

Orchid Research Newsletter No. 77

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Editorial

Viruses have been in the news a lot lately, and although this was mainly bad news, the SARS-CoV-2 pandemic may also bring some benefits. Increased research in virology could be one of those. There is still much to be discovered about the biology of viruses, for example about the role of viruses in the life of plants and fungi. In cultivated orchids, viruses are dreaded by growers, as they can cause disfiguring spots, colour breaks in flowers and various kinds of malformations, and are at present essentially incurable. Incinerating the afflicted plants is routinely advised. At least 57 viral species have been identified in orchids (Huang et al., 2019), and Cymbidium mosaic virus (CyMV) and Odontoglossum ringspot virus (ORSV), to name two of the most common, are found world-wide, having spread through global trade (Fogell et al., 2019).

Viruses are clearly a threat to ex-situ conservation. In the collection of the Jardin du Luxembourg in Paris, an outbreak of Orchid fleck virus has caused the loss of many plants (Sauvêtre et al., 2018) and I have heard of an amateur grower who destroyed his collection of *Pleione* after he became aware that almost all his plants were infected with a virus. This was probably a species that was only recently formally described (Komínek et al., 2019). The worrying thing about these two cases is that the virus concerned is spread by arthropods (mites and aphids respectively), making them more difficult to control than viruses like CyMV and ORSV, which are mainly spread by contaminated tools and can be controlled by careful hygiene.

Little is known about viruses in wild orchids. It is at least a theoretical possibility that new virus diseases could be transferred from cultivated plants to wild populations through re-introduction programmes or by cultivating non-native orchids outdoors near orchid habitats. This is something that needs to be considered, even though there is at present, as far as I am aware, no evidence that such anthropogenic orchid virus introductions into the wild have happened.

It has recently been demonstrated that viruses of fungi, mycoviruses, occur in the mycorrhiza of wild orchids (Sutela et al., 2020). In short, viruses are everywhere. Do we need to panic? Will viruses take over the world?

Probably not. Many virus infections in plants do not appear to cause any harm and there is evidence that some may even be beneficial (Roossinck, 2015). Viruses may confer greater tolerance to drought and heat to their hosts. So, the news is not all bad. But be careful out there.

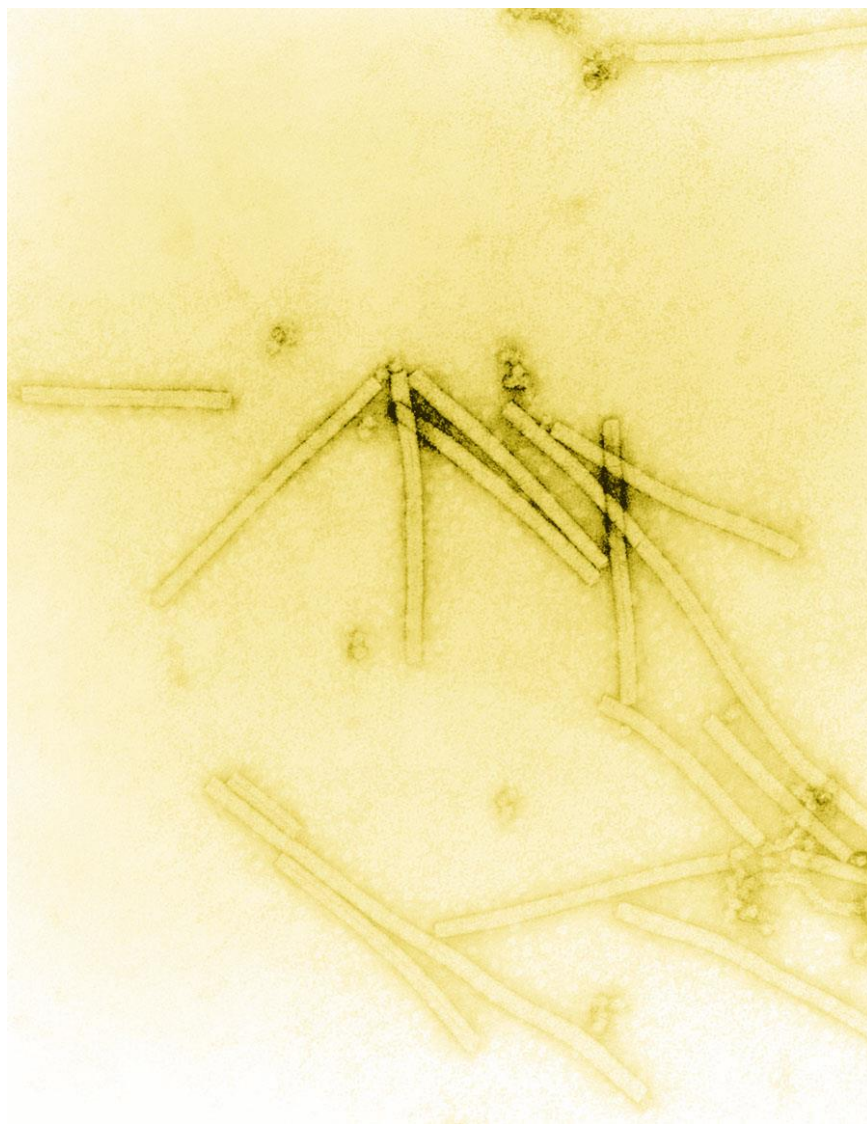
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Tobacco Mosaic Virus (TMV) virions, stained, $\times 160,000$ (original magnification).

