

Orchid Research Newsletter No. 76

January 2021

Editorial

This should have been No. 77 of the *Orchid Research Newsletter*, but the July 2020 issue of this publication was one of the minor victims of the Covid-19 pandemic. At the end of March of last year, the Royal Botanic Gardens, Kew, were closed as part of a national lockdown in the UK and all but the most essential staff were sent home for several months. Fortunately, the living collections were looked after, but it was decided that the Herbarium could look after itself. The plants in there were already dead, after all. Keeping the staff and, indirectly, their friends and relatives alive was the main priority.

While at home, without access to literature that was not available online, I could only have produced a rather half-baked issue in July, so I decided to skip that one altogether. I was only able to go back to the office in August and then just for a few days a week. Like most of you, I had to abandon travel plans and switch to working from home as much as possible. For example, I had to cancel my flight to Taiwan in March 2020, where I had planned to attend the 23rd World Orchid Conference. As you can read elsewhere in this Newsletter, the original conference was postponed and will now go ahead in April this year, but with many of the lectures in virtual form.

I am happy that I have been able to put together this jumbo-sized January issue, which appears while the UK is under its third lockdown. It will be some time before things go back to normal here, and that is probably an understatement. I hope the next issue will be published on schedule in July.

The pandemic has certainly given food for thought. It is almost a kind of Darwinian experiment on a huge scale. Our ecosystem has been infiltrated by a new invasive species and we are now experiencing in the most direct way what exponential growth, mutations and natural selection mean.

As rarely before, science and scientists have come to our defence. The invader has been identified and was named SARS-CoV-2 (there is no Linnaean naming system for viruses), and its entire genome was sequenced within months. We even know which complex molecules form the infamous ‘spikes’ that cover the virus particle and we have established how certain point mutations alter their properties. Several different vaccines have been developed in record time. These are all immense accomplishments.

At the same time, we can observe the depressing spectacle of science denialists: those who believe it is all a hoax, a giant conspiracy. It would be comforting if we could dismiss them as being merely stupid, but some of these people are well educated, so presumably they are reasonably intelligent.

To me, even more worrying than those cranks are scientists who bypass the usual channels of peer-reviewed publications to promote their controversial theories in popular media. We like to think that scientists are driven by the urge to discover ‘the truth’ but let us not deceive ourselves: scientists are human and some care perhaps a little too much about being in the spotlight, some are perhaps too eager to publicize their ideas while avoiding the scrutiny of peer review. We should be especially wary of scientists who make pronouncements outside their own field of expertise: there is a good chance that they do not know what they are talking about as well as they pretend. I have recently seen a virologist making dubious claims about

population genetics and mathematical modellers feeding bold statements to the press that seemed to suggest they did not realize the difference between model and reality.

Scientists typically know a lot about a very narrow field. Just consider the papers cited in this Newsletter. How many of these would you have been competent to review? Speaking for myself, I would say a distinct minority. And yet, all these papers have something to do with orchids. Let us not even think about fields far removed from ours. Part of being a good scientist is to recognize your limitations.

André Schuiteman
a.schuiteman@kew.org
Kew



Spot the orchid: *Dendrobium fluctuosum* in situ, Arfak Mountains, West Papua Province, Indonesia (photo André Schuiteman)

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.

The **23rd World Orchid Conference**, which was originally scheduled from 9 to 19 March 2020 in Taiwan has been postponed to 24 April to 3 May 2021.

The format of the resumed 23rd WOC in 2021 will combine in-person and virtual presentations for overseas invited speakers, presenters, and participants. A virtual platform will allow orchid hobbyists and professionals from around the world to participate remotely, despite the restrictions on travel and quarantine at the borders that may remain in place at the time.

See <https://www.woc23.com>.

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.

Obituaries

Calaway (Cal) Homer Dodson (1928–2020)

The last two years have been a rough time for orchidology, as renowned, oft revered and influential personalities moved on to other pursuits. Mark Whitten (1954–2019), Jeffrey Wood (1952–2019), Carl Luer (1922–2019), Bob Dressler (1927–2019), and most recently, Calaway “Cal” Homer Dodson (1928–2020) packed their bags and headed for the afterlife, wherever that may be.

Cal grew up in California, picked up an interest in botany and went to Claremont University College and Rancho Santa Ana Botanical Garden for graduate work with Lee Lenz. Influenced by an academic lineage of plant geneticists, Cal studied chromosomes and introgressive hybridization in the Oncidiinae, which introduced him to the Neotropics. It took a piece of his heart and never let go.

Upon graduation, Cal became the first director of the Institute of Botany at the Universidad de Guayaquil, Ecuador. But a year later he headed to Saint Louis to work at the Missouri Botanical Garden which is where he crossed paths with Bob Dressler. The two of them immediately began working together. The first public indication that something was brewing in Saint Louis besides Budweiser was the publication of *Classification and phylogeny in the Orchidaceae* (Dressler & Dodson, 1960), the first major attempt at orchid classification since Rudolf Schlechter (1927). While their interests in classification and taxonomy were strong, both became intrigued by orchid pollination, drawn particularly to those taxa that were pollinated by male euglossine bees (e.g. *Stanhopea*). For various reasons, the tenure at the Missouri Botanical Garden did not last. Bob became the first hire at the Smithsonian Tropical Research Institute and Cal headed to the University of Miami in Florida.

Orchid Flowers: Their Pollination and Evolution (van der Pijl and Dodson, 1966) can be viewed as a 100-year update of Darwin’s 1862 *Various Contrivances by which British and Foreign Orchids are Fertilized by Insects*. Cal teamed up with renowned pollination biologist, L. van der Pijl, and the result has to be one of the most influential publications in orchid biology. Certainly, Cal was the main culprit who put both of us (JDA & RLT) on track to be orchid biologists. It all began when we were undergraduates and discovered his book in the Humboldt State University library (JDA) and the Ottawa (Canada) public library (RLT). We are not sure how influential the book is today because great strides have been made in orchid pollination biology since *Orchid Flowers* ... with numerous articles, reviews, books, and websites on the subject now available, which certainly was not the case 4–5 decades ago. Some of that early progress came almost immediately from Bob, Cal, and Cal’s students. Those were primarily studies on orchid bees and the flowers they pollinated (most notably, Dodson et al., 1969) that not only launched numerous studies on plant-pollinator interactions and their importance to orchid evolution, but also research in euglossine bee biology, including systematics, behavior, and ecology.

Many people have mined that book for the list of orchid pollinators in the back of the book, including RLT, whose first publication evaluated the relationship between the number of pollinators per orchid species and their evolutionary history (Tremblay 1992). *Orchid Flowers* ... listed about 300 orchid species with pollinators. We knew that was a woefully inadequate sample then (about 1%), but orchid scientists from around the globe have been working towards improving representation across the family. We are now at about 7%. Obviously, what Darwin started and van

der Pijl and Dodson revived, still has long way to go to reveal the mysteries of orchid pollination and evolution.

Cal's presence at the University of Miami was a very productive time. His students included Ralph Adams (orchid bee diversity), Hal Hills (pollination and systematics of *Catasetum*), Norris Williams (orchid bee biology, systematics of *Ada*), Katharine Gregg (sex expression in *Cycnoches* and *Catasetum*), Hans Wiehler (systematics of Gesneriaceae), Kiat Tan (systematics of *Arachnis*), Sister John Karen Frei (phorophyte-orchid interactions).

In 1973, Cal was enticed away from Miami by Carl Luer to become the Director of the Marie Selby Botanical Garden. In that role, Cal developed a lovely garden with a vibrant research program in epiphyte biology, which turned out to be somewhat overly ambitious and unsustainable. But while his tenure at the Garden lasted, Cal made every effort to assist the next generation of orchid biologists which were emerging through Norris's lab at Florida State University. These included JDA, Alec Pridgeon, John Atwood, Mark Whitten, and Gil Newton.

When Cal left Selby Gardens, he returned to Ecuador where his love of orchids had originally solidified. Peter Raven appointed him as a Senior Curator at the Missouri Botanical Garden which allowed Cal to remain in Ecuador and continue his research focusing on floristics and taxonomy of Andean orchids, and to serve as director of the Río Palenque Field Station. Cal's mentorship and collaborations with Ecuadoreans, coupled with a prodigious scientific output, culminated in becoming the first non-Ecuadorean to be honored with the Presidential Medal of National Merit, and later the Medal of Scientific Merit of the National Congress of Ecuador (Endara, 2020).

While the impact Cal had on the taxonomy and floristics (not just orchids!) of the Andean region has been huge, there were two papers that had an influence outside his usual sphere of science. He collaborated on two frequently cited papers published with Al Gentry entitled *Diversity and biogeography of Neotropical vascular epiphytes* and *Contribution of nontrees to species richness of a tropical rain forest* (Gentry & Dodson, 1987a, 1987b). Those two papers put orchids and epiphytes squarely into the conversation on tropical forest ecology and conservation. But embedded in the Neotropical vascular epiphyte paper, and largely overlooked, was Cal's opinion that speciation in orchids may be very rapid. His contention that it could happen as fast as a couple of decades was not widely accepted, but nearly two decades later mechanistic scenarios for rapid bursts of evolutionary change were reintroduced (Tremblay et al., 2005). While JDA knew Cal from his Selby days by working as a summer research intern at the Garden, RLT had only one encounter with Cal when they both were in Costa Rica for a conference. RLT gave a talk on his PhD dissertation in which he proposed that in orchids genetic drift was as likely a component of evolutionary processes as natural selection. Afterwards, Cal approached RLT and launched into a discussion of his experiences in the field that would likely support that hypothesis, a very nice endorsement if there ever was one.

Cal's work is still worth a visit. His most influential period ran for decades, especially the 60s, 70s, and 80s. It was simpler science in those days, but what appeared effortless to Cal, yet courageous for the times, was to think outside the box. And that is certainly what he did, inspiring many who were paying attention.

Much of what is written here was excerpted from Ackerman and Tremblay (2020), a story of Cal's academic genealogy. We thank Eric Hágsater for permission to reuse some of that material. Several homages to Cal were also published with that paper in *Icones Orchidacearum* 18(1), all of which are available for download at https://herbarioamo.org/index_archivos/Fascicle18_1.pdf.

References

Ackerman, J. D. and Tremblay, R. L. 2020. What hath he wrought: Dodson the Divergent. *Icones Orchidacearum* 18(1): x–xv.

Darwin, C. 1862. *On the Various Contrivances by which British and Foreign Orchids are Fertilised by Insects*. John Murray & Sons, London.

Dressler, R. L. and Dodson, C. H. 1960. Classification and phylogeny in the Orchidaceae. *Annals of the Missouri Botanical Garden* 47: 25–68.

Endara, L. 2020. In memoriam: Calaway Homer Dodson (1928–2020) explorer, scholar, orchidologist. *Lankesteriana* 20: i–vii.

Gentry, A. H. and Dodson, C. H. 1987a. Diversity and biogeography of Neotropical vascular epiphytes. *Annals of the Missouri Botanical Garden* 74: 205–233.

Gentry, A. H. and Dodson, C. H. 1987b. Contribution of nontrees to species richness of a tropical rain forest. *Biotropica* 19: 149–156.

Schlechter, R. 1927. *Die Orchideen*. Paul Parey, Berlin.

Tremblay, R. L. 1992. Trends in pollination biology of the Orchidaceae: evolution and systematics. *Canadian Journal of Botany* 70: 642–650.

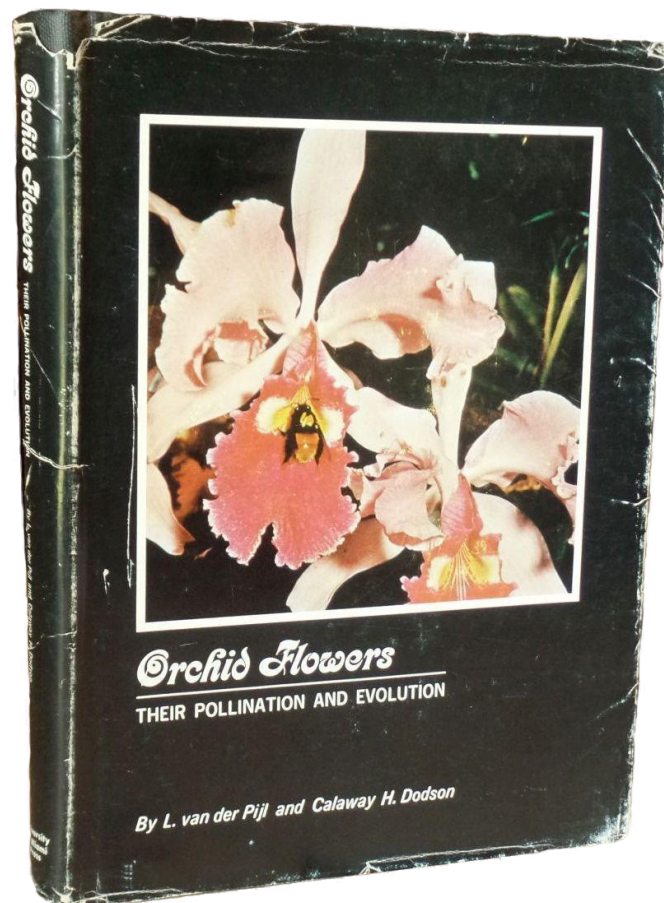
Tremblay, R. L., Ackerman, J. D., Zimmerman, J. K., and Calvo R. C. 2005. Variation in sexual reproduction in orchids and its evolutionary consequences: a spasmodic journey to diversification. *Biological Journal of the Linnean Society* 84: 1–54.

van der Pijl, L. and Dodson, C. H. (1966) *Orchid Flowers: Their Pollination and Evolution*. University of Miami Press, Coral Gables.

James D. Ackerman and Raymond L. Tremblay



Cal Dodson and Raymond Tremblay at the 1st International Conference on Neotropical Orchidology, Costa Rica, May 2003 (photo courtesy Raymond Tremblay)



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 November 2019 and July 2020 not listed here or in the previous issue, please send them to the editor for publication in the next issue (July 2021). 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.

Anatomy and morphology

Adachi, S. A. and Machado, S. R. 2020. Lip morphology and ultrastructure of osmophores in *Cyclopogon* (Orchidaceae) reveal a degree of morphological differentiation among species. *Protoplasma* 257(4): 1139–1148 (doi: 10.1007/s00709-020-01499-9).

Akbulut, M. K., Şenel, G., and Şeker, Ş. S. 2020. Comparison of labellum and spur papillae in *Dactylorhiza* (Orchidaceae) from Anatolia. *Brazilian Journal of Botany* 43(2): 367–377 (doi: 10.1007/s40415-020-00597-5).

Baishnab, B., Majumdar, K., and Datta, B. K. 2020. Anatomical features a[sic] moth orchid, *Phalaenopsis deliciosa* subsp. *hookeriana* (O. Gruss & Roellke) from Tripura, Northeast India. *Indian Journal of Ecology* 47(2): 426–430.

Barone Lumaga, M. R., Scopece, G., and Cozzolino, S. 2020. The effect of seasonality on developmental stages of anthetic ovule integuments in Mediterranean orchids. *Protoplasma* 257(2): 613–618 (doi: 10.1007/s00709-019-01464-1).

Cruz-Lustre, G., Batista, J. A. N., Radins, J. A., González, A., and Borba, E. L. 2020. Morphometric analysis of the *Habenaria parviflora* complex (Orchidaceae). *Plant Systematics and Evolution* 306(2): art. 37 (doi: 10.1007/s00606-020-01634-2).

Diantina, S., McGill, C., Millner, J., Nadarajan, J., Pritchard, H. W., and McCormick, A. C. 2020. Comparative seed morphology of tropical and temperate orchid species with different growth habits. *Plants* 9(2): art. 161 (doi: 10.3390/plants9020161).

Einzmann, H. J. R., Schickenberg, N., and Zotz, G. 2020. Variation in root morphology of epiphytic orchids along small-scale and large-scale moisture gradients. *Acta Botanica Brasílica* 34(1): 66–73 (doi: 10.1590/0102-33062019abb0198).

Fan, X. L., Chomicki, G., Hao, K., Liu, Q., Xiong, Y. Z., Renner, S. S., Gao, J. Y., and Huang, S. Q. 2020. Transitions between the terrestrial and epiphytic habit drove the evolution of seed-aerodynamic traits in orchids. *American Naturalist* 195(2): 275–283 (doi: 10.1086/706905).

Ghimire, B., Son, S., Kim, J. H., and Jeong, M. J. 2020. Gametophyte and embryonic ontogeny: understanding the reproductive calendar of *Cypripedium japonicum* Thunb. (Cypripedoideae, Orchidaceae), a lady's slipper orchid endemic to East Asia. *BMC plant biology* 20(1): art. 426 (doi: 10.1186/s12870-020-02589-9).

Göbel, C. Y., Schlumpberger, B. O., and Zotz, G. 2020. What is a pseudobulb? Toward a quantitative definition. *International Journal of Plant Sciences* 181(7): 686–696 (doi: 10.1086/709295).

Hariyanto, S., Pratiwi, I. A., and Utami, E. S. W. 2020. Seed morphometry of native Indonesian orchids in the genus *Dendrobium*. *Scientifica* 2020: art. 3986369 (doi: 10.1155/2020/3986369).

Hauber, F., Konrad, W., and Roth-Nebelsick, A. 2020. Aerial roots of orchids: the velamen radicum as a porous material for efficient imbibition of water. *Applied Physics A: Materials Science and Processing* 126(11): art. 885 (doi: 10.1007/s00339-020-04047-7).

Jahan, B. M. 2020. Labellum diversity in selected epiphytic orchids from Western Ghats, Goa, India. *Plant Archives* 20(1): 2602–2604.

Li, J. W., Zhang, S. B., Xi, H. P., Bradshaw, C. J. A., and Zhang, J. L. 2020. Processes controlling programmed cell death of root velamen radicum in an epiphytic orchid. *Annals of Botany* 126(2): 261–275 (doi: 10.1093/aob/mcaa077) [*Cymbidium tracyanum*].

Margońska, H. B., Narajczyk, M., Luszczek, D., and Lipinska, M. 2019. *Liparis stricklandiana* (Orchidaceae, Liparidinae)—a morphological study of flower structures in the context of pollination processes. *Wulfenia* 26: 195–207.

Naczka, A. M., Mieszkowska, A., Siwiec, A., and Tomaszewska, M. 2019. Understanding diversity of lip shape in the *Dactylorhiza incarnata/maculata* complex (Orchidaceae). *Phyton, Annales Rei Botanicae, Horn* 59: 11–16.

Oliveira Ribeiro, J. P., de Paula-Souza, J., and da Silva, C. J. 2020. Morfoanatomia de órgãos vegetativos de duas espécies de *Cattleya* (Orchidaceae) nativas do Brasil | Morphoanatomy of vegetative organs of two species of *Cattleya* (Orchidaceae) native to Brazil. *Rodriguésia* 71: art. e01672017 (doi: 10.1590/2175-7860202071034).

Pramanik, D., Dorst, N., Meesters, N., Spaans, M., Smets, E., Welten, M., and Gravendeel, B. 2020. Evolution and development of three highly specialized floral structures of bee-pollinated *Phalaenopsis* species. *EvoDevo* 11(1): art. 16 (doi: 10.1186/s13227-020-00160-z).

Ramesh, G., Ramudu, J., Khasim, S. M., and Thammasiri, K. 2020. Structural adaptations of *Bulbophyllum* and *Dendrobium* (Orchidaceae) to the epiphytic habitat and their phylogenetic implications. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 303–342.

Ramudu, J. and Khasim, S. M. 2020. Anatomical studies in some Indian Coelogyneae (Orchidaceae). In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 355–364.

Ramudu, J., Khasim, S. M., and Ramesh, G. 2020. Orchid seed ultrastructure: Ecological and taxonomic implications with reference to Epidendroideae (Orchidaceae). In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 239–280.

Ribeiro, J. P. O., de Paula-Souza, J., and da Silva, C. J. 2020. Morphoanatomy of vegetative organs of two species of *Cattleya* (Orchidaceae) native to Brazil | Morfoanatomia de órgãos vegetativos de duas espécies de *Cattleya* (Orchidaceae) nativas do Brasil. *Rodriguésia* 71: art. e00752017 (doi: 10.1590/2175-7860202071034).

Rodrigues de Almeida, A. B., de Camargo Smidt, E., and Amano, E. 2019. Evolution of anatomical characters in *Acianthera* section *Pleurobotryae* (Orchidaceae: Pleurothallidinae). *PLoS One* 14: art. e0212677 (doi: 10.1371/journal.pone.0212677).

Shapoo, G. A., Kaloo, Z. A., and Ganie, A. H. 2020. Seed morphometry of four species of *Dactylorhiza* Neck. ex Nevski from Kashmir Himalaya, India. *Pleione* 14(2): 217–225 (doi: 10.26679/Pleione.14.2.2020.217-225).

