pieces. Indian growers do have definitely better sources and cheaper ones.

Preparation of the coconut-chips

Coconut-chips in dry condition is taken which is packed in plastic bags. These chips are soaked thoroughly before use. This should be left for few hours as the conductivity level is of more than 2000 Mikrosiemens and very harmful to the roots. By repeated cleaning and washing the chips, the conductivity levels are brought down to less than 100 Mikrosiemens. Now the chips are ready for storing and using it without damage to the orchid roots.

One observation on the presence of salts in the Coco chips by Harold Koopowitz in his book "Tropical Slipper Orchids", that the coconut material is washed in sea water in the originating countries could be the reason for the high salt content. He does not recommend Paphiopedilum culture in coconut chips, but he acknowledges that there are growers who are really successful with this material. Without the pre-treatment and processing of the chips, they are unsuitable for use as orchid substrate.

Advantages:

- ✓ The water storage capacity and retention ability of coco chips is very good while the surface of the chips is humid but not wet. By squeezing a piece of humid coconut-chips you can observe that good amount of water is retained , It could be that the water inside the pieces comes in a slow but steady flow to the surface and provides humidity to the roots without flooding them with water.

When it comes to Paphiopedilums they like this kind of condition. The observation here is that the roots of Paphiopedilums grow best in the interspaces of the substrate and like the air “humidity“ around the roots. Therefore I find the term “humusepiphyte“ very accurate. Another observation is that the best Paphiopedilum roots I found in my culture are in the lower part of the pots where I normally fill in some styrofoam chips as a drainage. Another hint of the more “epiphytic“ nature of the Paphiopedilum roots.

- ✓ The coconut-chips can be slightly pressed when potting and the newly potted plant gets a better stand
- ✓ Small pots do not dry out so quickly
- ✓ The substrate is more stable than bark mixes

Disadvantages:

- ✓ Time consuming procedure of soaking to eliminate high salt contents
- ✓ If the chips are completely dried out it may take longer to soak them with water
- ✓ Plant growth slows down after some time?
This is an observation from Harold Koopowitz in the already mentioned book about slipper orchids. According to his observations roots grow vigorously right after repotting but a few months later they stop growing. At this moment I can not reject or confirm this observation, still needs to be looked into.
- ✓ With big pots I found coconut-chips not to be beneficial, because overall the medium stays too wet for too long time.
Actually I run some experiments with big pieces of styrofoam in the center of big pots. With that I have tried to avoid the wet clump in the center of the pots where roots do not survive. In the surrounding area, coconut-chips could be used.
- ✓ Sometimes there is a fungus occurring in the substrate. It is visible by its white colour and a very distinctive smell. I am not sure if it is harmful for the orchids but I repot immediately and discard the medium when I get aware of it. This fungus sometimes also occurs in bark mixes.

Repotting

It is the same procedure as with bark mixes – put a drainage layer of styrofoam chips in the bottom of the pot, hold the plant tightly inside, fill the coconut-chips around the roots and press the chips cautiously around the roots. It may be of advantage to have the coconut-chips in humid condition but I mostly use them in dry condition.

Mixes with coconut-chips

Due to theoretical ideas (coconut-chips = humidity in conjunction with mineral material = aeration) I tried a mix with pumice pieces. The result was not better than without the pumice, therefore I left this way.

Since a couple of years I use a mix with Seramis. The expectation was that this mixture would be more aerated, but after observation, it was the opposite case and with some Paphiopedilums it works very well (Brachypetalum, Parvisepalum etc., details later in this article).

To reach a homogenous mixture it is better to humidify the coconut-chips and the Seramis. Due to my laziness I mostly do it without humidification and put coconut-chips and Seramis in alternating turns in the pot.

I could not observe disadvantages from this.

Paphiopedilum:

Paphiopedilums respond very well to this medium, because they like it to stay always humid, but not wet. In contrast to bark mixes, which hold to less water after repotting and gets soggy after a while, coconut-chips stay stable for a longer time and also preserve their water-holding capacity.