Source: https://commons.wikimedia.org/wiki/Category:Tobacco_mosaic_virus#/media/File:TobaccoMosaicVirus.jpg

Upcoming Conferences

We welcome any news about future orchid conferences for promotion here. Please send details to the editor as far in advance of the event as possible, remembering that the *Orchid Research Newsletter* is published only in January and July of each year.

Jobs

We will be happy to announce job opportunities, provided they explicitly involve orchid research or conservation. Please send details to the editor.

Funding Opportunities

We will be happy to announce funding opportunities, provided they explicitly involve orchid research or conservation. Please send details to the editor.

The **American Orchid Society** is soliciting grant proposals for orchid research. Deadline is 1 March of each year. For application instructions see <http://www.aos.org/about-us/orchid-research/application-guidelines.aspx>

News from Correspondents

Please submit any news about recently completed research, future research plans and needs, change of address, upcoming or recent fieldwork, etc. to the editor. Graduate students are especially encouraged to share the subjects of their thesis or dissertation with the international community.

The leading international network for orchid conservation, the **Orchid Specialist Group**, part of the Species Survival Commission of the IUCN, has a new website: <https://www.orchidspecialistgroup.com/>

Mark Arcebal K. Naive is a PhD Botany student at Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences under the supervision of Prof. Dr. Wen-Bin Yu. For his PhD dissertation, he will be studying the systematics, phylogenomics and biogeography of the genus *Dendrochilum* with emphasis on species of the Indonesian Archipelago.

The study aims to conduct systematic research on the genus *Dendrochilum* in Indonesia which involves taxonomic, phylogenomic, and biogeographic analyses. Specifically, it aims to (1) Aggregate *Dendrochilum* herbarium specimen data from online herbaria databases and other sources to create a species checklist for each island, together with a list of possible sources of dried tissues for sequencing; (2) Acquire tissue samples through fieldwork or destructive loan, sequence complete plastid genomes, and infer relationships among species and to examine the rich assemblage of Indonesian *Dendrochilum*; (3) Infer the biogeographic history of the taxon, its diversification rate, and character evolution for pollination syndromes and other key innovations; and (4) Revise the alpha taxonomy of Indonesian *Dendrochilum* with emphasis on the islands of Sumatra, Java and Sulawesi following the recent classification proposed by Pedersen et al. (2020).