Bioinformatics

Arwathananukul, S., Kirimasthong, K., and Aunsri, N. 2020. A new *Paphiopedilum* orchid database and its recognition using convolutional neural network. *Wireless Personal Communications* 115(4): 3275–3289 (doi: 10.1007/s11277-020-07463-3).

Chang, Y. W., Hsiao, Y. K., Ko, C. C., Shen, R. S., Lin, W. Y., and Lin, K. P. 2021. A grading system of pot-*Phalaenopsis* orchid using YOLO-V3 deep learning model. *Advances in Intelligent Systems and Computing* 1264 AISC: 498–507 (doi: 10.1007/978-3-030-57811-4_50).

Dewantara, D. S., Hidayat, R., Susanto, H., and Arymurthy, A. M. 2020. CNN with multi stage image data augmentation methods for Indonesia rare and protected orchids classification. *2020 International Conference on Computer Science and Its Application in Agriculture, ICOSICA 2020*: art. 9243174 (doi: 10.1109/ICOSICA49951.2020.9243174).

Books

- Alrich, P., Higgins, W. A., and Tan, J.-H. 2019. *Compendium of Orchid Genera*. American Orchid Society, Coral Gables, and Natural History Publications (Borneo), Kota Kinabalu.
- Backhouse, G. 2020. *Spider Orchids: Caladenia Orchids of Australia*. Gary Backhouse, Melbourne.
- Birkedal, S. 2020. *Nordens Orkidéer. En Fältguide | Nordic Orchids. A Field Guide*. Naturcentrum AB, Stenungsund.
- Cole, S. and Waller, M. 2020. *Britain's Orchids. A Field Guide to the Orchids of Great Britain and Ireland*. Princeton University Press, Princeton & Woodstock, UK.:
- Coronado Martinez, A. and Soto Perez, E. 2019. *Orchids of Central Spain (Cuenca Province). A Field Guide*. Jolube Consultor Botánico y Editor, Jaca.
- Dalström, S., Higgins, W. E., and Deburghraeve, G. 2020. *The Odontoglossum Story*. Koeltz Scientific Books, Oberreifenberg.
- Egan, J., Wood, T., Farrow, R., and Hayashi, T. 2020. *Field Guide to Orchids of the Southern Tablelands of NSW including the ACT*. Inscope Books, Cremorne.
- Gogoi, K. 2019. *Orchids of Assam—A Pictorial Guide*. Dibrugarh University, Dibrugarh.
- Gruss, O. 2019. *Phragmipedium, Mexipedium, Selenipedium*. Orchideenzauber-Verlag, Ruhmannsfelden [in German].
- Gruss, O. 2020. *Paphiopedilum. Südostasiatische Frauenschuhe. Band 1*. Orchideenzauber-Verlag, Ruhmannsfelden [in German].
- Handoyo, F. 2019. *Orchids of Indonesia. Volume 2*. The author in association with Tjiasmanto Conservation Fund, Jakarta.
- Hermans, J., Hermans, C., Linsky, J., and Li, C.-W. (eds.). 2020. *World Orchid Collections 2020*. Taiwan Orchid Growers Association, Tainan.
- Jin, X., Li, J., and Ye, D. 2019. *Atlas of Native Orchids in China*. 2 volumes. Henan Science and Technology Press, Zhengzhou [in Chinese].
- Johnson, D. 2019. *Wild orchids of Kent*. Kent Field Club, UK.
- Karremans, A. and Viera Uribe, S. 2020. *Pleurothallids. Neotropical Jewels. Volume 1*. The authors, printed and bound by Imprenta Mariscal, Quito.
- Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.) 2020. *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore.

Kitalong, A. H. and Uesugi, M. 2017. *Orchids of Palau: A field guide*. The Environment, Inc., Middletown, DE.

Lin, T.-P. 2019. *The Orchid Flora of Taiwan. A Collection of Line Drawings*. National Taiwan University Press, Taipei.

Mérillon, J.-M. and Kodja, H. (eds.). 2020. *Orchids Phytochemistry, Biology and Horticulture*. Reference Series in Phytochemistry. Fundamentals and Applications. Springer Nature, Switzerland AG, Cham.

Ortiz Valdivieso, P. and Uribe Velez, C. 2020. *Orquídeas, Tesoro de Colombia | Orchids, a Colombian Treasure. Volume 3: Ha–L*. DaVinci Publicidad y Medios, Bogotá.

Sambin, A. 2020. *Les Orchidées de Guyane*. Biotope Éditions, Mèze [in French].

Scott-Rogers, L. 2020. *Richard Sanders Rogers. Surgeon, Naturalist and Orchidologist: 1861-1942*. Delphian Books, New South Wales.

Shifman, A. 2019. *The Wild Orchids of Israel: The Complete Guide*. Shifman, Israel.

Singh Jalal, J., Suyal, R., and Tewari, L. M. 2019. *Orchids of Nainital, Western Himalaya*. Indu Book Services Pvt. Limited, New Delhi.

Sun, C. 2019. *Study on Orchidaceae Specimens in the Herbarium of Guizhou Institute of Biology, China*. Science Press, Beijing [in Chinese].

Szlachetko, D. L. and Kolanowska, M. (eds.) 2020. *Materials to the Orchid flora of Colombia. Vol. 3: Spiranthoideae-Cranichideae, Vanilloideae*. Koeltz Botanical Books, Glashütten.

Wartmann, B. A. 2020. *Die Orchideen der Schweiz. Ein Feldführer*. 3te erweiterte Auflage. Haupt, Bern [in German].

Zheng, Y. 2020. *Orchids in Zijin of China*. China Forestry Press, Beijing [in Chinese].

Conservation

Charitonidou, M. and Halley, J. M. 2020. What goes up must come down – why high fecundity orchids challenge conservation beliefs. *Biological Conservation* 252: art. 108835 (doi: 10.1016/j.biocon.2020.108835).

Cohen, J. E., Williams, H. N., Strong, Y. E., and Fisher, H. C. E. 2020. Non-detriment findings for international trade in wild orchids from developing countries; A case study for *Broughtonia sanguinea* in Jamaica. *Journal for Nature Conservation* 56: art. 125840 (doi: 10.1016/j.jnc.2020.125840).

Crain, B. J. and Fernández, M. 2020. Biogeographical analyses to facilitate targeted conservation of orchid diversity hotspots in Costa Rica. *Diversity and Distributions* 26(7): 853–866 (doi: 10.1111/ddi.13062).

Damgaard, C., Moeslund, J. E., and Wind, P. 2020. Changes in the abundance of Danish orchids over the past 30 years. *Diversity* 12(6): art. 244 (doi: 10.3390/D12060244).

Dulić, J., Ljubojević, M., Savić, D., Ognjanov, V., Dulić, T., Barać, G., and Milović, M. 2020. Implementation of SWOT analysis to evaluate conservation necessity and utilization of natural wealth: terrestrial orchids as a case study. *Journal of Environmental Planning and Management* 63(12): 2265–2286 (doi: 10.1080/09640568.2020.1717935) [Serbia].

Ebrahimi, A., Asadi, A., Monfared, S. R., Sahebi, M., Rezaee, S., and Khaledian, Y. 2020. Evaluation of phenotypic diversity of the endangered orchid (*Orchis mascula*): Emphasizing on breeding, conservation and development. *South African Journal of Botany* 132: 304–315 (doi: 10.1016/j.sajb.2020.05.013).

Emeterio-Lara, A., García-Franco, J. G., Hernández-Apolinar, M., Toledo-Hernández, V. H., Valencia-Díaz, S., and Flores-Palacios, A. 2021. Does extraction of orchids affect their population structure? Evidence from populations of *Laelia autumnalis* (Orchidaceae). *Forest Ecology and Management* 480: art. 118667 (doi: 10.1016/j.foreco.2020.118667).

Endres Júnior, D., Sasamori, M. H., Petry, C. T., da Silva Santos, M., and Droste, A. 2019. Host tree bark traits and development of reintroduced *Cattleya intermedia* (Orchidaceae) plants in Southern Brazil. *Rodriguésia* 70: art. e03092017. 03092019 (doi: 10.1590/2175-7860201970046).

Flores-Tolentino, M., García-Valdés, R., Saénz-Romero, C., Ávila-Díaz, I., Paz, H., and Lopez-Toledo, L. 2020. Distribution and conservation of species is misestimated if biotic interactions are ignored: the case of the orchid *Laelia speciosa*. *Scientific Reports* 10(1): art. 9542 (doi: 10.1038/s41598-020-63638-9).

Geppert, C., Perazza, G., Wilson, R. J., Bertolli, A., Prosser, F., Melchiori, G., and Marini, L. 2020. Consistent population declines but idiosyncratic range shifts in Alpine orchids under global change. *Nature Communications* 11(1): art. 5835 (doi: 10.1038/s41467-020-19680-2).

Hegde, S. N. 2020. Status of orchid diversity, conservation, and research and development in Arunachal Pradesh: An overview. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 223–235.

Herrera-Cabrera, B. E., Campos Contreras, J. E., Macías-Cuéllar, H., Delgado-Alvarado, A., and Salazar-Rojas, V. M. 2020. Beyond the traditional home garden: a circa situm conservation experience of *Laelia anceps* subsp. *dawsonii* f. *chilapensis* Soto-Arenas (Orchidaceae). *Environment, Development and Sustainability* 22(3): 1913–1927 (doi: 10.1007/s10668-018-0270-4).

Hugron, S., Guéné-Nanchen, M., Roux, N., LeBlanc, M. C., and Rochefort, L. 2020. Plant reintroduction in restored peatlands: 80% successfully transferred—Does the remaining 20% matter? *Global Ecology and Conservation* 22: art. e01000 (doi: 10.1016/j.gecco.2020.e01000) [*Cypripedium acaule*].

Jiménez-López, D. A., Pérez-García, E. A., Martínez-Meléndez, N., and Solano, R. 2019. Wild orchids traded in a traditional market in Chiapas, Mexico. *Botanical Sciences* 97(4): 691–700 (doi: 10.17129/botsci.2209).

Karpukhin, M. Y. and Abramchuk, A. V. 2020. The problem of introduction of rare and endangered plants of the middle Urals' flora. *E3S Web of Conferences* 176: art. 03008 (doi: 10.1051/e3sconf/202017603008).

Kolanowska, M. and Jakubska-Busse, A. 2020. Is the lady's-slipper orchid (*Cypripedium calceolus*) likely to shortly become extinct in Europe?—Insights based on ecological niche modelling. *PLoS ONE* 15(1): art. e0228420 (doi: 10.1371/journal.pone.0228420).

Kolomeitseva, G. L. 2020. History and scientific potential of the orchid collection of the stock greenhouse of the Main Botanical Garden RAS (Moscow, Russia). In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 207–222.

Kottawa-Arachchi, J. D., Liyanage, M. G. S., Karunaratne, H. K. B. M. I., Abeyweera, N. H. A. S., Kulasinghe, B. Y. M., and Kahawandala, K. R. S. C. B. 2020. The endangered Daffodil orchid *Ipsea speciosa* (Orchidaceae): Population status in unprotected areas in the central highlands, Sri Lanka. *Lankesteriana* 20(1): 79–90 (doi: 10.15517/lank.v20i1.41434).

Li, Z., Li, J., and Li, M. 2020. Effect of human disturbance on genetic structure of rare and endangered *Paphiopedilum micranthum* implied[sic] the habitat status. *Tropical Conservation Science* 13: 1–7 (doi: 10.1177/1940082920942012).

Liu, H., Liu, Z., Jin, X., Gao, J., Chen, Y., Liu, Q., and Zhang, D. Y. 2020. Assessing conservation efforts against threats to wild orchids in China. *Biological Conservation* 243: art. 108484 (doi: 10.1016/j.biocon.2020.108484).

Martel, C. 2020. Analysis of the conservation status of Peruvian orchids: The case of the genus *Telipogon* | Análisis de la categorización del estado de conservación de las orquídeas en el Perú: el caso del género *Telipogon*. *Revista Peruana de Biología* 27(2): 267–270 (doi: 10.15381/rpb.v27i2.16886).

Masters, S., van Andel, T., de Boer, H. J., Heijungs, R., and Gravendeel, B. 2020. Patent analysis as a novel method for exploring commercial interest in wild harvested species. *Biological Conservation* 243: art. 108454 (doi: 10.1016/j.biocon.2020.108454) [salep].

Meysel, F. and Schwarz, R. 2020. Langzeitbeweidung von Feuchtwiesen mit Orchideenvorkommen auf der Grossen Schwerin (Müritz). *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 73–93.

- Millner, H. J., Bachman, S. P., and Baldwin, T. C. 2020. An assessment of the conservation status of *Restrepia* (Orchidaceae) reveals the threatened status of the genus. *Plant Ecology and Diversity* 13(2): 115–131 (doi: 10.1080/17550874.2020.1735553).
- Moreno, J. S., Sandoval-Arango, S., Palacio, R. D., Alzate, N. F., Rincón, M., Gil, K., Morales, N. G., Harding, P., and Hazzi, N. A. 2020. Distribution models and spatial analyses provide robust assessments of conservation status of orchid species in Colombia: The case of *Lephanthes*[sic: *Lepanthes*] *mucronata*. *Harvard Papers in Botany* 25(1): 111–121 (doi: 10.3100/hpib.v25iss1.2020.n14).
- Nurfadilah, S. 2020. Utilization of orchids of Wallacea region and implication for conservation. *IOP Conference Series: Earth and Environmental Science* 473: art. 012063 (doi: 10.1088/1755-1315/473/1/012063).
- Nyorak, J., Nyodu, Y., and Jawal, V. K. 2020. Notes on habitat and ex situ conservation of *Acanthophippium striatum* Lindl.—a threatened terrestrial orchid from Arunachal Pradesh, India. *Pleione* 14(2): 351–354 (doi: 10.26679/Pleione.14.2.2020.351-354).
- Phillips, R. D., Reiter, N., and Peakall, R. 2020. Orchid conservation: from theory to practice. *Annals of Botany* 126(3): 345–362 (doi: 10.1093/aob/mcaa093).
- Pott, A., Pott, V. J., Catian, G., and Scremin-Dias, E. 2019. Floristic elements as basis for conservation of wetlands and public policies in Brazil: The case of veredas of the Prata River. *Oecologia Australis* 23(4): 744–763 (doi: 10.4257/oeco.2019.2304.04) [*Cyrtopodium hatschbachii*, *Bletia catenulata*].
- Prasongsom, S., Thammasiri, K., Chuenboonngarm, N., Panvisavas, N., Narangajavana, J., and Thitamadee, S. 2020. Conservation of *Dendrobium cruentum* Rchb. f. *Acta Horticulturae* 1298: 187–194 (doi: 10.17660/ActaHortic.2020.1298.27).
- Puspitaningtyas, D. M. and Handini, E. 2020. Ex-situ conservation of *Cymbidium finlaysonianum* by seed storage. *Biodiversitas* 21(8): 3519–3524 (doi: 10.13057/biodiv/d210813).
- Roberts, D. L. and Hinsley, A. 2020. The seven forms of challenges in the wildlife trade. *Tropical Conservation Science* 13: 1–5 (doi: 10.1177/1940082920947023).
- Roberts, D. L. and Jarić, I. 2020. Inferring the extinction of species known only from a single specimen. *ORYX* 54(2): 161–166 (doi: 10.1017/S0030605319000590).
- Tsiftsis, S. and Tsiripidis, I. 2020. Temporal and spatial patterns of orchid species distribution in Greece: implications for conservation. *Biodiversity and Conservation* 29(11–12): 3461–3489 (doi: 10.1007/s10531-020-02035-0).
- Umayana, R., Hardjanto, Soekmadi, R., and Sunito, S. 2020. Direct economic benefits and human dependence toward Gunung Merapi National Park, Indonesia. *Biodiversitas* 21(3): 982–993 (doi: 10.13057/biodiv/d210318).

Vafae, Y., Mohammadi, G., Nazari, F., Fatahi, M., Kaki, A., Gholami, S., Ghorbani, A., and Khadivi, A. 2021. Phenotypic characterization and seed-micromorphology diversity of the threatened terrestrial orchids: implications for conservation. *South African Journal of Botany* 137: 386–398 (doi: 10.1016/j.sajb.2020.11.010) [Iran].

Wapstra, M. and Chuter, A. 2019. Response of *Pterostylis atriola* (snug greenhood) to forestry disturbance in Tasmania. *The Orchadian* 19(9): 395–406.

Wong, W. N., Yong, C. S. Y., Namasivayam, P., Go, R., and Abdullah, J. O. 2020. Digitalized herbaria data for assessing extinction risk of the endemic Vandaceous orchids of Peninsular Malaysia. *Malayan Nature Journal* 72: 77–86.

Wooten, S., Call, G., Dattilo, A., Cruse-Sanders, J., and Boyd, J. N. 2020. Impacts of forest thinning and white-tailed deer herbivory on translocation of the rare terrestrial orchid *Platanthera integrilabia*. *Diversity* 12(11): art. 412 (doi: 10.3390/d12110412).

Wraith, J., Norman, P., and Pickering, C. 2020. Orchid conservation and research: An analysis of gaps and priorities for globally Red Listed species. *Ambio* 49(10): 1601–1611 (doi: 10.1007/s13280-019-01306-7).

Yam, T. W. 2020. Conservation and reintroduction of Singapore's native orchids. *Orchids, the Bulletin of the American Orchid Society* 89(2): 96–99.

Yeager, J., Luis E. Baquero, R., and Zarling, A. 2020. Mediating ethical considerations in the conservation and sustainable biocommerce of the jewels of the rainforest. *Journal for Nature Conservation* 54: art. 125803 (doi: 10.1016/j.jnc.2020.125803).

Zhang, L., Liu, Z., and Wang, R. 2020. The conservation status of orchids in Guangdong province. *Biodiversity Science* 28(7): 787–795 (doi: 10.17520/biods.2019400).

Cytogenetics and horticultural genetics

Dwiati, M., Susanto, A. H., and Prayoga, L. 2020. Intergeneric hybrids of *Phalaenopsis* 2166 × *Vanda* ‘Saint Valentine’ showing maternal inheritance: genetic analysis based on *ndhE* partial gene. *Biodiversitas* 21(11): 5138–5145 (doi: 10.13057/biodiv/d211119).

Lee, H. J., Park, H. R., Lee, A. J., Nam, D. E., Lee, D. G., Do, Y., and Chung, K. W. 2020. Genetic authentication of cultivars with flower-variant types using SSR markers in spring orchid, *Cymbidium goeringii*. *Horticulture Environment and Biotechnology* 61(3): 577–590 (doi: 10.1007/s13580-020-00243-9).

Lima de Faria, A. 2020. Comparison of the evolution of orchids with that of bats. *Caryologia* 73(2): 51–61 (doi: 10.13128/caryologia-891).

Pham, P. L., Li, Y. X., Guo, H. R., Zeng, R. Z., Xie, L., Zhang, Z. S., Chen, J., Su, Q. L., and Xia, Q. 2019. Changes in morphological characteristics, regeneration ability, and polysaccharide content in tetraploid *Dendrobium officinale*. *HortScience* 54(11): 1879–1886 (doi: 10.21273/HORTSCI14310-19).

Querino, B. C., Ferraz, M. E., Mata-Sucre, Y., Souza, G., and Felix, L. P. 2020. Cytomolecular diversity of the subtribe Laeliinae (Epidendroidae, Orchidaceae) suggests no relationship between genome size and heterochromatin abundance. *Plant Systematics and Evolution* 306(2): art. 19 (doi: 10.1007/s00606-020-01650-2).

Rao, S. R. 2020. Status of genetic diversity and its characterization in genus *Bulbophyllum* (Orchidaceae) from North-eastern India. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 149–154.

Zakizadeh, S., Kaviani, B., and Hashemabadi, D. 2020. In vivo-induced polyploidy in *Dendrobium* ‘Sonia’ in a bubble bioreactor system using colchicine and oryzalin. *Brazilian Journal of Botany* 43(4): 921–932 (doi: 10.1007/s40415-020-00654-z).

Zeng, R. Z., Zhu, J., Xu, S. Y., Du, G. H., Guo, H. R., Chen, J., Zhang, Z. S., and Xie, L. 2020. Unreduced male gamete formation in *Cymbidium* and its use for developing sexual polyploid cultivars. *Frontiers in Plant Science* 11: art. 558 (doi: 10.3389/fpls.2020.00558).

Ecology

Acevedo, M. A., Beaudrot, L., Meléndez-Ackerman, E. J., and Tremblay, R. L. 2020. Local extinction risk under climate change in a neotropical asymmetrically dispersed epiphyte. *Journal of Ecology* 108(4): 1553–1564 (doi: 10.1111/1365-2745.13361) [*Lepanthes rupestris*].

