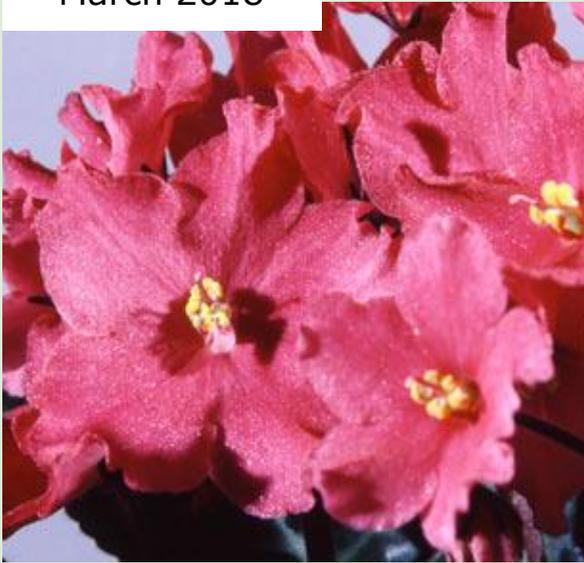


March 2018



The African Violet Way

An E-Newsletter by Ruth Coulson

A free download from www.africanvioletsforeveryone.net

This issue of the Newsletter is rather preoccupied with the use of coir (a coconut fibre product) as the basis of a potting mix for African violets. So many people have helped me with information that I felt I had to try to bring it all together in this issue. I suspect there will be plenty more to say before I either decide to give the whole idea away or create a suitable recipe. Hard to say which it will be yet.

It is time for “The African Violet Way” to have a makeover. Thus the new heading. The photograph is ‘Coral Kiss’ which I was growing a good many years ago and really liked. It is a great colour. It is a Sorano hybrid and is described as a semidouble coral star.

And then I wanted another photo for this page. Some of the pinks wouldn't look good—so here is ‘Migaloo’. This Taylor hybrid is really great. So far it is a pure crystalline white with no blue or pink bleeding in. The best thing about it is the lovely dark foliage. A great contrast. I really highly recommend it.

So many other white flowered African violets I have had seem either to have a bit of another colour in there eventually, or have light coloured leaves. This one is ideal.



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The Puzzle of Coir – Using coir in potting mix for African violets and associated plants.

Many African violet growers who mix their own potting mix have at one time or another flirted with the idea of using coir (coconut fibre) as a basis for the mix rather than sphagnum peat moss.

There are many advantages to using coir of which probably the most attractive is the easy and convenient purchase as against buying and storing a large bale of peat moss. Also any environmentally conscious grower will probably prefer not to deplete the world's peat bogs. It holds water and fertiliser very well and there are fewer difficulties with fungus and pests. Coir ought to be a success for African violets. So why isn't it more widely used?

Well, there are difficulties.

What is Coir anyway?

Coir is manufactured from the husks of coconuts. Typically that which we buy comes from Sri Lanka. It is most normally purchased in compressed bricks or slabs which are easily restored by soaking in water. The brick shown in the photo is one that I have tried. I have no knowledge of any differences between brands. I understand others are using this with success.



Because the coconut palms often grow near the ocean where the palms take up salt water, and perhaps sometimes in its preparation the coir is left soaking in salty water, it tends to be full of salts. It seems that responsible producers then leach the product for an extended time, and even buffer it with calcium against the high amount of sodium and potassium it contains. This apparently displaces the sodium and balances the potassium. We would hope that the product sold to us was sufficiently low in salts so that the EC (Electrical conductivity) reading is below 1.0 milliSiemens per centimetre. This product **should** not need further leaching. And, to be fair, many people report that the coir we now buy is not so heavy in salts.

When re-hydrated, coir is a finely milled product that mixes well with other ingredients of potting mix. It holds a lot of water, retaining as much as one third as much again as sphagnum peat moss does. Its pH is said to be close to, or just below neutral making it ideal for our purposes. And, it remains pretty much pH stable for months, or so they say.

This all sounds perfect.

Even among professional people who should have the proper expertise to evaluate this product there are varying opinions. For instance one study (the results are not now available apparently, which is a little odd) says that it is not suitable for hydroponic growing. And yet a short internet search will show that many Cannabis growers use it hydroponically most effectively.