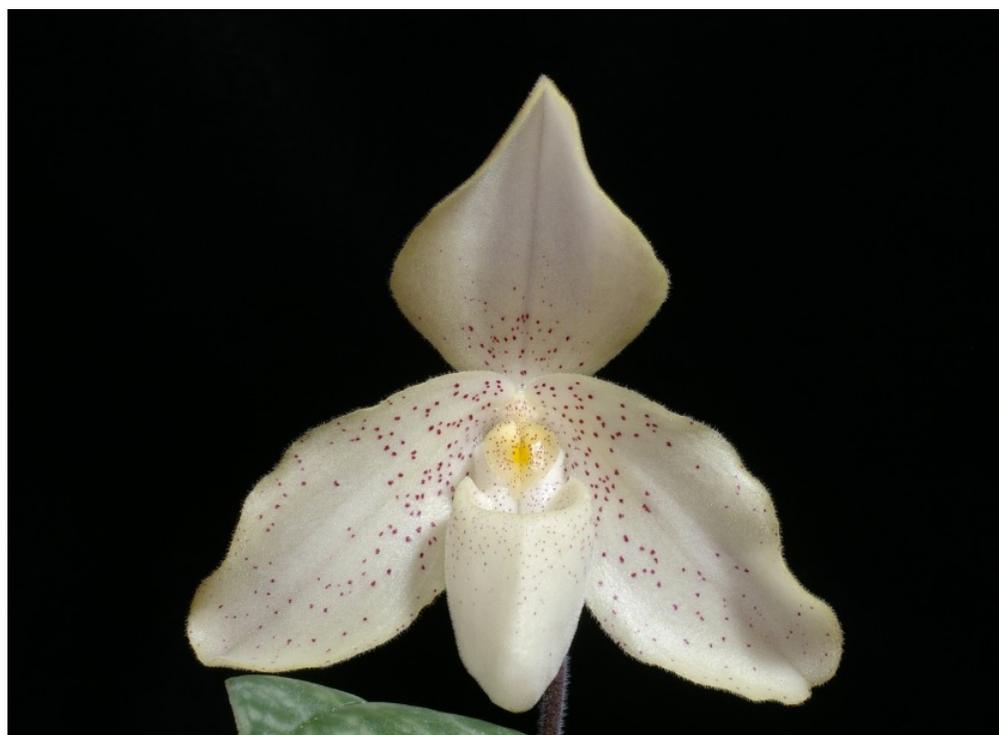
For pots over 10cm-diameter I use coconut-chips only for plants from the Cochlopetalum-group, otherwise only as supplement to bark mixes but I have no long-term experience with that.

Species from the Brachypetalum and Parvisepalum-group (i.e. Paph. bellatulum, concolor, malipoense, micranthum and hybrids) grow very well in coconut-chips according to my experience. Also species from the Cochlopetalum-group (i.e. Paph. glaucophyllum and hybrids) do very well. Paph. bellatulum and concolor really love it, their roots hang to the coconut-chips with their hairs entering the structure and holes of the chips.

I also made some experiments with young plants of Paphiopedilum, being in pots up to approx. 7 cm diameter. They build lots of new roots in the gaps of the medium and also hanging directly to the chips, which is not always the case with bark mixes.



Paphiopedilum concolor



Paphiopedilum concolor



Paphiopedilum concolor



Paphiopedilum Magic Lantern



Paphiopedilum Magic Lantern



Paphiopedilum glaucophyllum-hybrid in coconut-chips (with pumice pieces as drainage)



Paphiopedilum glaucophyllum-hybrid in coconut-chips



Paphiopedilum Magic Lantern



Paphiopedilum Magic Lantern



Paphiopedilum sukhlakuli x maudie and glaucophyllum hybrid grown in coco chips

Coelogyne

In my collection are a few *Coelogyne* from the *C. massangeana/tomentosa*-complex. The correct nomenclature was difficult for me, and also its culture. When planting them in coconut-chips, they started to build bigger pseudobulbs and eventually flowered. Apparently they like the constant moisture in the substrate. But this is only a single observation and not to say in general.

Orchid seedlings

I had good success with orchid seedlings from different genera in coconut-chips.

I put all seedlings from flask directly into coconut-chips. Depending on the size of the seedlings I select some smaller pieces or I cut bigger pieces.

Bigger seedlings in 6-8cm pots always go into coconut-chips, regardless of the genus. From my point of view seedlings and young plants benefit a lot from the constant moisture in the root zone.



Paphiopedilum bellatulum young plants in coconut-chips



Paphiopedilum bellatulum young plants in coconut-chips



Paphiopedilum concolor young plant in coconut-chips (and chalk stone pieces as drainage)

Sick plants

I guess everybody who grows Paphiopedilums knows the situation, when a plant looks quite good with their leaves but the moment of repotting shows that there are only a few or no living roots left. It is very difficult to revitalise such plants, not to talk about the time it takes since the plant reaches its former vitality and size, provided it is surviving. If this is the case, plants can be rescued in coco chips.

This procedure is done with other genera in the same way. In earlier times I tried to rescue plants with sphagnum moss in a plastic bag, which is a recommended method. It was rarely successful.

Honestly, also the surviving rate in coconut-chips for such weak plants is not extremely high, but it is worth an effort.

Hopefully these few sentences will be beneficial for other growers and I would be happy if other growers also share their experiences with coconut-chips. I am sure there is a lot of experience with that in India because you have the coconut-products easily available.

So do not be shy and share your experience.

Reference:

Harold Koopowitz, Tropical Slipper Orchids, Timber Press, 2008

USING INERT MEDIA FOR ORCHIDS

Agni Mitra

What is the BEST media for our beloved orchids???