Atala, C., Baldelomar, M., Torres-Díaz, C., Pereira, G., Cacciuttolo, F., Vargas, R., and Molina-Montenegro, M. A. 2020. Positive interaction between shrubs and native orchids in a mediterranean ecosystem. *Revista Brasileira de Botânica* 43(4): 1025–1036 (doi: 10.1007/s40415-020-00664-x) [Chile].

Baldelomar, M., Atala, C., and Molina-Montenegro, M. A. 2019. Top-down and bottom-up effects deployed by a nurse shrub allow facilitating an endemic mediterranean orchid. *Frontiers in Ecology and Evolution* 7: art. 466 (doi: 10.3389/fevo.2019.00466) [*Bipinnula fimbriata*].

Ballarin, C. S., Hachuy-Filho, L., Sanz-Veiga, P. A., and Amorim, F. W. 2020. The resource-mediated modular structure of a non-symbiotic ant–plant mutualism. *Ecological Entomology* 45(1): 121–129 (doi: 10.1111/een.12780) [*Epidendrum secundum*].

Barberena, F. F. V. A., da Silva Sousa, T., de Souza Ambrosio-Moreira, B., and Roque, N. 2019. What are the species of phorophytes of *Vanilla palmarum* (Orchidaceae) in Brazil? An assessment of emblematic specificity with palm tree species. *Rodriguésia* 70: art. e02732017. 02732019 (doi: 10.1590/2175-7860201970037).

Barbosa, D. E. F., Basílio, G. A., Furtado, S. G., and Menini Neto, L. 2020. The importance of heterogeneity of habitats for the species richness of vascular epiphytes in remnants of Brazilian montane seasonal semideciduous forest. *Edinburgh Journal of Botany* 77(1): 99–118 (doi: 10.1017/S0960428619000313).

Capó, M., Borràs, J., Perelló-Suau, S., Rita, J., and Cursach, J. 2021. Ecological factors affecting the fitness of the threatened orchid *Anacamptis robusta* (Orchidaceae): Habitat disturbance, interactions with a co-flowering rewarding orchid and hybridization events. *Plant Biology* 23(1): 121–129 (doi: 10.1111/plb.13179).

Cortés-Anzúres, B. O., Corona-López, A. M., Damon, A., Mata-Rosas, M., and Flores-Palacios, A. 2020. Phorophyte type determines epiphyte-phorophyte network structure in a Mexican oak forest. *Flora: Morphology, Distribution, Functional Ecology of Plants* 272: art. 151704 (doi: 10.1016/j.flora.2020.151704).

De Agostini, A., Caltagirone, C., Caredda, A., Ciatelli, A., Cogoni, A., Farci, D., Guarino, F., Garau, A., Labra, M., Lussu, M., Piano, D., Sanna, C., Tommasi, N., Vacca, A., and Cortis, P. 2020. Heavy metal tolerance of orchid populations growing on abandoned mine tailings: A case study in Sardinia Island (Italy). *Ecotoxicology and environmental safety* 189: art. 110018 (doi: 10.1016/j.ecoenv.2019.110018) [*Epipactis helleborine* subsp. *tremolsii*].

de Carvalho, A. J. A., de Souza, E. H., da Costa, G. M., Saleme Aona, L. Y., and Fermino Soares, A. C. 2020. Vascular epiphytes on licuri palms (*Syagrus coronata* (Mart.) Becc.) in a toposequence: Caatinga conservation indicator species. *Brazilian Journal of Botany* 43(4): 1061–1075 (doi: 10.1007/s40415-020-00669-6).

Djordjević, V. and Tsiftsis, S. 2020. The role of ecological factors in distribution and abundance of terrestrial orchids. In: Mérillon, J.-M. and Kodja, H. (eds.), *Orchids Phytochemistry, Biology and Horticulture*. Reference Series in Phytochemistry. Fundamentals and Applications. Springer Nature, Switzerland AG, pp. 1–71. (doi: 10.1007/978-3-030-11257-8_4-1) [Europe].

Djordjević, V., Tsiftsis, S., Lakušić, D., Jovanović, S., Jakovljević, K., and Stevanović, V. 2020. Patterns of distribution, abundance and composition of forest terrestrial orchids. *Biodiversity and Conservation* 29(14): 4111–4134 (doi: 10.1007/s10531-020-02067-6) [central Balkans].

Djordjević, V., Tsiftsis, S., Lakušić, D., Jovanović, S., Jakovljević, K., and Stevanović, V. 2020. Correction to: Patterns of distribution, abundance and composition of forest terrestrial orchids (*Biodiversity and Conservation*, (2020), 29, 14, (4111–4134), 10.1007/s10531-020-02067-6). *Biodiversity and Conservation* 29(14): 4135 (doi: 10.1007/s10531-020-02071-w).

Eskov, A. K., Prilepsky, N. G., Antipina, V. A., Abakumov, E. V., and Van Thinh, N. 2020. Formation of epiphytic communities in man-made forests of South Vietnam. *Russian Journal of Ecology* 51(1): 208–216 (doi: 10.1134/S1067413620030078).

Fardhani, I., Torimaru, T., and Kisanuki, H. 2020. The vertical distribution of epiphytic orchids on *Schima wallichii* trees in a montane forest in West Java, Indonesia. *Biodiversitas* 21(1): 290–298 (doi: 10.13057/biodiv/d210136).

Fekete, R., Bódis, J., Fülöp, B., Süveges, K., Urgyán, R., Malkócs, T., Vincze, O., Silva, L., and Molnár V. A. 2020. Roadsides provide refuge for orchids: characteristic of the surrounding landscape. *Ecology and Evolution* 10(23): 13236–13247 (doi: 10.1002/ece3.6920) [Central Europe].

Filimonova, E., Lukina, N., Glazyrina, M., Borisova, G., Tripti, Kumar, A., and Maleva, M. 2020. A comparative study of *Epipactis atrorubens* in two different forest communities of the Middle Urals, Russia. *Journal of Forestry Research* 31(6): 2111–2120 (doi: 10.1007/s11676-019-01010-y).

García-González, A., Plasencia-Vázquez, A. H., Serrano Rodríguez, A., Riverón-Giró, F. B., Ferrer-Sánchez, Y., and Zamora Crescencio, P. 2021. Assemblage of vascular epiphytes associated to seasonally inundated forest in the Southeastern Mexico: Challenges for its conservation. *Global Ecology and Conservation* 25: art. e01404 (doi: 10.1016/j.gecco.2020.e01404).

Hrivnák, M., Slezák, M., Galvánek, D., Vlčko, J., Belanová, E., Rízová, V., Senko, D., and Hrivnák, R. 2020. Species richness, ecology, and prediction of orchids in central Europe: Local-scale study. *Diversity* 12(4): art. 154 (doi: 10.3390/D12040154).

Kirca, S., Kreutz, C. A. J., and Çolak, A. H. 2020. A biogeographical and ecological classification of orchids in Turkey. *Phytocoenologia* 50(1): 65–77 (doi: 10.1127/phyto/2019/0292).

Kolanowska, M., Rewicz, A., and Baranow, P. 2020. Ecological niche modeling of the pantropical orchid *Polystachya concreta* (Orchidaceae) and its response to climate change. *Scientific Reports* 10(1): art. 14801 (doi: 10.1038/s41598-020-71732-1).

Kosolapova, N. V., Egoshina, T. L., and Luginina, E. A. 2020. Peculiarities of growing conditions of *Dactylorhiza fuchsii* (Orchidaceae) in “Bylina” state nature reserve (Kirov region). *Botanicheskii Zhurnal* 105(3): 280–292 (doi: 10.31857/S0006813620030059).

Lopes, L. F., Oliveira, S. C., Neto, C., and Zêzere, J. L. 2020. Vegetation evolution by ecological succession as a potential bioindicator of landslides relative age in Southwestern Mediterranean region. *Natural Hazards* 103(1): 599–622 (doi: 10.1007/s11069-020-04002-y).

Mendieta-Leiva, G., Porada, P., and Bader, M. Y. 2020. Interactions of epiphytes with precipitation partitioning. In: Van Stan II, J., Gutmann, E., and Friesen, J. (eds.), *Precipitation Partitioning by Vegetation: A Global Synthesis*. Springer Nature, Switzerland AG, Cham, pp. 132–145. (doi: 10.1007/978-3-030-29702-2_9).

Meysel, F. 2020. Zum ökologischen und phänologischen Verhalten der Bocksriemenzunge (*Himantoglossum hircinum* (L.) Spreng.) an ihrem nördlichen Arealrand. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 5–24.

Ortiz-Rodríguez, I. A., Raventós, J., Mújica, E., González-Hernández, E., Vega-Peña, E., Ortega-Larrocea, P., Bonet, A., and Merow, C. 2020. Spatiotemporal effects of Hurricane Ivan on an endemic epiphytic orchid: 10 years of follow-up. *Plant Ecology and Diversity* 13(1): 29–45 (doi: 10.1080/17550874.2019.1673495) [*Encyclia bocourtii*].

Rodríguez, S. D. C. and Bravo, L. H. E. 2020. Patterns of distribution of orchids in a high Andean forest relict, Cundinamarca-Colombia | Patrones de distribución de orquídeas en un relicto de bosque altoandino, Cundinamarca-Colombia. *Colombia Forestal* 23(1): 5–28 (doi: 10.14483/2256201X.14816).

Sajna, N., Perkovič, K., and Paušič, I. 2020. *Nigritella lithopolitanica* Ravnik (Orchidaceae): morphological and ecological differences among populations and factors contributing to its endangerment. *Botany Letters* 167(3): 353–362 (doi: 10.1080/23818107.2020.1765196).

Seto, M., Higa, M., and Ishikawa, S. 2020. Host size preferences of vascular epiphytes are reflected in their spatial distributions: a study of a mature broadleaf evergreen forest in Kochi, Japan. *Journal of Forest Research* 25(5): 358–363 (doi: 10.1080/13416979.2020.1779909).

Soetopo, L. and Utami, A. P. 2020. Biodiversity exploration of host trees (phorophyte) of epiphyte orchids in the natural habitat. *IOP Conference Series: Earth and Environmental Science* 449: art. 012029 (doi: 10.1088/1755-1315/449/1/012029) [Java].

Zarate-García, A. M., Noguera-Savelli, E., Andrade-Canto, S. B., Zavaleta-Mancera, H. A., Gauthier, A., and Alatorre-Cobos, F. 2020. Bark water storage capacity influences epiphytic orchid preference for host trees. *American Journal of Botany* 107(5): 726–734 (doi: 10.1002/ajb2.1470).

Zona, S. 2020. Shingle-leaf climbers. *Perspectives in Plant Ecology, Evolution and Systematics* 47: art. 125577 (doi: 10.1016/j.ppees.2020.125577) [*Cattleya cernua*].

Zulkarnaen, R. N., Garvita, R. V., Wawangningrum, H., and Tyas, K. N. 2020. Population ecology size and habitat preference of the ghost orchid *Didymoplexis pallens* in Bogor Botanic Gardens, Indonesia. *Biodiversitas* 21(5): 2056–2061 (doi: 10.13057/biodiv/d210531).

Ethnobotany/(Ethno)pharmacology

Akter, M. T., Huda, M. K., Hoque, M. M., and Rahman, M. 2020. Phytochemical analysis, antioxidant and anti-inflammatory activity of *Eria tomentosa* (Koen.) Hook. f. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 425–437.

Araújo-Lima, C. F., da Silva Oliveira, J. P., Coscarella, I. L., Aiub, C. A. F., Felzenszwalb, I., Caprini Evaristo, G. P., and Macedo, A. F. 2020. Metabolomic analysis of *Cyrtopodium glutiniferum* extract by UHPLC-MS/MS and in vitro antiproliferative and genotoxicity assessment. *Journal of Ethnopharmacology* 253: art. 112607 (doi: 10.1016/j.jep.2020.112607).

Barragán-Zarate, G. S., Lagunez-Rivera, L., Solano, R., Pineda-Peña, E. A., Landa-Juárez, A. Y., Chávez-Piña, A. E., Carranza-Álvarez, C., and Hernández-Benavides, D. M. 2020. *Prosthechea karwinskii*, an orchid used as traditional medicine, exerts anti-inflammatory activity and inhibits ROS. *Journal of Ethnopharmacology* 253: art. 112632 (doi: 10.1016/j.jep.2020.112632).

Bhattacharya, M., Roy, A. K., Majumder, S., Ghosh, A., Chakraborty, S., Saha, S., Acharya, S., and Sarkar, S. 2020. Free radical scavenging activity versus flavonoid content in twelve *Dendrobium* orchids collected from Darjeeling Hills of Eastern Himalaya. *Species* 21(68): 222–226.

Biswas, K. and Sinha, S. N. 2020. Evaluation of phytoconstituents and antibacterial activity of *Vanda tessellata* using in vitro model. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 473–480.

Caliskan, O., Kurt, D., and Odabas, M. S. 2020. Agronomic characteristics of *Serapias vomeracea* (Burm. f.) Briq. salep orchids. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca* 48(1): 245–260 (doi: 10.15835/NBHA48111753).

Cardile, V., Avola, R., Graziano, A. C. E., and Russo, A. 2020. Moscatilin, a bibenzyl derivative from the orchid *Dendrobium loddigesii*, induces apoptosis in melanoma cells. *Chemico-Biological Interactions* 323: art. 109075 (doi: 10.1016/j.cbi.2020.109075).

Dong, X., Gao, X., Liu, L., Chen, L., Liu, Q., and Zhang, D. 2020. Function-specific volatiles and volatilization characteristics of *Dendrobium officinale*. *Journal of King Saud University—Science* 32(3): 2020–2028 (doi: 10.1016/j.jksus.2020.02.001).

Gunawan, E., Agustini, V., and Simaremare, E. S. 2020. Investigation phytochemical screening, antibacterial activity, and cytotoxic ethanolic extract of *Geodorum densiflorum* (Lam.) Schltr[sic] from Papua. *International Journal of Pharmaceutical Research* 12(4): 323–330 (doi: 10.31838/ijpr/2020.12.04.048).

Hossain, M. M., Akter, S., and Uddin, S. B. 2020. Screening of bioactive phytochemicals in some indigenous epiphytic orchids of Bangladesh. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 481–506.

Jhansi, K. and Khasim, S. M. 2020. Anticancer property in *Acampe praemorsa* and *Aerides odorata* (Orchidaceae), an in vitro approach. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 519–530.

Joshi, P. R., Paudel, M. R., Chand, M. B., Pradhan, S., Pant, K. K., Joshi, G. P., Bohara, M., Wagner, S. H., Pant, B., and Pant, B. 2020. Cytotoxic effect of selected wild orchids on two different human cancer cell lines. *Heliyon* 6(5): art. e03991 (doi: 10.1016/j.heliyon.2020.e03991) [*Dendrobium transparens*, *Eria graminifolia*, *Gastrochilus distichus*, *Otochilus albus*, *Papilionanthe uniflora*, *Pholidota articulata*, *Vanda cristata*].

Khoonrit, P., Mirdogan, A., Dehlinger, A., Mekboonsonglarp, W., Likhitwitayawuid, K., Priller, J., Böttcher, C., and Sritularak, B. 2020. Immune modulatory effect of a novel 4,5-dihydroxy-3,3',4'-trimethoxybibenzyl from *Dendrobium lindleyi*. *PLoS ONE* 15(9): e0238509 (doi: 10.1371/journal.pone.0238509).

Kotiloğlu, D., Acet, T., and Özcan, K. 2020. Phytochemical profile and biological activity of a therapeutic orchid from Anatolia: *Dactylorhiza romana* subsp. *georgica*. *Journal of Food Measurement and Characterization* 14(6): 3310–3318 (doi: 10.1007/s11694-020-00566-2).

Lertnitikul, N., Pattamadilok, C., Chansriniyom, C., and Suttisri, R. 2020. A new dihydrophenanthrene from *Cymbidium finlaysonianum* and structure revision of cymbinodin-A. *Journal of Asian Natural Products Research* 22(1): 83–90 (doi: 10.1080/10286020.2018.1540605).

Liu, G. Y., Tan, L., Cheng, L., Ding, L. S., Zhou, Y., Deng, Y., He, Y. Q., Guo, D. L., and Xiao, S. J. 2020. Dendrobine-type alkaloids and bibenzyl derivatives from *Dendrobium findlayanum*. *Fitoterapia* 142: art. 104497 (doi: 10.1016/j.fitote.2020.104497).

Nanekar, V., Shiram, V., Khare, T., and Kumar, V. 2020. Nrf2/HO-1 mediated antioxidant activities, cytotoxicity analysis and LC-ESI/MS profiling of *Eulophia nuda* L.[sic]. *Natural Products Journal* 10(1): 69–79 (doi: 10.2174/2210315509666190215101646).

Park, S.-Y., Ho, T. T., and Paek, K.-Y. 2020. Medicinal orchids: Production of bioactive compounds and biomass. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 439–450.

Paul, P. and Kumaria, S. 2020. Precursor- induced bioaccumulation of secondary metabolites and antioxidant activity in suspension cultures of *Dendrobium fimbriatum*, an orchid of therapeutic importance. *South African Journal of Botany* 135: 137–143 (doi: 10.1016/j.sajb.2020.08.016).

Rahamtulla, M., Pradhan, U. C., Roy, A. K., Rampilla, V., and Khasim, S. M. 2020. Ethnomedicinal aspects of some orchids from Darjeeling Himalaya, India. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 451–472.

Rampilla, V. and Khasim, S. M. 2020. GC-MS analysis of organic extracts of *Cymbidium aloifolium* (L.) Sw. (Orchidaceae) leaves from Eastern Ghats of India. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 507–517.

Ren, M., Xu, W., Zhang, Y., Ni, L., Lin, Y., Zhang, X., and Huang, M. 2020. Qualitative and quantitative analysis of phenolic compounds by UPLC-MS/MS and biological activities of *Pholidota chinensis* Lindl. *Journal of Pharmaceutical and Biomedical Analysis* 187: art. 113350 (doi: 10.1016/j.jpba.2020.113350).

Sadeghzadeh, F., Sadeghzadeh, A., Changizi-Ashtiyani, S., Alimoradian, A., Mashayekhei, M., Zarei, A., and Jalali-Mashayekhi, F. 2020. The effects of hydro-alcoholic extracts of *Allium sativum* L. and *Orchis maculata* L. on spermatogenesis index and testosterone level in cyclophosphamide-treated rats. *Journal of Kerman University of Medical Sciences* 27(3): 232–243.

Seyler, B. C., Gaoue, O. G., Tang, Y., Duffy, D. C., and Aba, E. 2020. Collapse of orchid populations altered traditional knowledge and cultural valuation in Sichuan, China. *Anthropocene* 29: art. 100236 (doi: 10.1016/j.ancene.2020.100236).

Sinha, S. N. and Biswas, K. 2020. Phytochemical screening and evaluation of antimicrobial potential of *Dendrobium fimbriatum* Hook. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 531–538.

Tarmizi, N., Yen, H. S., Ismail, N., Nik, W. N. W., Nazri, N. K., and Diah, S. A. M. 2020. Utilization of *Dendrobium crumenatum* as anti-corrosion additive for mild steel in differnt[*sic*] seawater velocities. *Journal of Sustainability Science and Management* 15(5): 19–28 (doi: 10.46754/JSSM.2020.07.004).

Thacker, M., Tseng, C. L., Chang, C. Y., Jakfar, S., Chen, H. Y., and Lin, F. H. 2020. Mucoadhesive *Bletilla striata* polysaccharide-based artificial tears to relieve symptoms and inflammation in rabbit with dry eyes syndrome. *Polymers* 12(7): art. 1465 (doi: 10.3390/polym12071465).

Wang, Q., Zi, C. T., Wang, J., Wang, Y. N., Huang, Y. W., Fu, X. Q., Wang, X. J., and Sheng, J. 2020. Corrigendum: *Dendrobium officinale* orchid extract prevents ovariectomy-induced osteoporosis in vivo and inhibits RANKL-induced osteoclast differentiation in vitro (Frontiers in Pharmacology, (2018), 8, 10.3389/fphar.2017.00966). *Frontiers in Pharmacology* 11: art. 578 (doi: 10.3389/fphar.2020.00578).

Waratchareeyakul, W., Waratchareeyakul, W., Fusi, F., Durante, M., Ahmed, A., Knirsch, W., Mas-Claret, E., Mulholland, D. A., and Mulholland, D. A. 2020. Vasorelaxing activity of stilbenoid and phenanthrene derivatives from *Brasiliorchis porphyrostele*: Involvement of smooth muscle Cav1.2 channels. *Planta Medica* 86(9): 631–642 (doi: 10.1055/a-1154-8832).