Among African violet growers opinions vary also, as do experiences. There has certainly been one grower in New South Wales who was using coir as a peat replacement and grew many excellent, prize winning plants. Many others have the varying results shown below. I have found that results vary among my plants. Is this because the product varies from brick to brick or is it the varying natures of the plants? Or is there something else in the conditions?

The Problems

If you have read previous editions of “The African Violet Way” you will be aware of my experiment using coir in my African violet potting mix. All went well for a time and I became confident enough to pot some more plants in a coir mix. And then – Oh dear – It wasn’t working out too well. In these cases it is always difficult to pinpoint the cause as there are so many possible factors. At first I thought that the reason some plants that were not up to standard was the long period of neglect they suffered during last year. Naturally one’s real life just has to take precedence over one’s hobby.

Even when I was able to look after them properly again, I seemed to have a high proportion that weren’t growing well. Plants in a sphagnum peat moss mix were picking up fast. With the others – what was the culprit? Coir – can’t be anything else as far as I can see at this point.

Gathering information

I have done as much reading as I can on the subject. As I believe I said previously, I am not aiming to become an expert on coir. Much of the information is of a complicated nature that a chemist would be better qualified to discuss. I am not a chemist! I struggle to understand the very basics. If I have made some dreadful blunder in what I have said, please forgive. This article is very much the musings of an amateur.

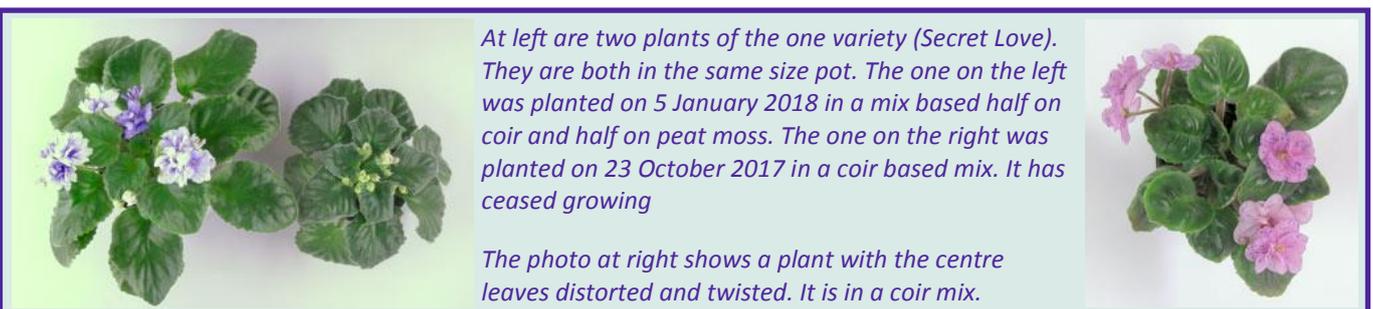
I did what I always do in these cases. I asked everyone I knew who had tried or was using coir for growing their African violets. And then I followed up by asking on the Facebook group “African Violets Down Under”, As well, I contacted a few people direct. Many were very willing to help by giving me the story of their experiences for which I am very grateful.

I finally listed, pro and con, all the results I had. There were 9 pro and a whopping 28 con. Plus, in both cases there was much duplication.

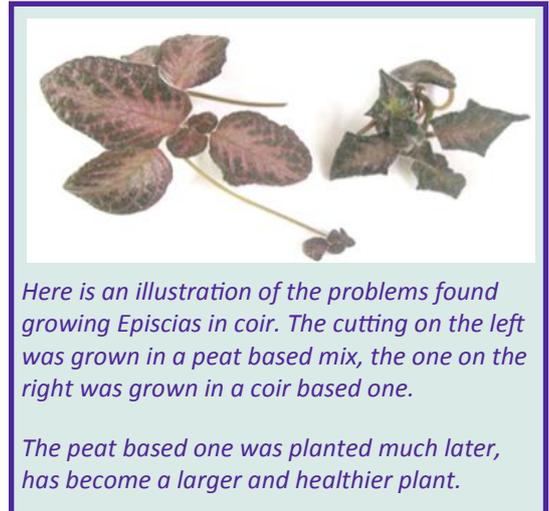
What results?