This has been a topic of much discussion and experimentation among hobby orchid growers, - and of course anything close to a correct answer depends upon the genera in question, the climate in which the plant is grown, and the culture habits of the individual grower. However, there are still some general pointers which can be of use to every grower, and in this write up I, want to share my learning from some cultural experiments that I did. The results apply specifically to the sub-tropical conditions of Indian plains, - but also may be of use as general reference elsewhere. If I have to summarize the outcome in one line, - it will be that, there are many advantages in using inert/inorganic media, BUT one should use it ONLY AFTER prescribed pretreatment. Also, I want to mention that in this write-up we will not look at mounting orchids, - which is certainly another great way to keep orchids under certain conditions, and also not look at the purely terrestrial orchids, - but only discuss the media for epiphytic/lithophytic ones.

Firstly, let us look at the different media commonly available to the hobby grower - coco husk, sphagnum moss, wood charcoal, pine bark/other barks. Some less commonly used media are perlite, lava rocks / burnt clay brick pieces (things from different origins but similar in characteristics), LECA/Hydroton clay pellets, artificial sponge. Few growers also use artificial felt fiber, Styrofoam pieces, nylon nets and some artificial hydroponic media like rock wool. (Figure 1: LECA, Burnt Clay brick Pieces & Artificial sponge bits).

Clearly, epiphytes have amazing adaptability to cling to a variety of things, right? Although that is true, while selecting an epiphyte media there are certain desirable things to look for. An ideal epiphyte media should:

- ✓ Have physical characteristics to hold a water film on the surface and allow substantial air flow through itself AT THE SAME TIME!
- ✓ Quickly absorb water when available and get saturated rapidly. With availability of abundant water through the media, only retain a water film on media surface and continue to retain lots of air pockets inside, - i.e. allowing rest of the water to pass through itself without getting waterlogged.
- ✓ Retain the above physical characteristics over many years, - not getting physically degraded and not losing the air pockets. Ideally never requiring replacement.
- ✓ Have pH at neutral or slightly acidic (6.0 to 7.0) which is conducive for most orchids (except calcicolous paphs and few others).
- ✓ Maintain above pH indefinitely, should not change or fluctuate with time.
- ✓ Be inert to the fertilizer solutions applied to the media and retain them in forms available to the plant.

A few more characteristics may need to be listed for the sake of academic correctness, - but for the hobby grower these considerations will suffice. Anything which has the above characteristics, be it bits of

shoelace or loofahs meant for bathing, - it will work provided WATERING IS CORRECTLY DONE for the media! Which brings us to a related and necessary topic - **Watering correctly for the media.**



Fig 1, 2 & 3 showing Artificial Sponge pieces, Burnt Clay pieces and Hydroton Pellets

Media mixes have different water retention capability, - while moss and sponges will retain a lot of water per unit volume of media, charcoal and bark will retain one third or less of that. Therefore, watering needs to be differently done in different media, - both in terms of frequency of watering and volume of water used. It follows that a single medium is clearly not going to work in every condition and for every person. That is why it is advised to use a mixture of different media and arrive at a personal orchid media mix best suited to one's conditions. Considering the 06 criteria listed before, - a rule of thumb to arrive at a personal mix is as follows. Watering the ideal media should induce the following behavior - the media mix when watered in the morning (in bright sunny weather) should get dry on the surface by evening. Next day, there is still moisture in the inside of the pot (With ample air pockets too) so no need of watering. By the 3rd day morning, in bright conditions continued, - the mix is dry again and it is watered. In high humidity conditions, the inside of the media takes another day or two to dry up and needs watering on 4th or 5th day. This is the behavior of the media mix that you want to see, - this kind of mix will work for your epiphytes both in sunny and wet weathers. If it's drying faster than this then you have to keep on watering too frequently in dry weather and if it's drying slower then you will have waterlogging and rotting in wet weather. I suspect most of us who are keeping orchids for some time now have already arrived at personal media mixes which behaves like above in our specific and

respective micro-conditions. If you have not done something similar I strongly suggest you do by mixing your available media choices in different ratios and with a bit of trial and error. Something to consider here is that smaller pieces of a medium when put in a pot holds more water than bigger pieces of the same medium in the same pot, - 1/4" pieces of charcoal in a pot will hold many times the water that 1" pieces of the same charcoal put in the same pot will hold.

The clear next question is - which all media to include in my mix and which ones to avoid? My answer to that is unambiguous - the ones to include are the ones that will require the least work in the long run without compromising on my plants' requirements. The ones to avoid are the high maintenance/frequently requiring replacement ones, - these are just too much work and money. And that is precisely why, - my preferred way to achieve a good mix is to have inert components. A point worth mentioning here is that I was a diehard fan of coconut husk which seemed ideal and in combination with charcoal pieces used to grow anything quite well in my conditions. However, I did find that come monsoon season a lot of plants developed spotted leaves and other conditions to become very susceptible to infections and other ailments. I was not able to pinpoint the problem to my favorite medium. Then in one exceptionally wet monsoon I saw my aged coco husks rot rapidly in front of my eyes and all my pots were always waterlogged. Now I know that in those conditions the pH of decomposing coco husk goes below 5.0, killing the roots quickly. That is exactly what happened and before I was able to mitigate things, - a significant part of my collection went on to quickly meet their creator and are now probably adorning the Garden of Eden!