Wu, Y.-L., Huang, S. H., He, C.-M., Qiu, B., Liu, J.-J., Li, J., Lin, Y., Yu, S.-L., Wang, H.-F., and Zhang, G.-F. 2020. *Dendrobium officinale* flower extraction mitigates alcohol-induced liver injury in mice: Role of antisteatosis, antioxidative, and anti-inflammatory. *Evidence-Based Complementary and Alternative Medicine* 2020: art. 1421853 (doi: 10.1155/2020/1421853).

Yue, H., Zeng, H., and Ding, K. 2020. A review of isolation methods, structure features and bioactivities of polysaccharides from *Dendrobium* species. *Chinese Journal of Natural Medicines* 18(1): 1–27 (doi: 10.1016/S1875-5364(20)30001-7).

History

Alrich, P. and Higgins, W. 2020. The Victorian search for *Cattleya labiata*. *Orchids, the Bulletin of the American Orchid Society* 89(2): 110–115.

Cribb, P. 2019. Vale Peter O'Byrne (1955–2018). *Malesian Orchid Journal* 23: 3–4.

Cribb, P. and Schuiteman, A. 2019. Jeffrey James Wood (1952–2019). *Malesian Orchid Journal* 23: 11–15.

Endara, L. 2020. In memoriam: Calaway Homer Dodson (1928–2020) explorer, scholar, orchidologist. *Lankesteriana* 20: i–vii.

Gokusing, L. 2019. Remembering Peter O'Byrne (1955–2018). *Malesian Orchid Journal* 23: 8–9.

Jenny, R. 2019. *Psychopsiella limminghei* und Alfred de Limminghe. *OrchideenJournal* 26(4): 156–160.

Jenny, R. 2020. *Bulbophyllum arminii* and Armin Szilvinyi. *Orchid Digest* 84(1): 40–43.

Jenny, R. 2020. The genus *Loefgrenianthus* and Alberto Löfgren. *Orchids, the Bulletin of the American Orchid Society* 89(1): 48–51.

Ong, P. T. 2019. Peter O'Byrne (1955–2018). *Malesian Orchid Journal* 23: 5–6.

Ossenbach, C. 2020. The orchids of John Henry Lance (1793–1878). *Lankesteriana* 20(1): 57–78 (doi: 10.15517/lank.v20i1.41397).

Ossenbach, C. and Jenny, R. 2020. Rudolf Schlechter's South-American orchids III. Schlechter's "network": north and northeast Brazil, the Guianas. *Lankesteriana* 20(2): 167–216 (doi: 10.15517/lank.v20i2.42849).

Tan, J. H. 2019. Peter O'Byrne (1955–2018). *Malesian Orchid Journal* 23: 7.

Micropropagation/seed germination

Acemi, A. 2020. Chitosan versus plant growth regulators: a comparative analysis of their effects on in vitro development of *Serapias vomeracea* (Burm.f.) Briq. *Plant Cell, Tissue and Organ Culture* 141(2): 327–338 (doi: 10.1007/s11240-020-01789-3).

Acemi, A. 2020. Growth enhancing effects of banana homogenate on a glucomannan-rich orchid species: *Serapias vomeracea* (Burm.f.) Briq. *Journal für Kulturpflanzen* 72(6): 243–249 (doi: 10.5073/JfK.2020.06.05).

Adhikari, H. and Pant, B. 2019. In vitro seed germination and seedling growth of the orchid *Dendrobium primulinum* Lindl. *African Journal of Plant Science* 13(12): 324–331 (doi: 10.5897/AJPS2019.1923).

Arellano-García, J., Enciso-Díaz, O., Flores-Palacios, A., Valencia-Díaz, S., Flores-Morales, A., and Perea-Arango, I. 2020. Asymbiotic germination, effect of plant growth regulators, and chitosan on the mass propagation of *Stanhopea hernandezii* (Orchidaceae). *Botanical Sciences* 98(4): 524–533 (doi: 10.17129/botsci.2559).

Asa, M. and Kaviani, B. 2020. In vitro propagation of orchid *Phalaenopsis amabilis* (L.) Blume var. Jawa. *Iranian Journal of Plant Physiology* 10(2): 3113–3123.

Bezerra, G. A., Gabriel, A. V. M. D., Mariano, E. D., and Cardoso, J. C. 2019. In vitro culture and greenhouse acclimatization of *Oncidium varicosum* (Orchidaceae) with microorganisms isolated from its roots. *Ornamental Horticulture* 25(4): 407–416 (doi: 10.1590/2447-536X.v25i4.2046).

Bhowmik, T. K. and Rahman, M. M. 2020. Micropropagation of commercially important orchid *Dendrobium palpebrae* Lindl. through in vitro developed pseudobulb culture. *Journal of Advanced Biotechnology and Experimental Therapeutics* 3(3): 225–232 (doi: 10.5455/jabet.2020.d128).

Bonilla-Sánchez, A. P. and Mosquera-Mosquera, H. R. 2019. Viability and in vitro germination of taxa from Cymbidieae and Epidendreae tribes (subfamily Epidendroideae, Orchidaceae). *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 43(168): 494–501 (doi: 10.18257/raccefyn.889).

Cardoso, J. C., Zanello, C. A., and Chen, J. T. 2020. An overview of orchid protocorm-like bodies: Mass propagation, biotechnology, molecular aspects, and breeding. *International Journal of Molecular Sciences* 21(3): art. 985 (doi: 10.3390/ijms21030985).

Chen, J., Yan, B., Tang, Y., Xing, Y., Li, Y., Zhou, D., and Guo, S. 2020. Symbiotic and asymbiotic germination of *Dendrobium officinale* (Orchidaceae) respond differently to exogenous gibberellins. *International journal of molecular sciences* 21(17): art. 6104 (doi: 10.3390/ijms21176104).

Cheng, W., Li, H., Zhou, F., Zhu, B., Yu, J., and Ding, Z. 2020. Cryopreservation of *Pleione bulbocodioides* (Franch.) Rolfe protocorm-like bodies by vitrification. *Acta Physiologiae Plantarum* 42(5): art. 82 (doi: 10.1007/s11738-020-03074-4).

Custodio, C. C., Machado-Neto, N. B., Singer, R. B., Pritchard, H. W., Seaton, P. T., and Marks, T. R. 2020. Storage of orchid pollinia with varying lipid thermal fingerprints. *Protoplasma* 257(5): 1401–1413 (doi: 10.1007/s00709-020-01514-z).

de Araújo Amatuzzi, J. C., do Nascimento Vieira, L., Sant’Anna-Santos, B. F., Nosedá, M. D., and Pacheco de Freitas Fraga, H. 2020. Improved in vitro development of *Epidendrum secundum* (Orchidaceae) by using aqueous extract of the seaweed *Kappaphycus alvarezii* (Rhodophyta, Solieriaceae). *Acta Physiologiae Plantarum* 42(8) (doi: 10.1007/s11738-020-03129-6).

- de Oliveira, B. C., Barboza Souza de Oliveira, M. E., and Cardoso, J. C. 2019. Feasibility of the new method for orchid in vitro rooting using liquid and chemical sterilized culture medium under different sucrose concentration. *Ornamental Horticulture* 25(3): 263–269 (doi: 10.1590/2447-536X.v25i3.2047).
- Deb, C. R. and Jakha, H. Y. 2020. Factors affecting asymbiotic immature seed culture and in vitro propagation of *Paphiopedilum insigne* (Wall. Ex. Lindl.) Pfitzer—A horticultural important vulnerable orchid. *Plant Cell Biotechnology and Molecular Biology* 21(15–16): 129–141.
- Diantina, S., Kartikaningrum, S., McCormick, A. C., Millner, J., McGill, C., Pritchard, H. W., and Nadarajan, J. 2020. Comparative in vitro seed germination and seedling development in tropical and temperate epiphytic and temperate terrestrial orchids. *Plant Cell, Tissue and Organ Culture* 143(3): 619–633 (doi: 10.1007/s11240-020-01947-7).
- Dolce, N. R. and González-Arno, M. T. 2020. Cryopreservation as a tool for long-term storage of *Cohniella cepula* (Orchidaceae) seeds. *Acta Horticulturae* 1297: 113–120 (doi: 10.17660/ActaHortic.2020.1297.16).
- Dolce, N. R., Medina, R. D., Terada, G., González-Arno, M. T., and Flachsland, E. A. 2020. In vitro propagation and germplasm conservation of wild orchids from South America. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arno, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 37–94.
- Gao, Y., Hang, Y., Liu, J., Li, Y., Liu, Z., Li, L., Tian, H., and Zhang, M. 2020. Advances on orchid symbiotic fungi promoting seeds germination. *Zhiwu Shengli Xuebao/Plant Physiology Journal* 56(2): 141–150 (doi: 10.13592/j.cnki.ppj.2019.0353).
- Garcia de Sousa, G., Rodrigues Otubo, B. M., Sorgato, J. C., Schultz Soares, J., Ribeiro, L. M. 2020. Armazenamento de sementes e concentrações de ágar no cultivo in vitro de *Brassavola tuberculata* Hook. (Orchidaceae). *Iheringia—Serie Botanica* 75: art. e2020017 (doi: 10.21826/2446-82312020V75E2020017).
- Godo, T., Hashimoto, T., Nakata, M., and Miyoshi, K. 2020. The effects of illumination, temperature and 6-benzylaminoprine on asymbiotic seed germination and protocorm development in vitro in the achlorophyllous orchid *Gastrodia pubilabiata* Sawa. *In Vitro Cellular and Developmental Biology—Plant* 56(2): 230–235 (doi: 10.1007/s11627-020-10061-4).
- González-Arno, M. T., Hernández-Ramírez, F., Dolce, N. R., Rascón-Díaz, M. P., and Cruz-Cruz, C. A. 2020. Cryobiotechnological studies in vanilla: the orchid of multi-industrial uses. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arno, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 21–35.
- Harahap, M. S., Harahap, F., Edi, S., and Rosmayati. 2020. In vitro multification[sic] of *Dendrobium* sp. with plant growth regulator. *Journal of Physics: Conference Series* 1485: art. 012041 (doi: 10.1088/1742-6596/1485/1/012041).

- Hensen, H., Dullau, S., and Tischew, S. 2020. Einfluss von Nährmedium und Licht auf die Höhe der Keimrate zur Bestimmung der Fitness von *Dactylorhiza majalis*. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(1): 30–40.
- Jitsopakul, N., Homchan, P., and Thammasiri, K. 2020. Cryopreservation of *Dendrobium draconis* Rchb. f. protocorms using V cryo-plate method. *Acta Horticulturae* 1298: 213–217 (doi: 10.17660/ActaHortic.2020.1298.30).
- Juras, M. C. R., Purgatto, E., Ferreira, W. D. M., and Suzuki, R. M. 2020. Direct organogenesis and ethylene regulators in the cloning of *Epidendrum denticulatum* (Orchidaceae). *South African Journal of Botany* 131: 374–379 (doi: 10.1016/j.sajb.2020.03.010).
- Kang, H. J., Kang, K. W., Kim, D. H., and Sivanesan, I. 2020. In vitro propagation of *Gastrochilus matsuran* (Makino) Schltr., an endangered epiphytic orchid. *Plants* 9(4): art. 524 (doi: 10.3390/plants9040524).
- Kasutjjaningati, Firgiyanto, R., and Firnawati, L. 2020. The growth of *Vanda* seedling (*Vanda sanderiana*) with some types of plant media acclimatization and concentration of humic acid. *IOP Conference Series: Earth and Environmental Science* 411: art. 012003 (doi: 10.1088/1755-1315/411/1/012003).
- Kasutjjaningati, K., Firgiyanto, R., and Warisu, A. E. 2020. Response of the *Vanda* planlet[sic] (*Vanda sanderiana*) to the addition of guano and mycorrhizal fertilizers in the acclimatization stadia. *IOP Conference Series: Earth and Environmental Science* 411: art. 012005 (doi: 10.1088/1755-1315/411/1/012005).
- Khatun, K., Nath, U. K., and Rahman, M. S. 2020. Tissue culture of *Phalaenopsis*: Present status and future prospects. *Journal of Advanced Biotechnology and Experimental Therapeutics* 3(3): 273–285 (doi: 10.5455/jabet.2020.d135).
- Khor, S. P., Yeow, L. C., Poobathy, R., Zakaria, R., Chew, B. L., and Subramaniam, S. 2020. Droplet-vitrification of *Aranda* Broga Blue orchid: Role of ascorbic acid on the antioxidant system and genetic fidelity assessments via RAPD and SCoT markers. *Biotechnology Reports* 26: art. e00448 (doi: 10.1016/j.btre.2020.e00448).
- Lal, A., Pant, M., Palni, L. M. S., Kumar, A., and Kholiya, D. 2020. Development of cost effective regeneration protocol for *Aerides multiflora* Roxb. and *Rhynchostylis retusa* (L.) Blume. *International Journal of Current Research and Review* 12(20): 21–26 (doi: 10.31782/IJCRR.2020.12209).
- Leyva-Ovalle, O. R., Bello-Bello, J. J., Murguía-González, J., Núñez-Pastrana, R., and Ramírez-Mosqueda, M. A. 2020. Micropropagation of *Guarianthe skinneri* (Bateman) Dressler et W. E. Higging[sic] in temporary immersion systems. *3 Biotech* 10(1): art. 26 (doi: 10.1007/s13205-019-2010-3).
- Li, Y. Y., Guo, S. X., and Lee, Y. I. 2020. Ultrastructural changes during the symbiotic seed germination of *Gastrodia elata* with fungi, with emphasis on the fungal colonization region. *Botanical Studies* 61(1): art. 4 (doi: 10.1186/s40529-019-0280-z).

- Ma, N. L., Khoo, S. C., Lee, J. X., Soon, C. F., and Ab Shukor, N. A. 2020. Efficient micropropagation of *Dendrobium aurantiacum* from shoot explant. *Plant Science Today* 7(3): 476–482 (doi: 10.14719/PST.2020.7.3.724).
- Mahdavi, Z., Daylamia, S. D., and Aliniaiefard, S. 2020. Protocorms encapsulation of *Phalaenopsis* hybrids (Orchidaceae) in order to schedule in vitro plantlet production. *Acta Horticulturae* 1285: 63–67 (doi: 10.17660/ActaHortic.2020.1285.10).
- Maldonado, G. P., Yarzabal, L. A., Cevallos-Cevallos, J. M., Chica, E. J., and Peña, D. F. 2020. Root endophytic fungi promote in vitro seed germination in *Pleurothallis coriacardia* (Orchidaceae). *Lankesteriana* 20(1): 107–122 (doi: 10.15517/LANK.V20I1.41472).
- Mantovani, C., Pivetta, K. F. L., de Mello Prado, R., de Souza, J. P., Nascimento, C. S., Nascimento, C. S., and Gratão, P. L. 2020. Silicon toxicity induced by different concentrations and sources added to in vitro culture of epiphytic orchids. *Scientia Horticulturae* 265: art. 109272 (doi: 10.1016/j.scienta.2020.109272).
- Marx Koene, F., Amano, E., de Camargo Smidt, E., and Lopes Fortes Ribas, L. 2020. Asymbiotic germination and morphological studies of seeds of Atlantic Rainforest micro-orchids (Pleurothallidinae). *PLoS ONE* 15(12 December): art. e0243297 (doi: 10.1371/journal.pone.0243297).
- Mayo-Mosqueda, A., Maceda-López, L. F., Andrade-Canto, S. B., Noguera-Savelli, E., Caamal-Velázquez, H., Cano-Sosa, J. D. S., and Alatorre-Cobos, F. 2020. Efficient protocol for in vitro propagation of *Laelia rubescens* Lindl. from asymbiotic seed germination. *South African Journal of Botany* 133: 264–272 (doi: 10.1016/j.sajb.2020.07.030).
- Mercado, S. A. S., Caleño, J. D. Q., and Rozo, L. Y. M. 2020. Improvement of the methodology of the tetrazolium test using different pretreatments in seeds of the genus *Epidendrum* (Orchidaceae) | Aprimoramento da metodologia do teste de tetrazólio utilizando diferentes pré-tratamentos em sementes do gênero *Epidendrum* (Orchidaceae). *Journal of Seed Science* 42: art. e202042013 (doi: 10.1590/2317-1545v42231028).
- Mercado, S. A. S. and Delgado, E. A. B. 2020. Effect of the medium composition on the asymbiotic germination and in vitro development of the *Laeliocattleya* hybrid. *South African Journal of Botany* 135: 80–86 (doi: 10.1016/j.sajb.2020.08.011).
- Mercado, S. A. S., Delgado, E. A. B., and Caleño, J. D. Q. 2020. Pre-treatments effect on the tetrazolium test on *Epidendrum barbaricum* Hágsater & Dodson seeds. *Acta Agronomica* 68(4): 306–311 (doi: 10.15446/ACAG.V68N4.79619).
- Nasution, L. Z., Hasibuan, M., and Manurung, E. D. 2020. Adaptability of tissue-cultured *Dendrobium* orchid planlets[*sic*] on planting media and its position during acclimatization process. *IOP Conference Series: Earth and Environmental Science* 454: art. 012166 (doi: 10.1088/1755-1315/454/1/012166).

- Nugroho, J. D., Arobaya, A. Y. S., and Tanur, E. A. 2019. Propagation of *Dendrobium antennatum* Lindl via seed culture in vitro using simple medium: Fertilizer and complex organic based medium. *HAYATI Journal of Biosciences* 26(3): 133–138 (doi: 10.4308/hjb.26.3.133).
- Nyorak, J. and Sonar, C. B. 2020. In vitro mass multiplication of *Cymbidium iridioides* D.Don—a medicinal orchid from Arunachal Pradesh, India. *Pleione* 14(1): 49–55 (doi: 10.26679/Pleione.14.1.2020.049-055).
- Pellegrino, G., Mahmoudi, M., and Palermo, A. M. 2021. Pollen viability of Euro-Mediterranean orchids under different storage conditions: The possible effects of climate change. *Plant Biology* 23(1): 140–147 (doi: 10.1111/plb.13185).
- Popova, E. and Kim, H.-H. 2020. Cryobiotechnology of Korean orchid biodiversity: A case study using *Cymbidium kanran*. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 119–135.
- Pradeep, N., Bikram, P., Salina, T., and Bijaya, P. 2020. Micropropagation of *Papilionanthe teres* (Roxb.) Schltr. by seed and shoot tip culture. *Research Journal of Biotechnology* 15(2): 1–8.
- Prasongsom, S., Thammasiri, K., Narangajavana, J., Thitamadee, S., Chuenboonngarm, N., and Panvisavas, N. 2020. Cryopreservation of *Dendrobium cruentum* Rchb. f. seeds by D cryo-plate and V cryo-plate techniques. *Walailak Journal of Science and Technology* 17(3): 181–191.
- Pujasatria, G. C., Miura, C., and Kaminaka, H. 2020. In vitro symbiotic germination: A revitalized heuristic approach for orchid species conservation. *Plants* 9(12): art. 1742 (doi: 10.3390/plants9121742).
- Rineksane, I. A., Saputra, E. W., Samidjo, G. S., and Astuti, A. 2020. Benzyl amino purine enhances multiplication of *Vanda tricolor* protocorm like bodies. *IOP Conference Series: Earth and Environmental Science* 458: art. 012031 (doi: 10.1088/1755-1315/458/1/012031).
- Schultz Soares, J., Sorgato, J. C., and Ribeiro, L. M. 2020. Protocolo para germinação assimbiótica e desenvolvimento inicial de protocormos de orquídeas nativas do Cerrado brasileiro | Protocol for asymbiotic germination and initial protocorm development of Brazilian Cerrado native orchids. *Rodriguésia* 71: art. e01332018 (doi: 10.1590/2175-7860202071095).
- Shao, S. C., Luo, Y., and Jacquemyn, H. 2020. Co-cultures of mycorrhizal fungi do not increase germination and seedling development in the epiphytic orchid *Dendrobium nobile*. *Frontiers in Plant Science* 11: art. 571426 (doi: 10.3389/fpls.2020.571426).

