

'Cymbidium Chatter'

Edition 15 July 27 2020



Gentle Touch 'Bon Bon' x Green Spectacle 'Shah'
Photograph: 3 Amigos

Welcome to this edition of Cymbidium Chatter and the last for the month of July. There is still no good news on the COVID-19 front and so we must continue to do what is asked of us, harder for some than others, it would seem! Shows in Victoria continue to be cancelled, while orchid growers interstate start to see some rewards for all their hard work and good culture!

I have started downsizing my relatively small collection even further as I have now taken on the role of Greens Director at my local bowling club and yes, we are allowed to bowl but we are restricted to two players per rink. Even though the greens are a synthetic surface they do require a significant amount of time and effort. I will be keeping a reasonable number of orchids concentrating mainly on species orchids across a range of genera. The Cymbidiums that I will be keeping are the species Cymbidiums and a carefully selected range of hybrids, among these will be a large number of seedlings from my own hybridising efforts. Unfortunately the cross that I made and registered, in memory of Ern Kettle (New Century x Plush Canyon) the seedlings are proving to be very erratic and difficult growers. The cross has been registered with the RHS but I am hoping that the registration can be rescinded so that a more worthwhile cross can be made in Ern's honor. The two parent plants were chosen as they were two of Ern's favourite Cymbidiums and he suggested that he would like to see what they produced. The other cross that I made (Mem. Amelia Earhart 4n x Sarah Jean 'Peach' 4n) is moving along much more productively and I will probably grow these out until they flower, although I have promised a fellow judge a compost.

In this edition of CC you can read Joshua's last article on viruses in Cymbidiums. If you are a member of another orchid club or society you may like to share the series of articles with your members, they are well written and very informative. He has kindly agreed to the articles being reproduced but please be aware that the series of articles are copyrighted so it is imperative that you seek his permission first and then make the appropriate acknowledgement. Thanks again Joshua for all your hard work and research, I'm sure all COSV members appreciate your efforts.

The flower top right is a first flowering seedling grown by the 3 Amigos in Adelaide. I have included it because it is a Cym Gentle Touch offspring. In a previous article in CC I wondered as to why Cym Gentle Touch had been used so sparingly in hybridising programs. The result here is very pleasing and although it doesn't have the beautiful green of either parent, it is a very shapely flower with the Gentle Touch labellum dominating. Color in Cymbidiums is a very personal thing, I actually like the color, Khaki, others would see it as 'Cacki'!

— Orchid Viruses —

By Joshua White

Part 4: Orchid Fleck Virus

In Part 3, I looked at CymMV and ORSV, the older two of the three main viruses in Australia. The third is the more recently introduced Orchid Fleck Virus, which is discussed here.

Orchid Fleck Virus (OFV)

Relatively speaking, OFV is the new kid on the block, despite having first been identified in Cymbidiums in the 1970s. Its spread across the globe and through many Orchid genera seems to have been caused by poor lab practices (cloning of virus mother plants), particularly in Southeast Asia, and it has become a significant problem in Australia over the past couple of decades. Some growers consider it to be the worst of the three main viruses.

When the virus was analysed in the early 2000s, it was found to be different enough to all known Rhabdoviruses such that it required its own genus – *Dichorhabdovirus* in the family *Rhabdoviridae*. Much of the research on this virus has happened in the 21st century; thanks to the support of the Cymbidium Orchid Club of South Australia, Raymond Ali at the University of Tasmania studied OFV and its vectors (Wilson & Ali 2013). As a result, the Department of Primary Industries, Parks, Water and Environment (DPIPWE) Tasmania includes a test for OFV in its Orchid virus test regime.

Like CymMV and ORSV, OFV is mechanically transmissible. *Brevipalpus californicus*, a type of false spider mite or flat mite, appears to be the primary natural vector (Peng et al. 2013; Kubo et al. 2009) and the mites remain capable of infecting plants “for a long period.” This sustained infectivity makes pest control critical to prevent the spread of OFV within a collection. Additional research indicates that similar pests – *Brevipalpus oncidii* (Ali et al. 2017), some aphids (*Myzus persicae* and *Aulacorthum solani*) and the red spider mite (*Tetranychus urticae*) (Kondo et al. 2003) – may not be able to act as a vector, fortunately.

OFV is thought to be less contagious than CymMV and ORSV, partially due to its narrow optimum temperature range. It is most successful at infecting a new host at 30°C or higher (Chang et al. 1976), although can still transfer at lower temperatures and has a thermal inactivation point of ~45°C (Peng et al. 2013). I was unable to find any research into whether the virus could transfer via pollen or seed. Thankfully, OFV is short-lived outside a host, lasting only a matter of hours.

More troubling, though, is the fact that OFV can infect non-Orchid plants (Kondo et al. 2003; Kubo et al. 2009), such as some members of *Chenopodiaceae* (the Goosefoot family, now part of *Amaranthaceae*), *Solanaceae* (the Nightshade or Potato family), *Leguminosae* (the Legume, Pea or Bean Family) and *Aizoaceae* (the Carpetweed family). How long the virus persists in these plants is not known, but it is advisable to maintain good pest control in the garden in order to prevent OFV establishing a reservoir from which it can reinfect your orchid collection.

An incubation period of 2-3 weeks was recorded for Dendrobiums, although anecdotal evidence from some Victorian growers suggests Cymbidiums may not show symptoms until the next growth cycle. The symptoms of OFV vary depending on the host genus. For Cymbidium Orchids, potential symptoms include concentric oval-shaped necrotic flecking patterns or cross-crossing lines along the leaves (Kim et al. 2010). Chlorotic blotching can also be present and under the right conditions, the plant can be completely asymptomatic.

Below is a photo of a confirmed OFV infection (one of the few occasions I have actually seen symptoms).



Once again, Nado Lenkic has provided additional examples of OFV symptoms for reference:



My own personal experience with OFV leads me to suspect that the virus can be present in very low levels and produce a false negative test result under the right conditions. I obtained three *Cymbidium* backbulbs from a historic plant and potted up them together. All three struck successfully. For the first 6 months or so they were kept with other plants from the same source. They were then isolated after I noted suspicious markings on one of the other plants in the group. About 18-24 months after they produced the initial growth, I finally got around to sending samples off to DPIPWE.

Now, you might wonder what the point was – all three were from the same parent plant, shared the same pot and were asymptomatic, so surely one sample would have been enough. As I am very cautious about viruses and didn't want to take any chances, I sent a sample from all three. I am glad I did, as only one of the three returned a positive result for OFV (and DPIPWE noted that it was a low level).

I consider it practically impossible that only one of the three plants in the pot had been infected for several reasons – I never noted any pests or pest damage; the pot had been isolated for over 12 months (ample time for any infection that might have been introduced to spread amongst the three) and I had no other known OFV cases in my collection or quarantine areas. I theorise that had I reduced the quality of care and allowed the virus to multiply, the other two plants would later have tested positive.

Conclusion

If there is one thing I would like the reader to take away from this article series, it is that they should not rely on visual symptoms being present before suspecting a viral infection – always act as though there might be a virus in your collection. All three viruses can be asymptomatic or vary significantly in the degree of symptoms displayed. That said, I encourage the reader not to ignore any markings that resemble the photos included in this article series; if there is any possibility it is virused, please get the plant tested.

References

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