Fig 2A and B - Phalaenopsis growing in semi hydroponic culture and the root growth there of

That mass mortality resulted in wide consultation and study and then trials with inert media mixes. I realized that a lot of people world over had made the switch from organic to inert media and were a lot happier for it. One method which has been exceptionally successful for me is semi-hydroponic growing

in LECA as the sole medium, - which is put into half to one inch of a constant water bath and topped by a thin layer of sphagnum moss (Figure 2A : Phalaenopsis growing in semi-hydroponic culture. Figure 2B : Exceptional root growth in semi hydroponic culture with few roots going down into the water bath.) If you put in half a teaspoon of slow release fertilizer of a good brand (e.g. - Osmocote plus) once in 4 to 6 months and water these plants (from top) twice a week then that is all the care they need!

While the above method is great for a few plants (preferably in an enclosed place) it is not practical for a large collection because of the large amount of bench space required for all those water baths. Like advised before, - I too have arrived at a personal orchid mix made out of inert materials for my bright, hot and humid conditions. I put drier materials like charcoal and clay pellets at the center of the pot, with some artificial sponge bits mixed with clay pellets/burnt clay brick pieces away from the center. The mix is lastly topped with a thin layer (about 3mm) of water retentive sphagnum moss. This way the water from the moss and sponge bits wicks for a long time keeping a high moisture content in the media, while the LECA and charcoal still keeps plenty of air pockets and good air circulation inside the media. This high moisture content coupled with ample air circulation creates the ideal condition for epiphyte roots. (Figure 3 : Phalaenopsis potted in my inert media mix. Note that the top layer of sphagnum moss has been removed temporarily to show the LECA and sponge bits).

Mind you, this is not how everybody does it, - and I know extremely experienced and brilliant growers swearing by coco husk or pine bark and having fabulously grown and flowering plants to show for it. I guess they enjoy working with their plants, potting and repotting them, - a bit more than I do! In high humidity climates, coco husk needs to be changed every 01 to 02 years while bark needs to be changed every 02 to 04 years. Clay pellets, on the other hand should be good indefinitely, 10 years plus, - or till you decide to repot your plant for other considerations, - like getting too large for the pot or dividing to have many plants from one.

In the end, there are a couple of cautions that I want to sound about inert media like LECA/burnt clay brick pieces -

- a) One should procure them from reliable sources; preferably procure the ones meant for agricultural use. A simple test of good LECA is that minimum 80% of the pellets should float and be hard and not crumble to squeezing firmly by hand.
- b) They require a little pretreatment before being used. I advise the following method:
Wash 2 to 3 times with clean water to wash away all the dust, soil and particulate residue. Soak for few hours (overnight) in plain water and then wash away in the soaking water itself. Put a teaspoon of citric acid crystals / 02 tablespoon of kitchen vinegar solution / equivalent amount of similar mildly acidic substance in a bucket (20 lts) of water and soak the pellets for few hours. Wash away in clean water and put half teaspoon each of Epsom salt and Calcium nitrate in a bucket of water to soak pellets for another few hours. Wash away in clean water and they are ready to be used. If you find this too much trouble then at least does the initial plain water wash followed by the mild acid wash. I often keep the pellets in falling rain water which is slightly acidic and does both these jobs.

In conclusion, I must say that since the switch to inert media mixes I am very happy with the way these have supported my plants and saved me a lot of work, - not to mention saving me the anxiety of suddenly finding totally rotten roots in a plant that seemed absolutely healthy the last time I looked at it. However, growing orchids, like cooking, is a very individual thing! And precisely for that reason, - while you are most welcome to learn from my mistakes, also be sure to do a few experiments yourself and study some more to find out what works out JUST RIGHT for YOU!

(The writer is an officer of Indian Forest Service and an avid hobby gardener. While serving in the Andaman & Nicobar Islands he developed a keen interest in orchids and went on to establish 02 government orchidaria in the A&N Islands. He maintains a personal collection of about 500 orchids at his Kolkata home.)

My Growing experience of Lycaste

Nageshwar Mahadev



Lycaste is family abbreviated as Lyc in horticultural trade is a genus of Orchids. The flowers are considered as the most beautiful orchids in the world. The flowers are large, shapely and come in the most attractive colors. The name *Lycaste* originates in honour of the daughter of Priam, the last King of Troy Kingdom. The genus contains about 40 species with egg shaped pseudobulbs and thin plicate leaves. Flowers have three petals with different color, Lip may be very similar to other two petals, most *Lycaste* flowers are medium size from 5 to 10 cm, few varieties may grow 16 to 18 cm.