The most common problems complained of were these:

- that after a varying initial period, the plants stalled in growth and/or lost colour and in general failed to thrive
- that the leaves in the centre became small, deformed or twisted and/or brittle although no mites were present
- that visible salts on the surface of the mix and on the pots made regular leaching even more important than with other mixes
- that coir holds too much water
- that the plants had poor root formation



- that the work involved in washing the coir before use (felt by some to be essential) made it a high effort product
- that plants requiring a high level of nitrogen such as Episcias suffer badly in coir
- that seedlings in a coir mix germinated well but soon stopped growing and lost colour. They recovered rapidly when potted into a different mix
- that the pH value may change becoming too high over time leading to multiple deficiencies (not a common finding)
- that although what appears to be a nitrogen deficiency can be treated with a high nitrogen fertiliser and the plants grow a better colour, but they still do not always grow properly
- that it doesn't even work as a mulch on outdoor tubs because the plants cease to grow and lose colour and vigour
- and so on, and so on



Here is an illustration of the problems found growing Episcias in coir. The cutting on the left was grown in a peat based mix, the one on the right was grown in a coir based one.

The peat based one was planted much later, has become a larger and healthier plant.

The Pro Coir comments I had consisted mainly of the common “good” points for coir, i.e. convenience and ecological wisdom. It was also mentioned that coir is much better than sphagnum peat in wetting and rewetting and that the excessive salts is no longer a problem with coir. Otherwise the Pros were all people saying that their plants were doing fine so far in coir, but all were using some extra fertilising and/or had only replaced part of the peat in their mix. This point seems to be a key, but it is necessary to wait a while for more experience.

So for those of us with a problem is there a solution?

I really hope so. Quite a number of my informants simply decided to give up and go back to using a sphagnum peat based mix; a perfectly valid choice. There are a few points that I am investigating as much as I can, trying to find a way to actually use this product for growing successful plants. I really like that idea of convenience. What is more if it can be done; I want to see how it can be done.

I notice that where the coir has been used as a direct replacement for sphagnum peat moss it has mostly been a failure. As mentioned above, those who only replaced half the peat moss with coir, and those who adjusted their fertilising program to use a nitrogen fertiliser for young plants or recently potted plants, or who added fertiliser to the mix were the people who professed themselves happy with the results so that is a clue for those wanting to use this material. It also seems to me likely that it would be wise to either reduce the amount of coir used in the mix, or increase the perlite to account for the fact that coir holds more water.

It remains to be seen whether coir is generally useful in wick watering or other bottom watering methods.

What causes the problems?

Of course I am no expert as I explained. But following a lot of reading I have come to the following conclusions. These are conclusions for me, at any rate.

The most likely culprit in coir is **potassium**. We know that potassium (the K in NPK) is an essential macro-element for plant growth. But there can be too much of a good thing. And coir may have too much. That is even though the given word is that the product is buffered to balance it before it is shipped. Potassium does not of itself cause any toxicity, but it does interfere with the uptake of other elements. Those elements are nitrogen (leading to the pretty clear nitrogen deficiency symptoms), magnesium and calcium. There may be other trace elements that also cannot easily be accessed by the plants in a coir mix.

It is easy enough to apply more nitrogen. I suppose the trick would be not to use so much that there were few flowers. Calcium as explained above is used to buffer the potassium. But as salts may be still present, more calcium may be called for. Although there is much information about saying that the pH of coir is pretty near neutral or a little below I find that it varies a bit. The brick I have at present has been rehydrated some couple of weeks using our pH 8.3 water supply. It just now tested at 5.6. And that's OK with me. It allows for adding some dolomite thus increasing the calcium and magnesium supply. It may also be necessary and quite possible to add a calcium/magnesium supplement.

The cause of the brittle/distorted/small new growth on plants is something I don't know. I feel that I saw somewhere that it was another problem with excess potassium, but I cannot at present turn up that reference. I suspect though, that if I was able to get the potassium properly balanced and thus the other elements of the fertiliser available to the plant everything might fall into place. Yet another possibility is that this can simply be the sign of a pH imbalance.

Using high potassium fertilisers (very common) may be a mistake, as I mentioned in the last issue.

What now?

I am trying a couple of different potting mixes made up in different proportions.

In one mix I have added a higher proportion of perlite than I used to do in my mixes to counteract the effect of the coir holding so much water. I have added blood and bone fertiliser. It has a high nitrogen content and better still plenty of calcium. I have also added a small amount of trace elements. The particular trace elements brand that I used has reasonable levels of calcium and also magnesium. If a shortage of magnesium is evident by the yellowing of leaves, Epsom Salts can be applied to correct that.