- Shao, S. C., Wang, Q. X., Beng, K. C., Zhao, D. K., and Jacquemyn, H. 2020. Fungi isolated from host protocorms accelerate symbiotic seed germination in an endangered orchid species (*Dendrobium chrysotoxum*) from southern China. *Mycorrhiza* 30(4): 529–539 (doi: 10.1007/s00572-020-00964-w).
- Sharma, V. 2019. In vitro conversion of root meristem into protocorm like bodies in *Rhynchosstylis retusa*—an endangered fox tail orchid. *Ecology, Environment and Conservation* 25(4): 1812–1816.
- Sharma, V. 2020. Effect of $\text{CuSO}_{4.5}\text{H}_2\text{O}$ on regenerative capacity of mature foliar explants of *Papilionanthe teres* (Roxb.) Schltr: A study in vitro. *Research Journal of Biotechnology* 15(2): 111–116.
- Sidorov, A. V., Zaytseva, Y. V., and Marakaev, O. A. 2020. Effect of supernatant of associative bacteria of the genus *Pseudomonas* on germination, morphogenesis and growth of *Dactylorhiza incarnata* (L.) Soó (Orchidaceae) in vitro. *Tomsk State University Journal of Biology* (51): 6–24 (doi: 10.17223/19988591/51/1).
- Singh, N. and Kumaria, S. 2020. A combinational phytomolecular-mediated assessment in micropropagated plantlets of *Coelogyne ovalis* Lindl.: A horticultural and medicinal orchid. *Proceedings of the National Academy of Sciences India Section B—Biological Sciences* 90(2): 455–466 (doi: 10.1007/s40011-019-01118-5).
- Soonthornkalump, S., Yamamoto, S. I., and Meesawat, U. 2020. Adding ascorbic acid to reduce oxidative stress during cryopreservation of somatic embryos of *Paphiopedilum niveum* (Rchb.f.) Stein, an endangered orchid species. *Horticulture Journal* 89(4): 466–472 (doi: 10.2503/hortj.UTD-114).
- Sorgato, J. C., Mudolon, E. D., Guimarães, F. F., Schultz Soares, J., Ribeiro, L. M. 2020. Light sources on the germination and initial in vitro establishment of *Schomburgkia crispa* Lindl., a species of the brazilian cerrado | Fontes de luz na germinação e estabelecimento inicial in vitro de *Schomburgkia crispa* Lindl. Uma espécie do cerrado brasileiro. *Ciencia Rural* 51(3): 1–6 (doi: 10.1590/0103-8478cr20190022).
- Sorgato, J. C., Schultz Soares, J., Damiani, C. R., and Ribeiro, L. M. 2020. Effects of light, agar, activated charcoal, and culture medium on the germination and early development of *Dendrobium* seedlings. *Australian Journal of Crop Science* 14(4): 557–564 (doi: 10.21475/ajcs.20.14.04.p1528).
- Thammasiri, K. 2020. Cryopreservation development of some endangered Thai orchid species In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 3–10.
- Utami, E. S. W. and Hariyanto, S. 2020. Organic compounds: Contents and their role in improving seed germination and protocorm development in orchids. *International Journal of Agronomy* 2020: art. 2795108 (doi: 10.1155/2020/2795108).

Vishal, S. 2020. Effect of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ on regenerative capacity of mature foliar explants of *Papilionanthe teres* (Roxb.) Schltr: A study in vitro. *Research Journal of Biotechnology* 15(2): 111–116.

Xu, X., Fang, L., Li, L., Ma, G., Wu, K., and Zeng, S. 2020. Abscisic acid inhibits asymbiotic germination of immature seeds of *Paphiopedilum armeniacum*. *International Journal of Molecular Sciences* 21(24): art. 9561 (doi: 10.3390/ijms21249561).

Ye, B., Wu, Y., Zhai, X., Zhang, R., Wu, J., Zhang, C., Rahman, K., Qin, L., Han, T., and Zheng, C. 2020. Beneficial effects of endophytic fungi from the *Anoectochilus* and *Ludisia* species on the growth and secondary metabolism of *Anoectochilus roxburghii*. *ACS Omega* 5(7): 3487–3497 (doi: 10.1021/acsomega.9b03789).

Zhang, Y., Li, Y. Y., Chen, X. M., Guo, S. X., and Lee, Y. I. 2020. Effect of different mycobionts on symbiotic germination and seedling growth of *Dendrobium officinale*, an important medicinal orchid. *Botanical Studies* 61(1): art. 2 (doi: 10.1186/s40529-019-0278-6).

Molecular biology

Chen, C., Zeng, L., Zhao, H., and Ye, Q. 2020. Proteomic analysis of the early development of the *Phalaenopsis amabilis* flower bud under low temperature induction using the iTRAQ/MRM approach. *Molecules* 25(5): art. 1244 (doi: 10.3390/molecules25051244).

Chen, D. H., Qiu, H. L., Huang, Y., Zhang, L., and Si, J. P. 2020. Genome-wide identification and expression profiling of SET DOMAIN GROUP family in *Dendrobium catenatum*. *BMC Plant Biology* 20(1): art. 40 (doi: 10.1186/s12870-020-2244-6).

Chen, J. C., Tong, C. G., Lin, H. Y., and Fang, S. C. 2019. *Phalaenopsis* LEAFY COTYLEDON1-induced somatic embryonic structures are morphologically distinct from protocorm-like bodies. *Frontiers in Plant Science* 10: art. 1594 (doi: 10.3389/fpls.2019.01594).

Chen, J. T. and Nargar, K. 2020. Editorial: Orchid Genomics and Developmental Biology. *Frontiers in Plant Science* 11: art. 1013 (doi: 10.3389/fpls.2020.01013).

Chen, S., Wang, X., Wang, Y., Zhang, G., Song, W., Dong, X., Arnold, M. L., Wang, W., Miao, J., Chen, W., and Dong, Y. 2020. Improved de novo assembly of the achlorophyllous orchid *Gastrodia elata*. *Frontiers in Genetics* 11: art. 580568 (doi: 10.3389/fgene.2020.580568).

Chen, S.-S. and Guan, B.-C. 2020. The complete chloroplast genome sequence of *Platanthera minor*. *Mitochondrial DNA Part B* 5(1): 63–64 (doi: 10.1080/23802359.2019.1696241).

Chen, T. C., Su, Y. Y., Wu, C. H., Liu, Y. C., Huang, C. H., and Chang, C. C. 2020. Analysis of mitochondrial genomics and transcriptomics reveal abundant RNA edits and differential editing status in moth orchid, *Phalaenopsis aphrodite* subsp. *formosana*. *Scientia Horticulturae* 267: art. 109304 (doi: 10.1016/j.scienta.2020.109304).

Chen, Y., Zhong, H., Zhu, Y., Huang, Y., Wu, S., Liu, Z., Lan, S., and Zhai, J. 2020. Plastome structure and adaptive evolution of *Calanthe* s.l. species. *PeerJ* 8: art. 10051 (doi: 10.7717/peerj.10051).

Chen, Y. Y., Hsiao, Y. Y., Chang, S. B., Zhang, D., Lan, S. R., Liu, Z. J., and Tsai, W. C. 2020. Genome-wide identification of YABBY genes in Orchidaceae and their expression patterns in *Phalaenopsis* orchid. *Genes* 11(9): art. 955 (951–917) (doi: 10.3390/genes11090955).

Choi, H. I., Lyu, J. I., Lee, H. O., Kim, J. B., and Kim, S. H. 2020. Complete chloroplast genome sequence of an orchid hybrid *Cymbidium sinense* (♀) × *C. goeringii* (♂). *Mitochondrial DNA Part B: Resources* 5(3): 3802–3803 (doi: 10.1080/23802359.2020.1839367).

Cueva-Agila, A. Y., Alberca-Jaramillo, N., Cella, R., and Concia, L. 2020. Isolation, phylogenetic analysis, and expression of a Somatic Embryogenesis Receptor like Kinase (SERK) gene in *Cattleya maxima* Lindl. *Current Plant Biology* 21: art. 100139 (doi: 10.1016/j.cpb.2020.100139).

Dai, J., Han, X.-B., Chen, N.-F., Chen, C.-W., Chen, N.-D., Song, X.-W., Jiang, X.-P., and Wang, Y.-J. 2020. Effects of different treatments on genes related to polysaccharide content in *Dendrobium huoshanense*. *Brazilian Journal of Botany* 43(3): 531–539 (doi: 10.1007/s40415-020-00628-1).

de Camargo Smidt, E., Páez, M. Z., Vieira, L. D. N., Viruel, J., De Baura, V. A., Balsanelli, E., De Souza, E. M., and Chase, M. W. 2020. Characterization of sequence variability hotspots in Cranichideae plastomes (Orchidaceae, Orchidoideae). *PLoS ONE* 15(1): art. e0227991 (doi: 10.1371/journal.pone.0227991).

Fan, H., Cui, M., Li, N., Li, X., Liang, Y., Liu, L., Cai, Y., and Lin, Y. 2020. Genome-wide identification and expression analyses of R2R3-MYB transcription factor genes from two orchid species. *PeerJ* 8: art. e9781 (doi: 10.7717/peerj.9781).

Fang, L., Xu, X., Li, J., Zheng, F., Li, M., Yan, J., Li, Y., Zhang, X., Li, L., Ma, G., Zhang, A., Lv, F., Wu, K., and Zeng, S. 2020. Transcriptome analysis provides insights into the non-methylated lignin synthesis in *Paphiopedilum armeniacum* seed. *BMC Genomics* 21(1): art. 524 (doi: 10.1186/s12864-020-06931-1).

Granados Mendoza, C., Jost, M., Hágsater, E., Magallón, S., Van den Berg, C., Lemmon, E. M., Lemmon, A. R., Salazar, G. A., and Wanke, S. 2020. Target nuclear and off-target plastid hybrid enrichment data inform a range of evolutionary depths in the orchid genus *Epidendrum*. *Frontiers in Plant Science* 10: art. 1761 (doi: 10.3389/fpls.2019.01761).

- Han, B., Jing, Y., Dai, J., Zheng, T., Gu, F., Zhao, Q., Zhu, F., Song, X., Deng, H., Wei, P., Song, C., Liu, D., Jiang, X., Wang, F., Chen, Y., Sun, C., Yao, H., Zhang, L., Chen, N., Chen, S., Li, X., Wei, Y., Ouyang, Z., Yan, H., Lu, J., Wang, H., Guo, L., Kong, L., Zhao, J., Li, S., Luo, L., Kristiansen, K., Feng, Z., Sun, S., Chen, C., Yue, Z., and Chen, N. 2020. A chromosome-level genome assembly of *Dendrobium huoshanense* using long reads and Hi-C data. *Genome biology and evolution* 12(12): 2486–2490 (doi: 10.1093/gbe/evaa215).
- Hartati, S. and Muliawati, E. S. 2020. Genetic variation of *Coelogyne pandurate*[sic], *C. rumphii* and their hybrids based on RAPD markers. *Biodiversitas* 21(10): 4709–4713 (doi: 10.13057/biodiv/d211033).
- Hermida-Carrera, C., Fares, M. A., Font-Carrascosa, M., Kapralov, M. V., Koch, M. A., Mir, A., Molins, A., Ribas-Carbó, M., Rocha, J., and Galmés, J. 2020. Exploring molecular evolution of Rubisco in C₃ and CAM Orchidaceae and Bromeliaceae. *BMC evolutionary biology* 20(1): art. 11 (doi: 10.1186/s12862-019-1551-8).
- Himani, Ramkumar, T. R., Tyagi, S., Sharma, H., Upadhyay, S. K., and Sembi, J. K. 2019. Tracing the footprints of the ABCDE model of flowering in *Phalaenopsis equestris* (Schauer) Rchb.f. (Orchidaceae). *Journal of Plant Biotechnology* 46(4): 255–273 (doi: 10.5010/JPB.2019.46.4.255).
- Ho, L. H., Lee, Y. I., Hsieh, S. Y., Lin, I. S., Wu, Y. C., Ko, H. Y., Klemens, P. A., Neuhaus, H. E., Chen, Y. M., Huang, T. P., Yeh, C. H., and Guo, W. J. 2021. GeSUT4 mediates sucrose import at the symbiotic interface for carbon allocation of heterotrophic *Gastrodia elata* (Orchidaceae). *Plant Cell and Environment* 44(1): 20–33 (doi: 10.1111/pce.13833).
- Hon, Y. K., Yong, C. S. Y., Abdullah, J. O. and Go, R. 2020. Development of species-specific SCAR markers for identification and authentication of three rare Peninsular Malaysian endemic *Coelogyne* (Orchidaceae) orchids. *F1000Research* 9: art. 1161 (doi: 10.12688/f1000research.26170.1).
- Hsieh, K. T., Liu, S. H., Wang, I. W., and Chen, L. J. 2020. *Phalaenopsis* orchid miniaturization by overexpression of OsGA2ox6, a rice GA2-oxidase gene. *Botanical Studies* 61(1): art. 10 (doi: 10.1186/s40529-020-00288-0).
- Hsu, C. C., Chen, S. Y., Lai, P. H., Hsiao, Y. Y., Tsai, W. C., Liu, Z. J., Chung, M. C., Panaud, O., and Chen, H. H. 2020. Identification of high-copy number long terminal repeat retrotransposons and their expansion in *Phalaenopsis* orchids. *BMC Genomics* 21(1): art. 807 (doi: 10.1186/s12864-020-07221-6).
- Huang, H., Wang, H., Tong, Y., and Wang, Y. 2020. Insights into the superoxide dismutase gene family and its roles in *Dendrobium catenatum* under abiotic stresses. *Plants* 9(11): art. 1452 (doi: 10.3390/plants9111452).
- Jacquemyn, H., De Kort, H., Vanden Broeck, A., and Brys, R. 2020. Low genetic divergence and variation in coastal dune populations of the widespread terrestrial orchid *Epipactis helleborine*. *Botanical Journal of the Linnean Society* 193(3): 419–430 (doi: 10.1093/botlinnean/boaa020).

- Kaki, A., Vafae, Y., and Khadivi, A. 2020. Genetic variation of *Anacamptis coriophora*, *Dactylorhiza umbrosa*, *Himantoglossum affine*, *Orchis mascula*, and *Ophrys schulzei* in the western parts of Iran. *Industrial Crops and Products* 156: art. 112854 (doi: 10.1016/j.indcrop.2020.112854).
- Kayika Febryanti, N. L. P., Nurliana, S., Gutierrez-Marcos, J., and Semiarti, E. 2020. The expression analysis of AtRKD4 transgene in *Dendrobium lineale* Rolfe transgenic orchid carrying 35S::GR::AtRKD4 for micropropagation. *AIP Conference Proceedings* 2260: art. 06002 (doi: 10.1063/5.0015876).
- Ke, Y. T., Lin, K. F., Gu, C. H., and Yeh, C. H. 2020. Molecular characterization and expression profile of pacol1, a constans-like gene in *Phalaenopsis* orchid. *Plants* 9(1): art. 68 (doi: 10.3390/plants9010068).
- Kim, S. H., Kim, S. W., Lim, G. H., Lyu, J. I., Choi, H. I., Jo, Y. D., Kang, S. Y., Kang, B. C., and Kim, J. B. 2020. Transcriptome analysis to identify candidate genes associated with the yellow-leaf phenotype of a *Cymbidium* mutant generated by γ -irradiation. *PLoS ONE* 15(1): art. e0228078 (doi: 10.1371/journal.pone.0228078).
- Kim, S. Y., Ramya, M., An, H. R., Park, P. M., Lee, S. Y., Park, S. Y., and Park, P. H. 2019. Floral volatile compound accumulation and gene expression analysis of *Maxillaria tenuifolia*. *Horticultural Science and Technology* 37(6): 756–766 (doi: 10.7235/HORT.20190075).
- Kim, Y. K., Jo, S., Cheon, S. H., Joo, M. J., Hong, J. R., Kwak, M., and Kim, K. J. 2020. Plastome evolution and phylogeny of Orchidaceae, with 24 new sequences. *Frontiers in Plant Science* 11: art. 22 (doi: 10.3389/fpls.2020.00022).
- Kim, Y. K., Jo, S., Cheon, S. H., Joo, M. J., Hong, J. R., Kwak, M., and Kim, K. J. 2020. Corrigendum: Plastome evolution and phylogeny of Orchidaceae, with 24 new sequences (*Frontiers in Plant Science*, (2020), 11, (22), 10.3389/fpls.2020.00022). *Frontiers in Plant Science* 11: art. 322 (doi: 10.3389/fpls.2020.00322).
- Kurniawati, J., Sugiyarto, L., Yulianti, E., Nurcahyo, H., and Mercuriani, I. S. 2019. Molecular identification of several orchid species based on OPA10 and OPA18 RAPD marker. *Journal of Physics: Conference Series* 1397: art. 012042 (doi: 10.1088/1742-6596/1397/1/012042).
- Lai, P. H., Huang, L. M., Pan, Z. J., Jane, W. N., Chung, M. C., Chen, W. H., and Chen, H. H. 2020. PeERF1, a SHINE-like transcription factor, is involved in nanoridge development on lip epidermis of *Phalaenopsis* flowers. *Frontiers in Plant Science* 10: art. 1709 (doi: 10.3389/fpls.2019.01709).
- Leal, B. S. S., Brandão, M. M., Palma-Silva, C., and Pinheiro, F. 2020. Differential gene expression reveals mechanisms related to habitat divergence between hybridizing orchids from the Neotropical coastal plains. *BMC Plant Biology* 20(1): art. 554 (doi: 10.1186/s12870-020-02757-x) [*Epidendrum fulgens*, *E. puniceoluteum*].

- Lee, S. Y., Meng, K., Wang, H., Zhou, R., Liao, W., Chen, F., Zhang, S., and Fan, Q. 2020. Severe plastid genome size reduction in a mycoheterotrophic orchid, *Danxiaorchis singchiana*, reveals heavy gene loss and gene relocations. *Plants* 9(4): art. 521 (doi: 10.3390/plants9040521).
- Lewis, D. H., Albert, N. W., Wang, L., Zhang, H., Arathoon, S., Boase, M. R., Davies, K. M., and Schwinn, K. E. 2020. Flower anthocyanin pigment patterns in *Cymbidium* orchid linked with expression of a MYB transcription factor during flower development. *Acta Horticulturae* 1297: 507–512 (doi: 10.17660/ActaHortic.2020.1297.66).
- Li, B. J., Zheng, B. Q., Wang, J. Y., Tsai, W. C., Lu, H. C., Zou, L. H., Wan, X., Zhang, D. Y., Qiao, H. J., Liu, Z. J., and Wang, Y. 2020. New insight into the molecular mechanism of colour differentiation among floral segments in orchids. *Communications Biology* 3(1): art. 89 (doi: 10.1038/s42003-020-0821-8) [*Cattleya* ‘Kova’].
- Li, C., Dong, N., Li, X., Wu, S., Liu, Z., and Zhai, J. 2020. A review of MADS-box genes, the molecular regulatory genes for floral organ development in Orchidaceae. *Acta Horticulturae Sinica* 47(10): 2047–2062 (doi: 10.16420/j.issn.0513-353x.2019-0740).
- Li, C. R., Luo, Y., Zhao, P., and Li, L. 2020. The complete chloroplast genome sequence of *Pholidota articulata* (Orchidaceae), a rarely[*sic*] medicinal orchid. *Mitochondrial DNA Part B: Resources* 5(4): 3801–3802 (doi: 10.1080/23802359.2020.1840929).
- Li, Y. M., Li, Y. M., Liang, X. Y., Zhang, M. Y., Gao, J., Yan, Y. G., Guo, S. X., and Zhang, G. 2020. Molecular characterization of a protein phosphatase 2C gene of subgroup A in *Dendrobium officinale*. *Chinese Pharmaceutical Journal* 55(14): 1195–1200 (doi: 10.11669/cpj.2020.14.014).
- Li, Z.-H., Jiang, Y., Ma, X., Li, J.-W., Yang, J.-B., Wu, J.-Y., and Jin, X.-H. 2020. Plastid genome evolution in the subtribe Calypsoinae (Epidendroideae, Orchidaceae). *Genome Biology and Evolution* 12(6): 867–870 (doi: 10.1093/gbe/evaa091).
- Li, Z.-H., Ma, X., Wang, D.-Y., Li, Y.-X., Wang, C.-W., and Jin, X.-H. 2019. Evolution of plastid genomes of *Holcoglossum* (Orchidaceae) with recent radiation. *BMC Evolutionary Biology* 19: 63 (doi: 10.1186/s12862-019-1384-5).
- Liang, C. Y., Rengasamy, K. P., Huang, L. M., Hsu, C. C., Jeng, M. F., Chen, W. H., and Chen, H. H. 2020. Assessment of violet-blue color formation in *Phalaenopsis* orchids. *BMC Plant Biology* 20(1): art. 212 (doi: 10.1186/s12870-020-02402-7).
- Lim, G. H., Kim, S. W., Ryu, J., Kang, S. Y., Kim, J. B., and Kim, S. H. 2020. Upregulation of the MYB2 transcription factor is associated with increased accumulation of anthocyanin in the leaves of *Dendrobium bigibbum*. *International journal of molecular sciences* 21(16): art. 5653 (doi: 10.3390/ijms21165653).