Occurrence: Lycastes are found in South America, Caribbean Islands & Mexico.

Since the beginning of orchid growing in the 1800s Lycastes have held a special place for Orchid growers. I was attracted to these when I saw for the first time in 2015. Mr. Ramakrishna from Australia had posted in Face book some beautiful Lycastes. Subsequently, I picked up few and spoke to Mr. Ramakrishna also referred its culture guide to understand the growing methods. Now I successfully grow around 25+ plants and from last year they started giving some nice Blooms.

Light Requirement: Since I am growing all my Orchids on the third Floor, to control light, heavy rains, and to maintain some humidity, made a small poly house, in some part I have used shade net and in some part without any shade cloth. I am growing Lycaste in the same location where I have placed my cattleyas as they 2000 to 4000 Lumens almost 4 to 5 hours per day. With the increase in the number of hours of light new growths will start appearing from pseudobulbs. Few of the ever-green species grow best with less light 1500 - 2000 Lumens.

Temperatures: Ideal temperature condition is around 25 to 30 degree Celsius but surely, we can grow this beautiful variety in Bangalore where temperature may go up to 35 degree for few days in peak summer. To bloom well night & day Temperature variation should be minimum 10 degree Celsius, In my collection about 4-5 varieties have bloomed and rest of the varieties may bloom next year.

Medium: So far I was using only pine bark for all my Orchids but now a day started using at the bottom of pot 20 mm construction aggregate (20% to 30%) which is heavy in nature. With that if the plants grow big also they will be stable without falling off. I use lava rock near the root zone since lava rock is porous in nature it holds lot of moisture also many people use coco chips but the only problem with this it needs repotting every year as they tend to decompose. Generally, any media which holds lot of moisture and good drainage is good for Lycastes.

Watering; I am ensuring water quality with a Total Dissolved Salts level not beyond 300 PPM after adding all the nutrients and at the same time maintaining a pH between 5.5 to 6. This can be manipulated by adding citric Acid & Phosphoric Acid. Lycastes need more moisture and should never be allowed to dry. On maturity one can reduce water but not drying it out. During growing season one can use small plates below the pots to ensure continues moisture.

Fertilizing: These are large fast-growing Orchids and need lot of fertilizer during growing season. I water them daily with NPK until September end, then reduce water and fertilizing until February. Number of flowers depends on the size of the plant and pseudobulbs

Pest & Diseases: Usually many Lycaste growers in other places don't use any fungicide but for Bangalore weather condition I use every 15 days once spray of a contact fungicide & Insecticides to avoid Mealy bugs and other insects. so far I have not faced much diseases for Lycaste, in summer season we have to examine every week below the leaves for mites. if you find any mites advised to use abamectin this will take care of next 30 to 40 days.

Humidity & Air Movement; Both are very Important to grow any Orchid but in Bangalore almost 8 to 9 months Humidity level will be 50 to 60 percent. In summer its quite low, by keeping water plates below the plants will help in controlling humidity though it is very challenging. I am ensuring free Air movement by keeping solar Fans in my green house.

Sphagnum Moss- Its use in Orchid Culture

K. S. Shashidhar

Orchid growers are aware of and are using Sphagnum Moss at some point of time during the culture, resulting in using the word as well as the material (moss) sometimes very casually without knowing its characteristics and potential. Probably it is time to know something in detail about the Sphagnum Moss and its usage. We all know that It is widely used as a component in all kinds of media to grow orchids. It is worthwhile knowing something more about this wonderful plant. This article tries to introduce Sphagnum Moss to the reader and the grower. Before we talk about Sphagnum Moss, I thought, we should know something in general about Moss and then know more about Sphagnum Moss and its usage for better growing orchids.

Mosses are classified under Division Bryophyta, class Bryopsida. They are tiny, flowerless plants growing in clumps forming green dense sort of carpet in moist and shady locations. There are almost 14,000 species of Mosses. The small individual plants will have simple leaves which are one cell thick and attached to a branched or unbranched stem for serving the purpose of conducting water and nutrients. The plants have neither flowers nor seeds and they propagate by spores which are in a single capsule. The average size of the plant varies from 0.2 – 10 cm tall. The world's tiniest moss is the Cape Pygmy Moss *Ephemerum capensi* from South Africa. Its size is lightly larger than a pin head and at first sight it looks like a green stain. On the other end, *Dawsonia* is the tallest moss growing up to 50 cm tall.

Commercially moss is important (more specifically Sphagnum Moss) as a constituent of peat and used in gardening and also for decorative purpose. One can observe most of the Moss species growing on rocks, exposed mineral soil, acid and calcareous soils, cliffs, along streams, tree trunk bases. Some of them growing on and under the tress having preference for coniferous trees. They are also found in cracking pavement stones and on roofs. Presence of liverworts and mosses are good indicators of environmental conditions.