In another mix I have replaced half the sphagnum peat moss with coir and have added a smaller amount of blood and bone. The healthy plantlets at right are growing in this mix. Will they stay healthy?

I have been unable to get fine horticultural charcoal for some time but I now have a source and hope to use it with the coir mix. Its natural buffering action might help.



I have in mind several other options on the mixes. If none of them work out, I am thinking that it should be possible to actually add calcium nitrate (bought as Hydrangea Pinkening solution) to the mix, or by watering it on the plants. I hope it isn't necessary.

Of course I am noting on each pot just which mix I have used. And I have recorded the mixes. I am an inveterate record keeper.

Then it will be time to sit back and wait, as no conclusions can be drawn for six to twelve months. But that, after all, will give us something to look forward to.

My Wicked Plants - The Wick Watering Experiment

This is part 3 and the final part of this article.

You will remember my demonstration plants potted with varying wicks. It is now long enough since the plants were potted that there should be some results. And there are results as far as the wick experiment is concerned. Unfortunately, however, the plants were caught up in my coir based potting mix trial. This shows what problems happen when you do several things at the same time!

The plants were growing fine until just after the last issue of "The African Violet Way" but then they just STOPPED! The leaves did not expand and few extra leaves were produced on any of the plants. And the leaves began to curl under so that the plants look even less developed than they are. I supplied them with extra nitrogen but although they are now a rich dark green they have not improved. They are still quite small after five months of growth.

Despite this it is possible to see what differences there are between the various plants. Basically they are still the same in relation to one another as they were two months ago.

Number 5 (with 12 wicks) is still the most developed. Number 2 has suffered some sort of insect attack and although it might eventually develop into a mature plant it cannot be compared.

Number 9 (2 Nycrame wicks) is the next best developed. The others are basically much the same, except number 10 with one thickness of butcher's twine.

In short I believe that any of different wick options is OK.



The wicks The key to the plants above.

Why is this so? The key has to be potting mix. I should mention once again that the most important thing in the potting mix is air. The airiness is achieved by using plentiful medium and relatively large size granular material in the mix.

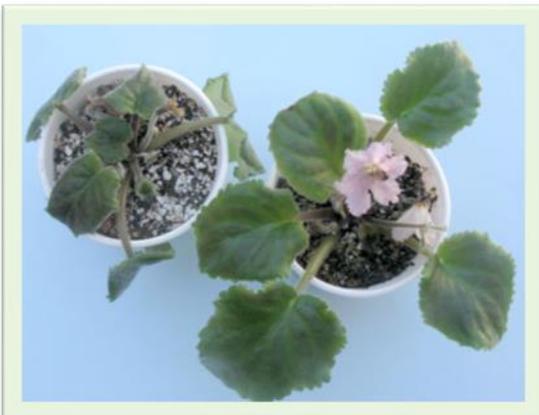
With a mix that has a larger proportion of water-holding materials, an over large wick would cause problems. But get the mix right—and they are much more tolerant.

Sadly I will have to discard these plants at this stage. Perhaps some other time I will repeat the demonstration.

What is the quickest way to kill an African violet?

Huh? Did you read that correctly? Well, yes, sort of. A little while ago I was asked (I can't understand why) whether a plant would die more rapidly from being totally dry or from always standing in water. Frankly, I didn't know, so I decided to find out.

I took two young plants that I decided were expendable, repotted them in my normal very gritty potting mix, watered them thoroughly. I then set one in a deepish saucer constantly filled with water, and the other on a saucer with no water and a note never to give it any. Seven weeks later I took these photos.



This first photograph shows the two plants side by side, the dry one on the left and the one kept wet on the right. It is interesting to note that the very dry plant has wilted outside leaves, whereas the sodden wet plant has firm and reasonably healthy outside leaves. At first glance you might think that the wet one was the more healthy of the two.

Not really so, though. Just look at these closer photos.



You can see that both have gone gamely on and even produced new little leaves in the centre. Both have actually produced flowers, even though they are not high quality.

In the dry plant (the second photo) there are a few leaves near the centre that have dried out and died and another that is near death. But still it struggles on.



In the sodden plant (the third photo) is trying just as hard, but the new little leaves seem to be covered in salts from the potting mix, and a number of inner leaves are dead or dying.

So what is the worst treatment? **Both**. While it might be possible to propagate from a leaf of the sodden plant, it is probably impossible from the dry plant. So, seven weeks flat and they are effectively dead.

The lesson: **Don't do this!** Get the watering right.

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