- Meng, X., Li, G., Gu, L., Sun, Y., Li, Z., Liu, J., Wu, X., Dong, T., and Zhu, M. 2020. Comparative metabolomic and transcriptome analysis reveal distinct flavonoid biosynthesis regulation between petals of white and purple *Phalaenopsis amabilis*. *Journal of Plant Growth Regulation* 39(2): 823–840 (doi: 10.1007/s00344-019-10025-y).
- Niu, Z., Hou, Z., Wang, M., Ye, M., Zhang, B., Xue, Q., Liu, W., and Ding, X. 2020. A comparative plastomics approach reveals available molecular markers for the phylogeographic study of *Dendrobium huoshanense*, an endangered orchid with extremely small populations. *Ecology and Evolution* 10(12): 5332–5342 (doi: 10.1002/ece3.6277).
- Nopitasari, S., Setiawati, Y., Lawrie, M. D., Purwantoro, A., Widada, J., Sasongko, A. B., Yoshioka, Y., Matsumoto, S., Ninomiya, K., Asano, Y., and Semiarti, E. 2020. Development of an *Agrobacterium*-delivered crispr/cas9 for *Phalaenopsis amabilis* (L.) Blume genome editing system. *AIP Conference Proceedings* 2260: art. 060014 (doi: 10.1063/5.0015868).
- Ospina-Zapata, D. A., Madrigal, Y., Alzate, J. F., and Pabón-Mora, N. 2020. Evolution and expression of reproductive transition regulatory genes FT/TFL1 with emphasis in selected Neotropical orchids. *Frontiers in Plant Science* 11: art. 469 (doi: 10.3389/fpls.2020.00469).
- Pan, L., Chen, J., Ren, S., Shen, H., Rong, B., Liu, W., and Yang, Z. 2020. Complete genome sequence of *Mycobacterium* Mya-zh01, an endophytic bacterium, promotes plant growth and seed germination isolated from flower stalk of *Doritaenopsis*. *Archives of Microbiology* 202(7): 1965–1976 (doi: 10.1007/s00203-020-01924-w).
- Piñeiro Fernández, L., Byers, K. J. R. P., Cai, J., Sedeek, K. E. M., Kellenberger, R. T., Russo, A., Qi, W., Aquino Fournier, C., and Schlüter, P. M. 2019. A phylogenomic analysis of the floral transcriptomes of sexually deceptive and rewarding European orchids, *Ophrys* and *Gymnadenia*. *Frontiers in Plant Science* 10: art. 1553 (doi: 10.3389/fpls.2019.01553).
- Ramkumar, T. R., Kanchan, M., and Sembi, J. K. 2020. Genome wide characterization of WUSCHEL-related homeobox (WOX) gene family in *Apostasia shenzhenica*, a primeval orchid. *Plant Science Today* 7(2): 164–171 (doi: 10.14719/PST.2020.7.2.703).
- Ramya, M., Jang, S., An, H. R., Lee, S. Y., Park, P. M., and Park, P. H. 2020. Volatile organic compounds from orchids: From synthesis and function to gene regulation. *International Journal of Molecular Sciences* 21(3): art. 1160 (doi: 10.3390/ijms21031160).
- Ren, R., Gao, J., Lu, C., Wei, Y., Jin, J., Wong, S. M., Zhu, G., and Yang, F. 2020. Highly efficient protoplast isolation and transient expression system for functional characterization of flowering related genes in *Cymbidium* orchids. *International Journal of Molecular Sciences* 21(7): art. 2264 (doi: 10.3390/ijms21072264).

- Ren, R., Wei, Y., Ahmad, S., Jin, J., Gao, J., Lu, C., Zhu, G., and Yang, F. 2020. Identification and characterization of NPR1 and PR1 homologs in *Cymbidium* orchids in response to multiple hormones, salinity and viral stresses. *International Journal of Molecular Sciences* 21(6): art. 1977 (doi: 10.3390/ijms21061977).
- Rentsch, J. D., Hardee, L. J., Shelley, C. E., and Williams, M. T. 2020. The complete plastid genome of *Neottia bifolia* (Raf.) Baumbach (Orchidaceae): Insights into chlorophyllous and achlorophyllous plastid genomes. *Castanea* 85(2): 285–295 (doi: 10.2179/0008-7475.85.2.285).
- Semiarti, E., Mose, W., and Widayati, A. W. 2020. Isolation and characterisation of putative embryo gene DIRKD4 from Indonesian orchid *Dendrobium lineale* Rolfe. *AIP Conference Proceedings* 2260: art. 060008 (doi: 10.1063/5.0015867).
- Semiarti, E., Nopitasari, S., Setiawati, Y., Lawrie, M. D., Purwanto, A., Widada, J., Ninomiya, K., Asano, Y., Matsumoto, S., and Yoshioka, Y. 2020. Application of CRISPR/Cas9 genome editing system for molecular breeding of orchids. *Indonesian Journal of Biotechnology* 25(1): 61–68 (doi: 10.22146/ijbiotech.39485).
- Setiawati, Y., Nopitasari, S., Lawrie, M. D., Purwanto, A., Widada, J., Sasongko, A. B., Ninomiya, K., Asano, Y., Matsumoto, S., Yoshioka, Y., and Semiarti, E. 2020. *Agrobacterium*-mediated transformation facilitates the CRISPR/Cas9 genome editing system in *Dendrobium macrophyllum* A. Rich orchid. *AIP Conference Proceedings* 2260: art. 060016 (doi: 10.1063/5.0016200).
- Shao, L. and Ning, H. 2020. The complete chloroplast genome of *Cymbidium serratum* (Orchidaceae): a rare and Endangered species endemic to Southwest China. *Mitochondrial DNA Part B: Resources* 5(3): 2429–2431 (doi: 10.1080/23802359.2020.1775514).
- Sherif, N. A., Senthil Kumar, T., and Rao, M. V. 2020. DNA barcoding and genetic fidelity assessment of micropropagated *Aenhenrya rotundifolia* (Blatt.) C.S. Kumar and F.N. Rasm.: a critically endangered jewel orchid. *Physiology and Molecular Biology of Plants* 26(12): 2391–2405 (doi: 10.1007/s12298-020-00917-9).
- Si, C., Teixeira da Silva, J. A., He, C., Yu, Z., Zhao, C., Wang, H., Zhang, M., and Duan, J. 2020. DoRWA3 from *Dendrobium officinale* plays an essential role in acetylation of polysaccharides. *International Journal of Molecular Sciences* 21(17): art. 6250 (doi: 10.3390/ijms21176250).
- Silvério Righetto Mauad, A. V., do Nascimento Vieira, L., Bolson, M., de Baura, V. A., Balsanelli, E., Maltempi de Souza, E., Toscano de Brito, A. L. V., and de Camargo Smidt, E. 2019. Complete chloroplast genome of *Anathallis obovata* (Orchidaceae: Pleurothallidinae). *Brazilian Journal of Botany* 42(2): 345–352 (doi: 10.1007/s40415-019-00524-3).
- Singh, N. and Kumaria, S. 2020. Molecular cloning and characterization of chalcone synthase gene from *Coelogyne ovalis* Lindl. and its stress-dependent expression. *Gene* 762: art. 145104 (doi: 10.1016/j.gene.2020.145104).

- Sinn, B. T. and Barrett, C. F. 2020. Ancient mitochondrial gene transfer between fungi and the orchids. *Molecular Biology and Evolution* 37(1): 44–57 (doi: 10.1093/molbev/msz198).
- Škute, N., Savicka, M., Petjukevičs, A., and Harlamova, N. 2020. Application of the luminometric methylatoion[*sic*] assay for plant ecological researches: The study of global DNA methylation in leaves of *Elodea canadensis* under laboratory conditions and in leaves of fen orchid from wild populations. *Plant OMICS* 13(1): 30–36 (doi: 10.21475/POJ.13.01.20.P2111) [*Liparis loeselii*].
- Sornchai, P., van Doorn, W. G., Imsabai, W., Burns, P., and Chanprame, S. 2020. *Dendrobium* orchids carrying antisense ACC oxidase: small changes in flower morphology and a delay of bud abortion, flower senescence, and abscission of flowers. *Transgenic Research* 29(4): 429–442 (doi: 10.1007/s11248-020-00209-8).
- Sukma, D., Handini, A. S., and Sudarsono. 2020. Isolation and characterization of chalcone synthase (Chs) gene from *Phalaenopsis* and *Doritaenopsis* orchids. *Biodiversitas* 21(11): 5054–5064 (doi: 10.13057/biodiv/d211109).
- Tong, C. G., Wu, F. H., Yuan, Y. H., Chen, Y. R., and Lin, C. S. 2020. High-efficiency CRISPR/Cas-based editing of *Phalaenopsis* orchid MADS genes. *Plant Biotechnology Journal* 18(4): 889–891 (doi: 10.1111/pbi.13264).
- Uddain, J. and Subramaniam, S. 2020. Encapsulation-based a novel antibiotic selection technique for *Agrobacterium*-mediated genetic transformation of *Dendrobium* Broga Giant orchid. *Gene Reports* 21: art. 100806 (doi: 10.1016/j.genrep.2020.100806).
- Vu, H. T., Tran, N., Nguyen, T. D., Vu, Q. L., Bui, M. H., Le, M. T., and Le, L. 2020. Complete chloroplast genome of *Paphiopedilum delenatii* and phylogenetic relationships among Orchidaceae. *Plants* 9(1): art. 61 (doi: 10.3390/plants9010061).
- Vu, H. T., Vu, Q. L., Nguyen, T. D., Tran, N., Nguyen, T. C., Luu, P. N., Tran, D. D., Nguyen, T. K., and Le, L. 2020. Genetic diversity and identification of Vietnamese *Paphiopedilum* species using DNA sequences. *Biology* 9(1): art. 9 (doi: 10.3390/biology9010009).
- Wang, H., Yang, J., and Sun, W. 2020. Complete chloroplast genome of the endangered *Corybas taliensis* (Orchidaceae), a plant species with extremely small populations endemic to China. *Mitochondrial DNA Part B: Resources* 5(2): 1884–1885 (doi: 10.1080/23802359.2020.1753591).
- Wang, J., Liu, Z., Zhang, G., Niu, S., Zhang, Y., and Peng, C. 2020. Evolution of two ubiquitin-like system[*sic*] of autophagy in orchid. *Horticultural Plant Journal* 6(5): 321–334 (doi: 10.1016/j.hpj.2020.05.006).
- Wang, Y., Li, Y., Yan, X., Ding, L., Shen, L., and Yu, H. 2020. Characterization of C- and D-class MADS-Box genes in orchids. *Plant Physiology* 184(3): 1469–1481 (doi: 10.1104/pp.20.00487) [*Dendrobium*].

Wang, Y. P., Ai, J., Luo, Y., Li, Q. Q., and Li, L. 2020. The complete chloroplast genome of *Dendrobium wattii* (Orchidaceae). *Mitochondrial DNA Part B: Resources* 5(2): 1325–1326 (doi: 10.1080/23802359.2020.1732847).

Wang, Z., Zhao, M., Cui, H., Li, J., and Wang, M. 2020. Transcriptomic landscape of medicinal *Dendrobium* reveals genes associated with the biosynthesis of bioactive components. *Frontiers in Plant Science* 11: art. 391 (doi: 10.3389/fpls.2020.00391).

Wei, Y., Jin, J., Yao, X., Lu, C., Zhu, G., and Yang, F. 2020. Transcriptome analysis reveals clues into leaf-like flower mutant in Chinese orchid *Cymbidium ensifolium*. *Plant Diversity* 42(2): 92–101 (doi: 10.1016/j.pld.2019.12.001).

Wei, Y., Liang, D., Zhu, G., and Yang, F. 2020. Insight into CsWRKY gene family and their involvement in plant hormone response of *Cymbidium sinense*. *Acta Horticulturae* 1297: 471–480 (doi: 10.17660/ActaHortic.2020.1297.62).

Wu, Q.-P., Wang, W.-Y., Zhang, G.-Q., Zeng, S.-J., Li, L., and Liu, Z.-J. 2020. The complete chloroplast genome of *Pholidota yunnanensis* Rolfe (Orchidaceae: Coelogyninae). *Mitochondrial DNA Part B* 5(3): 2469–2470 (doi: 10.1080/23802359.2020.1720533).

Wu, W. L., Hsiao, Y. Y., Lu, H. C., Liang, C. K., Fu, C. H., Huang, T. H., Chuang, M. H., Chen, L. J., Liu, Z. J., and Tsai, W. C. 2020. Expression regulation of MALATE SYNTHASE involved in glyoxylate cycle during protocorm development in *Phalaenopsis aphrodite* (Orchidaceae). *Scientific Reports* 10(1): art. 10123 (doi: 10.1038/s41598-020-66932-8).

Wu, X. Y., Chen, J. B., Huang, Z. C., Liu, W. R., and Li, T. Z. 2020. The complete chloroplast genome of *Geodorum eulophioides* (Orchidaceae). *Mitochondrial DNA Part B: Resources* 5(3): 2471–2472 (doi: 10.1080/23802359.2020.1778558).

Xin, J., Xin, Y., Yao, G., Yang, L., Li, F., and Tang, J. 2020. Complete chloroplast genome sequence of tropical orchid *Renanthera imschootiana*. *Mitochondrial DNA Part B: Resources* 5(3): 2788–2789 (doi: 10.1080/23802359.2020.1778571).

Xu, Y., Zhou, J., Liu, Q., Li, K., and Zhou, Y. 2020. Construction and characterization of a high-quality cDNA library of *Cymbidium faberi* suitable for yeast one- and two-hybrid assays. *BMC biotechnology* 20(1): art. 4 (doi: 10.1186/s12896-020-0599-2).

Xu, Y., Zhou, J., Lu, S., Wang, S., and Zhou, Y. 2020. Cloning and molecular characterization of CfMYBs associated with the regulation of methyl jasmonate biosynthesis in *Cymbidium faberi*. *Horticulture Journal* 89(5): 593–601 (doi: 10.2503/hortj.UTD-176).

- Xue, J. Y., Zhao, T., Liu, Y., Liu, Y., Zhang, Y. X., Zhang, G. Q., Chen, H., Zhou, G. C., Zhang, S. Z., and Shao, Z. Q. 2020. Genome-wide analysis of the nucleotide binding site leucine-rich repeat genes of four orchids revealed extremely low numbers of disease resistance genes. *Frontiers in Genetics* 10: art. 1286 (doi: 10.3389/fgene.2019.01286) [*Apostasia shenzhenica*, *Dendrobium catenatum*, *Gastrodia elata*, *Phalaenopsis equestris*].
- Yu, J., Qiang, W., Qin-Qin, S., Bi-Ping, Z., and Jun-Rong, H. 2020. Transcriptome analysis reveals genes associated with leaf color mutants in *Cymbidium longibracteatum*. *Tree Genetics and Genomes* 16(3): art. 44 (doi: 10.1007/s11295-020-01440-4).
- Yu, Z., Zhao, C., Zhang, G., Teixeira da Silva, J. A., and Duan, J. 2020. Genome-wide identification and expression profile of TPS gene family in *Dendrobium officinale* and the role of DoTPS10 in linalool biosynthesis. *International journal of molecular sciences* 21(15): art. 5419 (doi: 10.3390/ijms21155419).
- Zavala-Páez, M., do Nascimento Vieira, L., de Baura, V. A., Balsanelli, E., Maltempi de Souza, E., Cerna Cevallos, M., Chase, M. W., and de Camargo Smidt, E. 2020. Comparative plastid genomics of Neotropical *Bulbophyllum* (Orchidaceae; Epidendroideae). *Frontiers in Plant Science* 11: art. 799 (doi: 10.3389/fpls.2020.00799).
- Zhang, G. Q., Liu, K. W., Li, Z., Lohaus, R., Hsiao, Y. Y., Niu, S. C., Wang, J. Y., Lin, Y. C., Xu, Q., Chen, L. J., Yoshida, K., Fujiwara, S., Wang, Z. W., Zhang, Y. Q., Mitsuda, N., Wang, M., Liu, G. H., Pecoraro, L., Huang, H. X., Xiao, X. J., Lin, M., Wu, X. Y., Wu, W. L., Chen, Y. Y., Chang, S. B., Sakamoto, S., Ohme-Takagi, M., Yagi, M., Zeng, S. J., Shen, C. Y., Yeh, C. M., Luo, Y. B., Tsai, W. C., Van de Peer, Y., and Liu, Z. J. 2020. Author correction: The *Apostasia* genome and the evolution of orchids (Nature, (2017), 549, 7672, (379–383), 10.1038/nature23897). *Nature* 583(7818): E30 (doi: 10.1038/s41586-020-2524-1).
- Zhang, J., Zhao, X., Tian, R., Zeng, S., Wu, K., Teixeira da Silva, J. A., and Duan, J. 2020. Molecular cloning and functional analysis of three CONSTANS-like genes from Chinese *Cymbidium*. *Journal of Plant Growth Regulation* 39(3): 1061–1074 (doi: 10.1007/s00344-019-10044-9).
- Zhang, M., Teixeira da Silva, J. A., Yu, Z., Wang, H., Si, C., Zhao, C., He, C., and Duan, J. 2020. Identification of histone deacetylase genes in *Dendrobium officinale* and their expression profiles under phytohormone and abiotic stress treatments. *PeerJ* 8: art. e10482 (doi: 10.7717/peerj.10482).
- Zhang, Y., Zhou, T., Dai, Z., Dai, X., Li, W., Cao, M., Li, C., Tsai, W. C., Wu, X., Zhai, J., Liu, Z., and Wu, S. 2020. Comparative transcriptomics provides insight into floral color polymorphism in a *Pleione limprichtii* orchid population. *International Journal of Molecular Sciences* 21(1): art. 247 (doi: 10.3390/ijms21010247).
- Zhao, C., Yu, Z., Teixeira da Silva, J. A., He, C., Wang, H., Si, C., Zhang, M., Zeng, D., and Duan, J. 2020. Functional characterization of a *Dendrobium officinale* geraniol synthase DoGES1 involved in floral scent formation. *International Journal of Molecular Sciences* 21(19): art. 7005 (doi: 10.3390/ijms21197005).

Zhao, Y., Tan, Q. Q., Guo, H. J., and Li, L. 2020. The complete chloroplast genome of *Coelogyne barbata* (Orchidaceae), a rare and ornamental orchid. *Mitochondrial DNA Part B: Resources* 5(3): 3746–3747 (doi: 10.1080/23802359.2020.1835569).

Zheng, Y., Cao, Y., Zhang, Y., Wei, Z., Chen, B., Peng, D., and Zhou, Y. 2020. The complete chloroplast genome of *Cymbidium maguanense* (Orchidaceae). *Mitochondrial DNA Part B: Resources* 5(2): 1149–1150 (doi: 10.1080/23802359.2020.1730262).

Zulwanis, Setiari, N., Gutierrez-Marcos, J., and Semiarti, E. 2020. The expression of AtRKD4 transgene during induction of somatic embryogenesis in transgenic *Dendrobium phalaenopsis* orchid carrying 35S::GR::AtRKD4. *AIP Conference Proceedings* 2260: art. 06001 (doi: 10.1063/5.0015873).

Mycorrhiza and endophytes

Adamo, M., Chialva, M., Calevo, J., Rose, S. D., Girlanda, M., Perotto, S., and Balestrini, R. 2020. The dark side of orchid symbiosis: Can *Tulasnella calospora* decompose host tissues? *International Journal of Molecular Sciences* 21(9): art. 3139 (doi: 10.3390/ijms21093139).

Alghamdi, S. A. 2020. Biological role of mycorrhizal fungi on the assimilation and transportation of carbon and nitrogen to *Anacamptis palustris* and *Anacamptis laxiflor[sic]*. *Saudi Journal of Biological Sciences* 27(1): 465–473 (doi: 10.1016/j.sjbs.2019.11.010).

Alibrandi, P., Schnell, S., Perotto, S., and Cardinale, M. 2020. Diversity and structure of the endophytic bacterial communities associated with three terrestrial orchid species as revealed by 16S rRNA gene metabarcoding. *Frontiers in Microbiology* 11: art. 604964 (doi: 10.3389/fmicb.2020.604964) [*Neottia ovata*, *Serapias vomeracea*, *Spiranthes spiralis*].

Altinkaynak, H. and Ozkoc, I. 2020. Isolation and molecular characterization of plant growth promoting bacteria from the rhizosphere of orchids in Turkey. *Rhizosphere* 16: art. 100280 (doi: 10.1016/j.rhisph.2020.100280).

Bell, J., Yokoya, K., Kendon, J. P., and Sarasan, V. 2020. Diversity of root-associated culturable fungi of *Cephalanthera rubra* (Orchidaceae) in relation to soil characteristics. *PeerJ* 2020(3): art. e8695 (doi: 10.7717/peerj.8695).

Böhmer, M., Ozdín, D., Račko, M., Lichvár, M., Budiš, J., and Szemes, T. 2020. Identification of bacterial and fungal communities in the roots of orchids and surrounding soil in heavy metal contaminated area of mining heaps. *Applied Sciences (Switzerland)* 10(20): art. 7367 (doi: 10.3390/app10207367) [*Caladenia*].

Calevo, J., Voyron, S., Ercole, E., and Girlanda, M. 2020. Is the distribution of two rare *Orchis* sister species limited by their main mycobiont? *Diversity* 12(7): art. 262 (doi: 10.3390/D12070262) [*Orchis canariensis*, *O. patens*].