Before we proceed, a word about Peat Moss, it is known as Sphagnum Peat Moss. These are sold in nurseries world over in bags as a soil amendment. It is the decomposed and decomposing material from the bogs. Formation of bogs takes thousands of years in nature and we are removing it so fast that most of the bogs are gone now.

Sphagnum Moss: Now let us discuss about Sphagnum Moss. Sphagnum Moss is the major one used widely in horticultural trade and usage and is also part of the peat, which is widely used. Sphagnum is the genus with as many as 380 species under that. The characteristics of the moss is that both living and dead plants can accumulate large quantities of water in their cells ranging from 15-20 times of its dry weight. This ability of the Sphagnum Moss to hold water even in drier conditions and often slowly extending to other places and creates an ideal conditions and habitat for growth of many plants including orchids and carnivorous plants. The presence of phenolic compounds in the cell walls makes the sphagnum not vulnerable to decay easily. Since Sphagnum moss being acidic in nature, it prevents growth of bacteria and fungi as a result it is a popular media for transporting live plants.

Occurrence: Sphagnum moss occurs mostly in the Northern Hemisphere in coniferous forests and tundras in Norway. In the southern Hemisphere it occurs in Argentina, Chile, New Zealand and Tasmania and to some extent in Brazil.

In nature Sphagnum moss grows like carpets in wet conditions on a partly rotted plant material. These decomposed material of the dead moss beneath the living ones forms the peat. The sphagnum moss keeps its surroundings acidic resulting in low activity of bacteria and fungus and thus delay in decomposition.

In India, moss occurs in North East region, Western Ghats and other areas. Some of the natural moss laden trees are shown in the pictures.



Moss laden trees in Western Ghats and North East India

Types of Sphagnum Moss: There are several species of Sphagnum used and among them *Sphagnum cristatum*, *S. subnitens*, *S. palustre*, *S. papillosum*, *S. fimbriatum*, *S. fallax*, *S. cuspidatum*, *S. russowii* and *S. magellanicum* are common ones. Of these, the first two are from New Zealand and are harvested and exported world over and used for various horticultural uses and also as a growing medium for young orchids. It is also used as a component in potting mixes for its moisture retention character. *S. palustre* and *S. papillosum* have whole mosses length up to 15 cm. Research and trials have shown that *S. palustre* is one the promising species for horticultural use. Several counties have been doing sphagnum farming and found to be economically profitable. Horticultural mosses like *Vesicularia*, *Bazzania*, *Heteroscyphus* and *Pallavicinia* are some of the mosses commonly used in horticulture in Asian

countries. Apart from Sphagnum, *Leucobryum* is also used by orchid growers for their character of retaining moisture.



New Zealand White Moss



Moss from North East India



Moss from Western Ghats

Horticulture and General Uses: Sphagnum Moss is widely used in field of horticulture and also for orchid cultivation. It provides the required special characteristics of growing media such as good aeration and water holding capacity.

Horticultural use is the largest use of these bryophytes whether as an additive or as soil amendment, or even moss poles for climbing plants, air layering. Sphagnum moss is almost an indispensable media for shipping live plants as it keeps them moist, but free from mold. There is another thinking that the presence of bryophytes (moss) might be beneficial to orchid growth through supporting the mycorrhiza.

As mentioned above, the most common Sphagnum Moss species used in orchid growing as a media and basket liners are *Sphagnum cristatum* and *S. subnitens* which are generally found in New Zealand. Species from Chile like *S. magelanicum* are also used. Although there are various species of mosses used in orchid growing, some species fare better than others. Strands of Sphagnum with fluffy fibers and the length of strands, thickness and density of the fibers all influence the absorption and springiness of the moss. Long and dense strands are the best.

Use in Orchid Growing: Orchid media has to retain moisture and at the same time it has to provide good aeration for gas exchange eventually providing development of roots for good growth. Sphagnum Moss is widely used in orchid culture for growing the plants exclusively in Moss as media. It is also used as an

integral component of many epiphytes along with bark, charcoal and Perlite. It is known to be used widely during shipment of plants.

Many orchid growers have been trying and many have succeeded in growing orchids with Sphagnum Moss successfully. To prepare the moss for potting, soak the long strand moss earlier and then open it and make it fluffy. Select the orchid which you want to pot in the moss and take a pot whose size will be just good enough for the roots to go in. Wrap the moss around the roots and then place it in the pot and moisten it and allow the plant to settle down. The moss needs to be changed after it decays or decomposes. This period depends on quality of Moss you use. If it is the top quality with long strands and dense it may be 2 years before you repot and if it is mixture of low-grade moss one may have to repot in 6 months' time.

Orchid growers who have gained some experience in watering the plants potted in moss are happy lot as orchids grow rapidly in moss. The watering schedule is important here and they wait till the moss dries before re watering and not that it is watering day and you have to do it. On the other side, growers who have a tendency for 'Wet Hands' have lots of problems and rot sets in pretty quick due to overwatering.