The research outlined here will help to contribute in refining estimates of Indonesia's true orchid diversity by enabling the description of species new to science, provide open access tools for accurate species identification that will aid biodiversity surveys and identification of vulnerable sites with high endemism worthy of legal protection, clarify the relative roles of geography and (pollination)

ecology in the diversification of this species-rich group, and enable Red List assessments of *Dendrochilum* species currently classified as Data Deficient/Not Evaluated to prevent their overexploitation and extinction.

Obituaries

Singchi Chen (1931–2021)

Prof. Singchi Chen passed away on 30 March 2021. Prof. Chen was former director of the Beijing herbarium (PE) and the Key Laboratory of Systematic and Evolutionary Botany, Institute of Botany, Chinese Academy of Sciences. He was also vice editor-in-chief of the *Flora of China* (FRPS) from 1996 to 2004. Prof. Chen has described many new species of orchid, for example *Paphiopedilum malipoense* and *Cypripedium subtropicum*, and has published several books about orchid diversity in China, such as *The Genus Cypripedium in China* (with Zhongjian Liu, Lijun Chen and Liqiang Li, Science Press, Beijing, 2013).

Xiaohua Jin



Prof. Singchi Chen in Beijing Botanical Gardens with Prof. Yu Zhang (photo courtesy Xiaohua Jin)

Paolo Grünanger (1926–2020)

Since issue 61 (2012), Paolo Grünanger provided lists of references from European orchid journals for the *Orchid Research Newsletter*, for which reason my predecessor, Alec Pridgeon, and I will remember him with gratitude, although I never met Paolo in person. Tributes to Paolo and descriptions of his many other (and more significant) achievements can be found in *GIROS Orchidee Spontanee d'Europa* 63(2): 548–555. Ed.

Wayne K. Harris (1939–2020)

Wayne was a senior botanist at the Queensland Herbarium (BRI) in Brisbane, where he was curator of Orchidaceae. He was co-author of *Dendrobium and its Relatives* by Peter S. Lavarack, Bill Lavarack, Wayne Harris, and Geoff Stocker (Timber Press, Portland, 2006). In his retirement he had been working on a revision of *Diplocaulobium*, in which genus (now *Dendrobium* sect. *Diplocaulobium*) he published two new species. In 2003 and 2004 he made expeditions to Papua New Guinea, where he collected living orchids and made numerous photographs, many of which (both plants and photographs) he made available to the Orchids of New Guinea project (<http://www.orchidsnewguinea.com/>). *Ed.*



Dendrobium obyrnei (W.K.Harris) Schuit. & de Vogel was first described by Wayne Harris (as *Diplocaulobium obyrnei*) (photo Wayne Harris)



Bulbophyllum pyroglossum Schuit. & de Vogel was discovered by Wayne Harris along the remote Libano River in PNG (photo Wayne Harris)

Recent Orchid Nomenclature

New orchid names may be retrieved from the revamped IPNI website: <https://beta.ipni.org/>. Click on "Advanced search"; after the search page appears, type in **Orchidaceae** under family name and select a date in "Recorded after". This will pull up a list of all orchid names added to the IPNI database since that date. Also be sure to check the World Checklist of Selected Plant Families (<http://apps.kew.org/wcsp/>) for accepted names and synonyms as well as for building your own checklists. Alternatively, the Plants of the World Online website (<http://www.plantsoftheworldonline.org/>) provides similar information with added maps and illustrations.

Recent Literature

If you are aware of any relevant citations published between July 2020 and January 2021 not listed here or in the previous issue, please send them to the editor for publication in the next issue (January 2022). Book citations should include author(s), year of publication, title, publisher, and place of publication (in that order). Journal titles should be spelled out in full.

correction

In *Orchid Research Newsletter* 76 all references to *GIROS Orchidee Spontanee d'Europa* 26(1) should read 63(1).

Anatomy and morphology

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