- Chand, K., Shah, S., Sharma, J., Paudel, M. R., and Pant, B. 2020. Isolation, characterization, and plant growth-promoting activities of endophytic fungi from a wild orchid *Vanda cristata*. *Plant Signaling and Behavior* 15(5): art. 1744294 (doi: 10.1080/15592324.2020.1744294).
- Claro, A., Mujica, M. I., Cisternas, M., Armesto, J. J., and Pérez, F. 2020. Low mycorrhizal diversity in the endangered and rare orchids *Bipinnula volckmannii* and *B. apinnula* of Central Chile. *Symbiosis* 80(2): 145–154 (doi: 10.1007/s13199-019-00648-w).
- Deepthi, A. S. and Ray, J. G. 2020. Algal associates and the evidence of cyanobacterial nitrogen fixation in the velamen roots of epiphytic orchids. *Global Ecology and Conservation* 22: art. e00946 (doi: 10.1016/j.gecco.2020.e00946).
- Downing, J. L., Liu, H., McCormick, M. K., Arce, J., Alonso, D., and Lopez-Perez, J. 2020. Generalized mycorrhizal interactions and fungal enemy release drive range expansion of orchids in southern Florida. *Ecosphere* 11(8): art. e03228 (doi: 10.1002/ecs2.3228) [*Cyrtopodium flavum*, *C. punctatum*, *Eulophia alta*, *E. graminea*].
- Favre-Godal, Q., Gourguillon, L., Lordel-Madeleine, S., Gindro, K., and Choisy, P. 2020. Orchids and their mycorrhizal fungi: an insufficiently explored relationship. *Mycorrhiza* 30(1): 5–22 (doi: 10.1007/s00572-020-00934-2).
- Fuji, M., Miura, C., Yamamoto, T., Komiyama, S., Suetsugu, K., Yagame, T., Yamato, M., and Kaminaka, H. 2020. Relative effectiveness of *Tulasnella* fungal strains in orchid mycorrhizal symbioses between germination and subsequent seedling growth. *Symbiosis* 81(1): 53–63 (doi: 10.1007/s13199-020-00681-0).
- Gao, Y., Zhao, Z., Li, J., Liu, N., Jacquemyn, H., Guo, S., and Xing, X. 2020. Do fungal associates of co-occurring orchids promote seed germination of the widespread orchid species *Gymnadenia conopsea*? *Mycorrhiza* 30(2–3): 221–228 (doi: 10.1007/s00572-020-00943-1).
- Ghirardo, A., Fochi, V., Lange, B., Witting, M., Schnitzler, J. P., Perotto, S., and Balestrini, R. 2020. Metabolomic adjustments in the orchid mycorrhizal fungus *Tulasnella calospora* during symbiosis with *Serapias vomeracea*. *New Phytologist* 228(6): 1939–1952 (doi: 10.1111/nph.16812).
- Herrera, H., Sanhueza, T., Novotná, A., Charles, T. C., and Arriagada, C. 2020. Isolation and identification of endophytic bacteria from mycorrhizal tissues of terrestrial orchids from Southern Chile. *Diversity* 12: art. 55 (doi: 10.3390/d12020055).
- Jahan, B. M. 2020. Mycorrhizal association in *Porpax reticulata* an epiphytic orchid from Western Ghats, India. *Plant Archives* 20(1): 2614–2616.
- Jiang, Y. L., Chen, X. H., Miao, Q., and Qu, B. 2019. Difference in fungal communities between in roots and in root-associated soil of nine orchids in Liaoning, China. *Chinese Journal of Plant Ecology* 43(12): 1079–1090 (doi: 10.17521/cjpe.2019.0055).

Kendon, J. P., Yokoya, K., Zettler, L. W., Jacob, A. S., McDiarmid, F., Bidartondo, M. I., and Sarasan, V. 2020. Recovery of mycorrhizal fungi from wild collected protocorms of Madagascan endemic orchid *Aerangis ellisii* (B.S. Williams) Schltr. and their use in seed germination in vitro. *Mycorrhiza* 30(5): 567–576 (doi: 10.1007/s00572-020-00971-x).

Lin, M., Xiong, H., Xiang, X., Zhou, Z., Liang, L., and Mei, Z. 2020. The effect of plant geographical location and developmental stage on root-associated microbiomes of *Gymnadenia conopsea*. *Frontiers in Microbiology* 11: art. 1257 (doi: 10.3389/fmicb.2020.01257).

Mahfut, Indrianto, A., Somowiyarjo, S., and Daryono, B. S. 2020. Molecular phylogeny of orchids mycorrhiza isolated from native tropical orchids in Indonesia. *Malaysian Journal of Microbiology* 16(1): 68–72 (doi: 10.21161/mjm.190425).

May, M., Jąkowski, M., Novotná, A., Dietel, J., Ayasse, M., Lallemand, F., Figura, T., Minasiewicz, J., and Selosse, M. A. 2020. Three-year pot culture of *Epipactis helleborine* reveals autotrophic survival, without mycorrhizal networks, in a mixotrophic species. *Mycorrhiza* 30(1): 51–61 (doi: 10.1007/s00572-020-00932-4).

Mutlu, V. A. and Kömpe, Y. Ö. 2020. Mycorrhizal fungi of some *Orchis* species of Turkey. *Pakistan Journal of Botany* 52(2): 687–695 (doi: 10.30848/PJB2020-2(42)).

Nguyen, D. Q., Li, H., Tran, T. T., Sivasithamparam, K., Jones, M. G. K., and Wylie, S. J. 2020. Four *Tulasnella* taxa associated with populations of the Australian evergreen terrestrial orchid *Cryptostylis ovata*. *Fungal Biology* 124(1): 24–33 (doi: 10.1016/j.funbio.2019.10.006).

Ogórek, R., Kurczaba, K., Łobas, Z., Zołubak, E., and Jakubska-Busse, A. 2020. Species diversity of micromycetes associated with *Epipactis helleborine* and *Epipactis purpurata* (Orchidaceae, Neottieae) in Southwestern Poland. *Diversity* 12(5): art. 182 (doi: 10.3390/D12050182).

Parthibhan, S. and Ramasubbu, R. 2020. Mycorrhizal and endophytic fungal association in *Paphiopedilum druryi* (Bedd.) Stein—A strict endemic and critically endangered orchid of the Western Ghats. *Ecological Genetics and Genomics* 16: art. 100059 (doi: 10.1016/j.egg.2020.100059).

Pecoraro, L., Wang, X., Venturella, G., Gao, W., Wen, T., Gafforov, Y., and Gupta, V. K. 2020. Molecular evidence supports simultaneous association of the achlorophyllous orchid *Chamaegastrodia inverta* with ectomycorrhizal Ceratobasidiaceae and Russulaceae. *BMC Microbiology* 20(1): art. 236 (doi: 10.1186/s12866-020-01906-4).

Qin, J., Zhang, W., Zhang, S. B., and Wang, J. H. 2020. Similar mycorrhizal fungal communities associated with epiphytic and lithophytic orchids of *Coelogyne corymbosa*. *Plant Diversity* 42(5): 362–369 (doi: 10.1016/j.pld.2020.07.005).

- Rammitsu, K., Yukawa, T., Yamashita, Y., Isshiki, S., and Ogura-Tsujita, Y. 2020. The mycorrhizal community of the epiphytic orchid *Thrixspermum japonicum* is strongly biased toward a single Ceratobasidiaceae fungus, despite a wide range of fungal partners. *American Journal of Botany* 107(12): 1654–1662 (doi: 10.1002/ajb2.1575).
- Reiter, N., Phillips, R. D., Swarts, N. D., Wright, M., Holmes, G., Sussmilch, F. C., Davis, B. J., Whitehead, M. R., and Linde, C. C. 2020. Specific mycorrhizal associations involving the same fungal taxa in common and threatened *Caladenia* (Orchidaceae): implications for conservation. *Annals of Botany* 126(5): 943–955 (doi: 10.1093/aob/mcaa116).
- Salazar, J. M., Pomavilla, M., Pollard, A. T., Chicca, E. J., and Peña, D. F. 2020. Endophytic fungi associated with roots of epiphytic orchids in two Andean forests in southern Ecuador and their role in germination. *Lankesteriana* 20(1): 37–47 (doi: 10.15517/LANK.V20I1.41157).
- Sathiyadash, K., Muthukumar, T., Karthikeyan, V., and Rajendran, K. 2020. Orchid mycorrhizal fungi: Structure, function, and diversity. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 239–280.
- Silva Freitas, E. F., da Silva, M., da Silva Cruz, E., Mangaravite, E., Faust Bocayuva, M., Gomes Reis Veloso, T., Selosse, M. A., and Megumi Kasuya, M. C. 2020. Diversity of mycorrhizal *Tulasnella* associated with epiphytic and rupicolous orchids from the Brazilian Atlantic Forest, including four new species. *Scientific Reports* 10(1): art. 7069 (doi: 10.1038/s41598-020-63885-w).
- Soudzilovskaia, N. A., Vaessen, S., Barcelo, M., He, J., Rahimlou, S., Abarenkov, K., Brundrett, M. C., Gomes, S. I. F., Merckx, V., and Tedersoo, L. 2020. FungalRoot: global online database of plant mycorrhizal associations. *New Phytologist* 227(3): 955–966 (doi: 10.1111/nph.16569).
- Suetsugu, K., Matsubayashi, J., and Tayasu, I. 2020. Some mycoheterotrophic orchids depend on carbon from dead wood: novel evidence from a radiocarbon approach. *New Phytologist* 227(5): 1519–1529 (doi: 10.1111/nph.16409) [*Cyrtosia*, *Eulophia*, *Gastrodia*, *Yuania*].
- Suetsugu, K., Matsubayashi, J., and Tayasu, I. 2020. Use of radiocarbon for assessing the mycorrhizal status of mycoheterotrophic plants. *Plant Signaling and Behavior*: art. 1785667 (doi: 10.1080/15592324.2020.1785667).
- Thixton, H. L., Esselman, E. J., Corey, L. L., and Zettler, L. W. 2020. Further evidence of *Ceratobasidium* D.P. Rogers (Basidiomycota) serving as the ubiquitous fungal associate of *Platanthera leucophaea* (Orchidaceae) in the North American tallgrass prairie. *Botanical Studies* 61(1): art. 12 (doi: 10.1186/s40529-020-00289-z).

Toussaint, A., Bueno, G., Davison, J., Moora, M., Tedersoo, L., Zobel, M., Öpik, M., and Pärtel, M. 2020. Asymmetric patterns of global diversity among plants and mycorrhizal fungi. *Journal of Vegetation Science* 31(2): 355–366 (doi: 10.1111/jvs.12837).

Valadares, R. B. S., Perotto, S., Lucheta, A. R., Santos, E. C., Oliveira, R. M., and Lambais, M. R. 2020. Proteomic and transcriptomic analyses indicate metabolic changes and reduced defense responses in mycorrhizal roots of *Oeceoclades maculata* (Orchidaceae) collected in nature. *Journal of Fungi* 6(3): art. 148 (doi: 10.3390/jof6030148).

Vogt-Schilb, H., Těšitelová, T., Kotlínek, M., Sucháček, P., Kohout, P., and Jersáková, J. 2020. Altered *Rhizoctonia* assemblages in grasslands on ex-arable land support germination of mycorrhizal generalist, not specialist orchids. *New Phytologist* 227(4): 1200–1212 (doi: 10.1111/nph.16604).

Xi, G., Shi, J., Li, J., and Han, Z. 2020. Isolation and identification of beneficial orchid mycorrhizal fungi in *Bletilla striata* (Thunb.) Rchb.f.(Orchidaceae). *Plant Signaling and Behavior* 15(12): art. 1816644 (doi: 10.1080/15592324.2020.1816644).

Xing, X., Gao, Y., Zhao, Z., Waud, M., Duffy, K. J., Selosse, M. A., Jakalski, M., Liu, N., Jacquemyn, H., and Guo, S. 2020. Similarity in mycorrhizal communities associating with two widespread terrestrial orchids decays with distance. *Journal of Biogeography* 47(2): 421–433 (doi: 10.1111/jbi.13728) [*Epipactis helleborine*, *Gymnadenia conopsea*].

Xing, X., Liu, Q., Gao, Y., Shao, S., Guo, L., Jacquemyn, H., Zhao, Z., and Guo, S. 2020. The architecture of the network of orchid–fungus interactions in nine co-occurring *Dendrobium* species. *Frontiers in Ecology and Evolution* 8: art. 130 (doi: 10.3389/fevo.2020.00130).

Yamashita, Y., Kinoshita, A., Yagame, T., Ogura-Tsujita, Y., Yokoyama, J., and Yukawa, T. 2020. *Physisporinus* is an important mycorrhizal partner for mycoheterotrophic plants: Identification of mycorrhizal fungi of three *Yoania* species. *Mycoscience* 61(5): 219–225 (doi: 10.1016/j.myc.2020.05.003).

Yang, W. K., Li, T. Q., Wu, S. M., Finnegan, P. M., and Gao, J. Y. 2020. Ex situ seed baiting to isolate germination-enhancing fungi for assisted colonization in *Paphiopedilum spicerianum*, a critically endangered orchid in China. *Global Ecology and Conservation* 23: art. e01147 (doi: 10.1016/j.gecco.2020.e01147).

Pathology

Akarapisan, A., Khamtham, J., and Kositratana, W. 2020. Characterization of antagonistic potential of *Bacillus velezensis* SK71 against bacterial brown spot on a terrestrial orchid (*Habenaria lindleyana*). *International Journal of Agricultural Technology* 16(1): 1–18.

Baumann, M. M., Kiambi, R. G., and Lockhart, B. E. 2020. Lady's slipper orchid and hydrangea: New ornamental hosts of tobacco rattle virus (TRV) in Minnesota. *Plant Health Progress* 21(1): art. 34BR (doi: 10.1094/PHP-05-19-0034-BR) [*Cypripedium reginae*].

Cybularz-Urban, T. and Hanus-Fajerska, E. 2020. The morphogenetic capability and the viability of regenerants in micropropagated orchid hybrids infected with viral pathogens. *Folia Horticulturae* 20(2): 93–102 (doi: 10.2478/fhort-2013-0118).

Hajong, S. and Kapoor, R. 2020. An amalgam of pathogenic and beneficial endophytic fungi colonizing four *Dendrobium* species from Meghalaya, India. *Journal of Basic Microbiology* 60(5): 415–423 (doi: 10.1002/jobm.201900631).

Jain, A., Sarsaiya, S., Chen, J., Wu, Q., Lu, Y., and Shi, J. 2021. Changes in global Orchidaceae disease geographical research trends: recent incidences, distributions, treatment, and challenges. *Bioengineered* 12(1): 13–29 (doi: 10.1080/21655979.2020.1853447).

Kadir, N. A., Naher, L., Kayat, F., Sidek, N., Md. Zain, N., and Abu Bakar, T. H. S. T. 2020. Morphological and molecular identification of *Fusarium* spp. and *Colletotrichum* spp. isolated from infected vanilla orchid. *Malaysian Journal of Microbiology* 17(1): 1–10 (doi: 10.21161/mjm.200846).

Mahfut. 2020. Identification and detection *Odontoglossum* ringspot virus on native orchids collection of nurseries[sic] in Java, Indonesia. *Journal of Physics: Conference Series* 1641: art. 012075 (doi: 10.1088/1742-6596/1641/1/012075).

Mahfut, Anggreiny, A., Wahyuningsih, S., Handayani, T. T., and Sukimin. 2020. Identification of disease and efforts to protect native orchid plants against bacteria infection in Liwa Botanical Garden. *Journal of Physics: Conference Series* 1641: art. 012098 (doi: 10.1088/1742-6596/1641/1/012098).

Pai, H., Jean, W. H., Lee, Y. S., Chang, Y. C. A., and Lin, N. S. 2020. Genome-wide analysis of small RNAs from *Odontoglossum* ringspot virus and *Cymbidium* mosaic virus synergistically infecting *Phalaenopsis*. *Molecular Plant Pathology* 21(2): 188–205 (doi: 10.1111/mpp.12888).

Park, M. J., Back, C. G., and Park, J. H. 2020. *Colletotrichum cymbidiicola* causing anthracnose on *Cymbidium* orchids in Korea. *Mycobiology* 48(4): 321–325 (doi: 10.1080/12298093.2020.1768626).

Rai, A., Smita, N., Suresh, G., Shabbir, A., Deepshikha, G., Sasikala, C., and Ramana, C. V. 2020. *Paracoccus aeridis* sp. nov., an indole-producing bacterium isolated from the rhizosphere of an orchid, *Aerides maculosa*. *International Journal of Systematic and Evolutionary Microbiology* 70(3): 1720–1728 (doi: 10.1099/ijsem.0.003962).

Romero-Gutiérrez, K. J., Dourado, M. N., Garrido, L. M., Olchanheski, L. R., Mano, E. T., Dini-Andreote, F., Valvano, M. A., and Araújo, W. L. 2020. Phenotypic traits of *Burkholderia* spp. associated with ecological adaptation and plant-host interaction. *Microbiological Research* 236: art. 126451 (doi: 10.1016/j.micres.2020.126451).

Sarsaiya, S., Jain, A., Jia, Q., Fan, X., Shu, F., Chen, Z., Zhou, Q., Shi, J., and Chen, J. 2020. Molecular identification of endophytic fungi and their pathogenicity evaluation against *Dendrobium nobile* and *Dendrobium officinale*. *International Journal of Molecular Sciences* 21(1): art. 316 (doi: 10.3390/ijms21010316).

Wang, W. J., Lee, C. H., Li, C. W., Liao, S., Jan, F. J., and Wang, G. J. 2020. Orchid virus detection from orchid leaves using micro/nano hybrid-structured immuno-electrochemical biosensor. *Journal of the Electrochemical Society* 167(2): art. 027530 (doi: 10.1149/1945-7111/ab6b09).

Yang, Y., Xing, F., Li, S., Che, H. Y., Wu, Z. G., Candresse, T., and Li, S. F. 2020. *Dendrobium* viroid, a new monocot-infecting apscaviroid. *Virus Research* 282: art. 197958 (doi: 10.1016/j.virusres.2020.197958).

Physiology/Phytochemistry

Chen, J. T. 2020. Orchid biochemistry. *International Journal of Molecular Sciences* 21(7): art. 2338 (doi: 10.3390/ijms21072338).

Huehne, P. S., Bhinija, K., Srisomsap, C., Chokchaichamnankit, D., Weeraphan, C., Svasti, J., and Mongkolsuk, S. 2020. Detection of superoxide dismutase (Cu-Zn) isoenzymes in leaves and pseudobulbs of *Bulbophyllum morphologlorum* Kraenzl[*sic*] orchid by comparative proteomic analysis. *Biochemistry and Biophysics Reports* 22: art. 100762 (doi: 10.1016/j.bbrep.2020.100762).

Hughes, N. M., Connors, M. K., Grace, M. H., Lila, M. A., Willans, B. N., and Wommack, A. J. 2021. The same anthocyanins served four different ways: Insights into anthocyanin structure-function relationships from the wintergreen orchid, *Tipularia discolor*. *Plant Science* 303: art. 110793 (doi: 10.1016/j.plantsci.2020.110793).

Idris, S., Che Mohd Zain, C. R., and Kahar Sandrang, A. B. 2020. Effects of air bubbles and auxin on root induction of *Arundina graminifolia* shoots in close permanent immerse system. *Sains Malaysiana* 49(10): 2443–2451 (doi: 10.17576/jsm-2020-4910-10).

Joca, T. A. C., de Oliveira, D. C., Zotz, G., Cardoso, J. C. F., and Moreira, A. S. F. P. 2020. Chemical composition of cell walls in velamentous roots of epiphytic Orchidaceae. *Protoplasma* 257(1): 103–118 (doi: 10.1007/s00709-019-01421-y).

Kazakova, O., Ivannikov, R., Laguta, I., Stavinskaya, O., Anishchenko, V., Severinovska, O., and Buyun, L. 2020. Chromatographic analysis of orchid extracts and quantum chemical calculations of individual components interaction with silica. *Chemistry Journal of Moldova* 15(1): 95–102 (doi: 10.19261/CJM.2020.694).