The media with sphagnum alone should be firm but airy and not compact, here the quality of the moss matters. The method of using the moss in the media also dictates the watering the orchid. If the moss is tightly packed it results in filling of airways in between and resulting in chances of decomposing and further compaction, which is not desirable for the roots. On the contrary if the moss is loosely packed, then it provides better aeration but may dry faster and may need frequent moisture. Quality of moss matters a lot if one wants to go in for moss as a potting media. Using low grade moss results in early compaction, lack of aeration for roots and soggy conditions which are not favorable for orchid growth. High grade moss like from *S. cristatum* from New Zealand which has long strands may last as much as 2-5 years depending on the quality of water. Whereas other low-grade mosses mixed may last for 6 months before you have to repot.



It is also observed that some of the commercial growers compact the moss in a tight manner and still do well with the plants. This is where the quality of the moss plays an important role. Long strand moss with lots of fluffiness even when compacted tightly around the roots still provide adequate aeration and at the same time the conditions may allow faster drying thus prevent the roots from any waterlogged conditions. In addition to this, these plants are for also ready for shipment is another factor for the usage.



Remembering some finer points while using the moss for orchid culture will prevent the drawbacks of using the moss. Following are few.

1. Use high quality moss with long and dense strands which are fluffy. But availability in India about the top-quality moss is always a question.
2. The art of watering plants with moss involves least disturbance to the moss. Just moisten the moss or alternatively watering can be done by keeping them in tray of water for the absorption.
3. Though growing orchids in sphagnum moss will be short span and needs frequent repotting, if one develops some experience growing with moss, the type of growth the plant attains is phenomenal and is worth trying.
4. While using moss for potting orchids, wrap the root ball with strands of moss, do not just cram in.
5. smaller and taller pots works better than as the water dries out quickly in the smaller pots.

When we talk about the grades of moss, the grade is usually categorized based on the length of strands and the New Zealand Moss *S. cristatum* is good in that aspect. Strand length plays an important role when you are wrapping the roots with the moss. Besgrow commercially offers high grade *S. cristatum* moss with strand length of almost 16 inches.



Strands of Moss, from Left, New Zealand White Moss, Moss from NE India, Moss from Western Ghats

Here in India we get the local moss whose performance and lasting abilities and their use in orchid culture and its performance and rate of growth have not been studied systematically. Usage of moss as a sole media is still not common in India. Local moss is used as a component of the media and also to some extent in mounting of orchids on wooden planks and tree fern slabs. In India, moss is procured from forests in North East, Western Ghats and other places. Some of them though have long strands, they are not dense and are easily subjected to decomposing and do not last long. Comparison of the three different types of moss available to the author has been shown in Fig.

Sphagnum moss can also be effectively used to rescue and recover sick plants by placing them in moss. Also, for propagating through some of the back bulbs. Placing some moss near the newly root growth will enable them to grow better.

It is reported that a patent for culturing moss seedlings is registered, so that mosses can be cultured and used rather than collecting from wild and creating an imbalance in the ecosystem. Considering that presence of mosses is an indicator of favorable ecosystem, one needs to look into its potential uses and also consider farming of moss for commercial usage.

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SYMPTOMS OF ORCHID MANIA (on the lighter side)

We all know that when we start growing orchids, we do so hesitatingly whether one will succeed or not and the plant may die etc. Eventually the orchid bug takes over and so much so that we tend to suffer from ORCHID MANIA. There are some symptoms about it, check whether you have any of these.....

- ✓ When you go to a nursery, you are so overwhelmed that you tend to buy plants left and right
- ✓ Even though you have the plant you want to buy it again as it looks good in the nursery
- ✓ Your friend posts a lovely orchid blooming in a social forum, and you have that plant, but still you end up buying again as it looks good
- ✓ You will visit a friend's place with the expectation that you will get some cutting or some keiki (at least I do)
- ✓ You don't want to go on vacation as you have to take care of your orchids.
- ✓ Every month you say yourself that "this month I am not buying any orchid" and there comes a list on WhatsApp - you will postpone your decision to next month
- ✓ In social gatherings, at clubs, all the orchid growers pool together and start discussing orchids - missing the other fun
- ✓ You will post a picture either in WhatsApp or in FB and go on checking how many comments, like you are getting (I do)
- ✓ You will never share the actual price of an orchid plant with your spouse, nor reveal how much you are spending every month

You can go on adding more

Oh! Just a minute, we are also starting a therapy center for treating Orchid Mania.

HAPPY ORCHID GROWING

NEWS and NOTES

Orchids are so luring that it has attracted many in adventures where people have lost their lives. At the same time, it has given way for lots of illegal trade across transnational boundaries.

The latest trend has been the sale of orchids online and it' is observed it is both legal and illegal.

Amidst all this, here is an interesting article on this aspect -

The Role of Online Platforms in the illegal Orchid Trade From South East Asia

- Amy Hinsley

http://globalinitiative.net/illegal_orchid_trade/

A BRIEF REPORT ON BIMONTHLY MEETING OF TOSKAR AND DISPLAY OF ORCHIDS BY MEMBERS ON 25 August 2018

After initial welcoming the members of the Society for the Bimonthly meeting of TOSKAR held on 25th August 2018 at Dr. Marigowda Hall, Lalbagh, the meeting was started. The meeting was attended by 44 members. During the course, four annual members and one life member joined the society.

The meeting started with the assembly of members and display of the orchids in bloom for judging. Other activities such as sale of orchids and accessories was conducted by Mrs. Lakshmi Jagadish and Mrs. Raji on the sidelines. The orchid hybrids & species displayed on the show table was judged, and marked the best of the orchids for the award.

The proceedings of the monthly meeting began with reading of minutes of last BMM held in 30 June 2018 by Secretary Mr. Ramkumar. This was followed by an interactive session, questions and answers were conducted by Ramkumar, Sriramkumar and Nageshwar

The presidential address by Dr. Sadananda Hegde, President of TOSKAR emphasized and appealed to the members to focus on work related to the cause of Orchid conservation, cultivation and propagation and also requested for more volunteers. He encouraged members to utilize the Orchid Clinic by bringing sick/ailing plants for diagnosis and share knowledge on symptoms and treatment. He also aired the opinion that TOSKAR should have its own WhatsApp group for communicating TOSKAR's activity. It was well accepted by the audience.

This was followed by announcement of winners in Orchid Display competition in both Orchid Hybrids and Species groups. The winners were,

Species Winners

1. *Habenaria crucifera* – Nageshwar
2. *Stanhopea oculata* – Dr. Shashidhar
3. *Bulbophyllum masdevalliaceum*

Hybrids Winners:

1. Dendrobium – Mr. Everest D'Souza
2. Cattleyas – Dr. Shakunthala Manae
Cattleyas – Anil Kubaer
3. Catasetum – Nageshwar

At the end, all the winners were felicitated. Meeting ended with happy interaction over a cup of Coffee and snacks.

Members Display in Bi Monthly Meeting held on 30 June 2018.

Pictures taken by Sriram Kumar



Rodriguezia venusta

Grower: Sriram Kumar



Aerides odorata borneo form

Grower: Shashidhar Sastry



Rodriguezia venusta

Grower: Shashidhar Sastry



Rhynchostylis retusa

Grower: Nageshwar



Rhynchostylis coelestis

Grower: Nageshwar



Vanda merilli x insignis

Grower: Shashidhar Sastry

Species winners

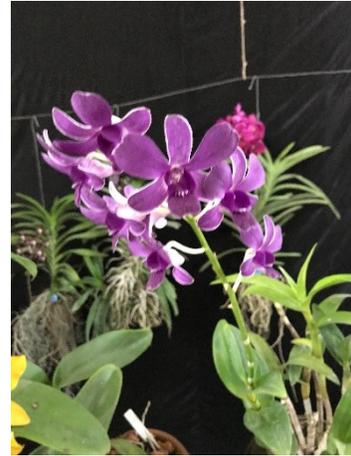
1. *Rhynchostylis coelestis* - Nageshwar
2. *Rodriguezia venusta* - Sriram Kumar
3. *Rhynchostylis retusa* - Nageshwar



Cattlianthe Sagarik Wax
Grower: Shakunthala Maney



Cattlianthe NOID
Grower: Shakunthala Maney



Dendrobium NOID
Grower: Shakunthala Maney



Cattlianthe NOID
Grower: Shakunthala Maney



Catasetum NOID
Grower: Nageshwar



Vanda falcata hybrid
Grower: Sriram Kumar



Cattlianthe NOID
Grower: Nageshwar



Encyclia Orchid Jungle Grower: Nageshwar



Bl. Richard Mueller
Grower: Nageshwar



Dendrobium Lowana
Grower: Nageshwar



Cattlianthe Sagarik Wax
Grower: Lakshmi



Dendrobium NOID
Grower: Everest D'Souza



Vanda NOID
Grower: Lakshmi



Vanda NOID
Grower: Lakshmi



Vanda Somthawil
Grower: Sanjeev Dharwal



Vanda NOID
Grower: Lakshmi



Brassavola David Sander
Grower: Nageshwar



Vascostylis Janice Allison
Grower: Nageshwar



Renantia Sunrise
Grower: Nageshwar



Bl. Yellow Bird
Grower: Nageshwar

Hybrid winners

1. Catasetum NOID hybrid-- Nageshwar
2. Lc Sagarik Wax - Shakunthala Maney
3. Dendrobium NOID - Everest D'souza

Photo Gallery



Bulbophyllum maxillare



Bulbophyllum sanguineopunctatum



Bulbophyllum gracillimum



Bulbophyllum guttulatum



Bulbophyllum purpurescens



Bulbophyllum auratum



Bulbophyllum pumilio



Bulbophyllum lepidum