- Kim, S. H., Jo, Y. D., Ryu, J., Hong, M. J., Kang, B. C., and Kim, J. B. 2020. Effects of the total dose and duration of γ -irradiation on the growth responses and induced SNPs of a *Cymbidium* hybrid. *International Journal of Radiation Biology* 96(4): 545–551 (doi: 10.1080/09553002.2020.1704303).
- Kim, S. H., Kim, S. W., Ahn, J. W., Ryu, J., Kwon, S. J., Kang, B. C., and Kim, J. B. 2020. Frequency, spectrum, and stability of leaf mutants induced by diverse γ -ray treatments in two *Cymbidium* hybrids. *Plants* 9(4): art. 546 (doi: 10.3390/plants9040546).
- Ko, S. S., Jhong, C. M., Lin, Y. J., Wei, C. Y., Lee, J. Y., and Shih, M. C. 2020. Blue light mediates chloroplast avoidance and enhances photoprotection of *Vanilla* orchid. *International Journal of Molecular Sciences* 21(21): art. 8022 (doi: 10.3390/ijms21218022).
- Ko, S. S., Jhong, C. M., and Shih, M. C. 2020. Blue light acclimation reduces the photoinhibition of *Phalaenopsis aphrodite* (Moth orchid). *International Journal of Molecular Sciences* 21(17): art. 6167 (doi: 10.3390/ijms21176167).
- Lee, H. B., Jeong, S. J., Lim, N. H., An, S. K., and Kim, K. S. 2020. Correlation between carbohydrate contents in the leaves and inflorescence initiation in *Phalaenopsis*. *Scientia Horticulturae* 265: art. 109270 (doi: 10.1016/j.scienta.2020.109270).
- Lobo, M., Marina, A., and Vieira, C. 2020. Okadaic acid induced orchid flower senescence via an ethylene mediated pathway | La senescencia de la flor de la orquídea inducida por el ácido okadaico a través de una vía mediada por etileno. *Revista de la Facultad de Agronomía* 37(2): 1111–1116.
- Magdalita, P. M., Pascual, A. O. S., and Villareal, R. L. 2020. Characterization and flowering behavior of eleven Philippine native *Phalaenopsis* species and gamma irradiation effects on *Phalaenopsis aphrodite*. *Philippine Journal of Science* 149(Special Issue 1): 1–10.
- Mikavica, I., Ranđelović, D., Djordjević, V., Gajić, G., and Mutić, J. 2020. Orchid species *Anacamptis morio* as a potential bioremediator of As, Cd and Pb. *Journal of Applied Engineering Science* 18(3): 413–421 (doi: 10.5937/jaes18-26895).
- Naik, M. R., Kumar, K. A., Santoshkumar, A. V., Devi, P. K. S., and Ramakrishna, M. 2020. Physiological response of *Dendrobium* cv. Earsakul to plant growth promoters and growing systems. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 343–354.
- Netramai, S., Kijchavengkul, T., Samsudin, H., and Lertsiri, S. 2020. Data of microwave assisted extraction and conventional hot water extraction of *Dendrobium* Sonia ‘Earsakul’ orchid flower. *Data in Brief* 31: art. 105906 (doi: 10.1016/j.dib.2020.105906).

Ren, Z., Ji, X., Jiao, Z., Luo, Y., Zhang, G. Q., Tao, S., Lei, Z., Zhang, J., Wang, Y., Liu, Z. J., and Wei, G. 2020. Functional analysis of a novel C-glycosyltransferase in the orchid *Dendrobium catenatum*. *Horticulture Research* 7(1): art. 111 (doi: 10.1038/s41438-020-0330-4).

Pagag, K., Vijayan, D., Mao, A. A. 2020. Phytochemical studies of leaves and roots (in vitro) of endemic orchid *Arachnis senapatiana* (Phukan & A. A. Mao) Kocyan & Schuiteman. *Journal of Pharmacognosy and Phytochemistry* 9(6): 1465–1467. (doi: 10.22271/phyto.2020.v9.i6u.13155).

Sangu, S. S., Nor, N. M. I. M., Zakaria, L., Mohamad, A., and Subramaniam, S. 2019. Study on the effects of gamma irradiation on protocorm-like bodies of *Dendrobium* hybrid against *Fusarium proliferatum* and *Fusarium oxysporum*. *Tropical Life Sciences Research* 30(3): 129–143 (doi: 10.21315/tlsr2019.30.3.9).

Sma-Air, S. and Ritchie, R. J. 2020. Photosynthesis in a *Vanda* sp orchid with photosynthetic roots. *Journal of Plant Physiology* 251: art. 153187 (doi: 10.1016/j.jplph.2020.153187).

Sultana, M. and Gangopadhyay, G. 2020. In silico structural analysis and ligand-binding predictions of a few developmental stage specific-proteins during in vitro morphogenesis in *Vanilla*. *Vegetos* 33(3): 570–579 (doi: 10.1007/s42535-020-00140-7).

Torres-Morales, G., Lasso, E., Silvera, K., Turner, B. L., and Winter, K. 2020. Occurrence of crassulacean acid metabolism in Colombian orchids determined by leaf carbon isotope ratios. *Botanical Journal of the Linnean Society* 193(4): 431–477 (doi: 10.1093/botlinnean/boaa027).

Usta-Gorgun, B. and Yilmaz-Ersan, L. 2020. Short-chain fatty acids production by *Bifidobacterium* species in the presence of salep. *Electronic Journal of Biotechnology* 47: 29–35 (doi: 10.1016/j.ejbt.2020.06.004).

Wu, L. S., Dong, W. G., Si, J. P., Liu, J. J., and Zhu, Y. Q. 2020. Endophytic fungi, host genotype, and their interaction influence the growth and production of key chemical components of *Dendrobium catenatum*. *Fungal Biology* 124(10): 864–876 (doi: 10.1016/j.funbio.2020.07.002).

Yang, Y. J., Tan, S. L., Huang, J. L., Zhang, S. B., and Huang, W. 2020. The water-water cycle facilitates photosynthetic regulation under fluctuating light in the epiphytic orchid *Dendrobium officinale*. *Environmental and Experimental Botany* 180: art. 104238 (doi: 10.1016/j.envexpbot.2020.104238).

Yang, Y. J., Tan, S. L., Sun, H., Huang, J. L., Huang, W., and Zhang, S. B. 2021. Photosystem I is tolerant to fluctuating light under moderate heat stress in two orchids *Dendrobium officinale* and *Bletilla striata*. *Plant Science* 303: art. 110795 (doi: 10.1016/j.plantsci.2020.110795).

Yeow, L. C., Chew, B. L., and Sreeramanan, S. 2020. Elevation of secondary metabolites production through light-emitting diodes (LEDs) illumination in protocorm-like bodies (PLBs) of *Dendrobium* hybrid orchid rich in phytochemicals with therapeutic effects. *Biotechnology Reports* 27: art. e00497 (doi: 10.1016/j.btre.2020.e00497).

Zhang, Y., Ji, S., Jian, N., Zhang, K., He, X., and Duan, H. 2020. Caudicles in vandoid orchids: A carotenoid-based soft material with unique properties. *Acta Biomaterialia* 113: 478–487 (doi: 10.1016/j.actbio.2020.07.005).

Pollination, population genetics, and seed dispersal

Ackerman, J. D., Tremblay, R. L., Pérez, M. E., Madden, H., Bechtold, M., and Boeken, M. 2020. Small populations on small islands: What chance does an orchid have? *International Journal of Plant Sciences* 181(7): 667–685 (doi: 10.1086/709399) [*Brassavola cucullata*].

Aguiar, J. M. R. B. V., Ferreira, G. D. S., Sanches, P. A., Bento, J. M. S., and Sazima, M. 2021. What pollinators see does not match what they smell: Absence of color-fragrance association in the deceptive orchid *Ionopsis utricularioides*. *Phytochemistry* 182: art. 112591 (doi: 10.1016/j.phytochem.2020.112591).

Aguiar, J. M. R. B. V., Giurfa, M., and Sazima, M. 2020. A cognitive analysis of deceptive pollination: associative mechanisms underlying pollinators' choices in non-rewarding colour polymorphic scenarios. *Scientific Reports* 10(1): art. 9476 (doi: 10.1038/s41598-020-66356-4) [*Ionopsis utricularioides*].

Aguiar, J. M. R. B. V., Maciel, A. A., Santana, P. C., Telles, F. J., Bergamo, P. J., Oliveira, P. E., and Brito, V. L. G. 2020. Intrafloral color modularity in a bee-pollinated orchid. *Frontiers in Plant Science* 11: art. 589300 (doi: 10.3389/fpls.2020.589300) [*Cattleya walkeriana*].

Ambroise, V., Esposito, F., Scopece, G., and Tyteca, D. 2020. Can phenotypic selection on floral traits explain the presence of enigmatic intermediate individuals in sympatric populations of *Platanthera bifolia* and *P. chlorantha* (Orchidaceae)? *Plant Species Biology* 35(1): 59–71 (doi: 10.1111/1442-1984.12257).

Biederman, L. A., Weldon, S. M., Anderson, D. S., and Leoschke, M. J. 2020. Precipitation contributes to plant height, but not reproductive effort, for western prairie fringed orchid (*Platanthera praeclara* Sheviak & Bowles): Evidence from herbarium records. *Ecology and Evolution* 10(17): 9532–9537 (doi: 10.1002/ece3.6647).

Bohman, B., Tan, M. M. Y., Phillips, R. D., Scaffidi, A., Sobolev, A. N., Moggach, S. A., Flematti, G. R., and Peakall, R. 2020. A specific blend of drakolide and hydroxymethylpyrazines: An unusual pollinator sexual attractant used by the endangered orchid *Drakaea micrantha*. *Angewandte Chemie—International Edition* 59(3): 1124–1128 (doi: 10.1002/anie.201911636).

- Bohman, B., Weinstein, A. M., Mozuraitis, R., Flematti, G. R., and Borg-Karlson, A. K. 2020. Identification of (Z)-8-heptadecene and n-pentadecane as electrophysiologically active compounds in *Ophrys insectifera* and its *Argogorytes* pollinator. *International Journal of Molecular Sciences* 21(2): art. 620 (doi: 10.3390/ijms21020620).
- Borràs, J. and Cursach, J. 2021. Female and male fitness of a sexually deceptive orchid with a narrow distribution area: from phenotypic traits to spatial distribution patterns. *Plant Biology* 23(1): 130–139 (doi: 10.1111/plb.13184) [*Ophrys balearica*].
- Brunton Martin, A. L., O'Hanlon, J. C., and Gaskett, A. C. 2020. Orchid sexual deceit affects pollinator sperm transfer. *Functional Ecology* 34(7): 1336–1344 (doi: 10.1111/1365-2435.13551) [*Cryptostylis*].
- Capó, M., Cursach, J., and Rita, J. 2020. Disentangling the pollination system of the food-deceptive orchid *Anacamptis longicornu* (Orchidaceae): from breeding system to spatio-temporal variation in reproductive success. *Plant Biosystems* 154(3): 306–315 (doi: 10.1080/11263504.2019.1610110).
- Chapurlat, E., Le Roncé, I., Ågren, J., and Sletvold, N. 2020. Divergent selection on flowering phenology but not on floral morphology between two closely related orchids. *Ecology and Evolution* 10(12): 5737–5747 (doi: 10.1002/ece3.6312) [*Gymnadenia conopsea*, *G. densiflora*].
- Danaher, M. W., Ward, C., Zettler, L. W., and Covell, C. V. 2019. Pollinia removal and suspected pollination of the endangered ghost orchid, *Dendrophylax lindenii* (Orchidaceae) by various hawk moths (Lepidoptera: Sphingidae): Another mystery dispelled. *Florida Entomologist* 102(4): 671–683 (doi: 10.1653/024.102.0401).
- Dangat, B. T. and Gurav, R. V. 2020. Pollination studies in the genus *Habenaria* Willd. (Orchidaceae) from Western Ghats, India. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 401–421.
- Dormont, L., Fort, T., Bessière, J. M., Proffit, M., Garcia Hidalgo, E., Buatois, B., and Schatz, B. 2020. Sources of floral scent variation in the food-deceptive orchid *Orchis mascula*. *Acta Oecologica* 107: art. 103600 (doi: 10.1016/j.actao.2020.103600).
- Duffy, K. J., Cafasso, D., Ren, M. X., and Cozzolino, S. 2020. High haplotype diversity with fine-scale structure in a recently established population of an endangered orchid. *Plant Species Biology* 35(3): 224–232 (doi: 10.1111/1442-1984.12276) [*Anacamptis robusta*].
- Evans, A., Janssens, S., and Jacquemyn, H. 2020. Impact of climate change on the distribution of four closely related *Orchis* (Orchidaceae) species. *Diversity* 12(8): art. 312 (doi: 10.3390/SU12156283).
- Garcia, J. E., Phillips, R. D., Peter, C. I., and Dyer, A. G. 2020. Changing how biologists view flowers—color as a perception not a trait. *Frontiers in Plant Science* 11: art. 601700 (doi: 10.3389/fpls.2020.601700) [*Eulophia zeyheriana*].

Hattori, M., Tamada, Y., and Itino, T. 2020. The relative importance of diurnal and nocturnal pollinators of *Platanthera hologlottis* Maxim. (Orchidaceae). *Journal of Plant Interactions* 15(1): 106–110 (doi: 10.1080/17429145.2020.1754476).

Jacquemyn, H. and Brys, R. 2020. Lack of strong selection pressures maintains wide variation in floral traits in a food-deceptive orchid. *Annals of Botany* 126(3): 445–453 (doi: 10.1093/aob/mcaa080) [*Orchis purpurea*].

Jiang, H., Kong, J. J., Chen, H. C., Xiang, Z. Y., Zhang, W. P., Han, Z. D., Liao, P. C., and Lee, Y. I. 2020. *Cypripedium subtropicum* (Orchidaceae) employs aphid colony mimicry to attract hoverfly (Syrphidae) pollinators. *New Phytologist* 227(4): 1213–1221 (doi: 10.1111/nph.16623).

Joffard, N., Le Roncé, I., Langlois, A., Renoult, J., Buatois, B., Dormont, L., and Schatz, B. 2020. Floral trait differentiation in *Anacamptis coriophora*: Phenotypic selection on scents, but not on colour. *Journal of Evolutionary Biology* 33(8): 1028–1038 (doi: 10.1111/jeb.13657).

Johnson, S. D., Balducci, M. G., and Shuttleworth, A. 2020. Hawkmoth pollination of the orchid *Habenaria clavata*: Mechanical wing guides, floral scent and electroantennography. *Biological Journal of the Linnean Society* 129(1): 213–226 (doi: 10.1093/biolinnean/blz165).

Kamaladhasan, N., Mohan, R. R., Krishnakutty, N., Indhar, S. R., Soundarajan, N., Saravanan, S., Anbarasan, M. R., and Chandrasekaran, S. 2020. Evolution of organismal female wasp mimics in sexually deceptive orchid genus *Chiloglottis* (Orchidaceae). In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 385–399.

Kamaladhasan, N., Mohan, R. R., Soundarajan, N., Indhar, S. R., Saravanan, S., and Chandrasekaran, S. 2020. Beauty of orchid flowers are not adequate to lure Indian biologists. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 367–384.

Katte, T., Tan, K. H., Su, Z. H., Ono, H., and Nishida, R. 2020. Floral fragrances in two closely related fruit fly orchids, *Bulbophyllum hortorum* and *B. macranthoides* (Orchidaceae): assortments of phenylbutanoids to attract tephritid fruit fly males. *Applied Entomology and Zoology* 55(1): 55–64 (doi: 10.1007/s13355-019-00653-x).

Kirillova, I. A. and Kirillov, D. V. 2020. Reproductive success of *Dactylorhiza incarnata* ssp. *cruenta* (Orchidaceae) on the northern border of its distribution area. *Vestnik Tomskogo Gosudarstvennogo Universiteta, Biologiya* 2020(49): 25–49 (doi: 10.17223/19988591/49/2).

Lahondère, C., Vinauger, C., Okubo, R. P., Wolff, G. H., Chan, J. K., Akbari, O. S., and Riffell, J. A. 2020. The olfactory basis of orchid pollination by mosquitoes. *Proceedings of the National Academy of Sciences of the United States of America* 117(1): 708–716 (doi: 10.1073/pnas.1910589117) [*Platanthera obtusata*].

- Lipinska, M., Archila Morales, F., Gilka, W., Beuk, P. L. T., and Szlachetko, D. L. 2019. First report on effective pollination of *Masdevallia floribunda*, *M. tuerckheimii* and their hybrid (Orchidaceae-Pleurothallidinae) by *Zygothrica* fruit flies (Diptera-Drosophilidae) in Guatemala. *Phyton, Annales Rei Botanicae, Horn* 59: 27–33.
- Liu, Q., Wang, X. L., Finnegan, P. M., and Gao, J. Y. 2020. Reproductive ecology of *Paphiopedilum spicerianum*: Implications for conservation of a critically endangered orchid in China. *Global Ecology and Conservation* 23: art. e01063 (doi: 10.1016/j.gecco.2020.e01063).
- Luo, H., Liang, Y., Xiao, H., Liu, N., Chen, Y., Wang, W., Tang, J., Xiong, D., Yang, B., and Ren, Z. 2020. Deceptive pollination of *Calanthe* by skippers that commonly act as nectar thieves. *Entomological Science* 23(1): 3–9 (doi: 10.1111/ens.12386).
- Maciel, A. A., Cardoso, J. C. F., and Oliveira, P. E. 2020. On the low reproductive success of two *Cyrtopodium* species (Orchidaceae: Cyrtopodiinae): The relative roles of biotic and abiotic pollination. *Plant Species Biology* 35(1): 49–58 (doi: 10.1111/1442-1984.12260).
- Noh, S. W., Park, J. K., Yu, J. S., Nam, D. E., Do, Y., and Chung, K. W. 2020. Genetic diversity and population structure of the spring orchid *Cymbidium goeringii* in Korean distant islands. *Diversity* 12(12): art. 486 (doi: 10.3390/d12120486).
- Nurfadilah, S. 2020. Population structure of *Geodorum densiflorum* (Orchidaceae) in relation to habitat disturbance and vegetation characteristics. *Biodiversitas* 21(4): 1422–1431 (doi: 10.13057/biodiv/d210421).
- Ogawa, Y. and Miyake, T. 2020. How do rewardless *Bletilla striata* flowers attract pollinators to achieve pollination? *Plant Systematics and Evolution* 306(5): art. 78 (doi: 10.1007/s00606-020-01709-0).
- Ong, P. T. and Chen, C.-M. 2019. Notes on the pollination of *Coelogyne pulverula* Teijsm. & Binn. in Peninsular Malaysia. *Malayan Orchid Review* 53: 77–79.
- Parr, S. C. 2019. *Tipularia discolor*—The undercover orchid. *Orchids, the Bulletin of the American Orchid Society* 88(11): 846–849.
- Paulus, H. F. 2020. Zur Bestäubungsbiologie und Taxonomie einiger Arten aus der *Ophrys fusca-lutea*-Gruppe in Sizilien. *Journal Europäischer Orchideen* 52(2–4): 355–413.
- Phillips, R. D. and Batley, M. 2020. Evidence for a food-deceptive pollination system using *Hylaeus* bees in *Caladenia hildae* (Orchidaceae). *Australian Journal of Botany* 68(2): 146–152 (doi: 10.1071/BT20002).
- Phillips, R. D., Bohman, B., Brown, G. R., Tomlinson, S., and Peakall, R. 2020. A specialised pollination system using nectar-seeking thynnine wasps in *Caladenia nobilis* (Orchidaceae). *Plant Biology* 22(2): 157–166 (doi: 10.1111/plb.13069).

Raguso, R. A. 2020. Don't forget the flies: dipteran diversity and its consequences for floral ecology and evolution. *Applied Entomology and Zoology* 55: art. 1 (doi: 10.1007/s13355-020-00668-9).

Rempicci, M. and Buono, S. 2020. Accidental autogamy in *Ophrys sphegodes* subsp. *sphogodes*. *Journal Europäischer Orchideen* 52(2–4): 349–354.

Scaccabarozzi, D., Galimberti, A., Dixon, K. W., and Cozzolino, S. 2020. Rotating arrays of orchid flowers: A simple and effective method for studying pollination in food deceptive plants. *Diversity* 12(8): art. 286 (doi: 10.3390/D12080286) [*Diuris brumalis*].

Scaccabarozzi, D., Guzzetti, L., Phillips, R. D., Milne, L., Tommasi, N., Cozzolino, S., and Dixon, K. W. 2020. Ecological factors driving pollination success in an orchid that mimics a range of Fabaceae. *Botanical Journal of the Linnean Society* 194(2): 253–269 (doi: 10.1093/botlinnean/boaa039) [*Diuris magnifica*].

Schallhardt, H. 2020. Erstmalige Beobachtung von *Macroglossum stellatarum* als Bestäuber von *Platanthera chlorantha* (Custer) Rchb. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(1): 111–115.

Schatz, B., Genoud, D., Claessens, J., and Kleynen, J. 2020. Orchid-pollinator network in Euro-Mediterranean region: What we know, what we think we know, and what remains to be done. *Acta Oecologica* 107: art. 103605 (doi: 10.1016/j.actao.2020.103605).

Schubert, R., Brugger, M., Kühnel, S., Hohlfeld, H., and Heidger, C. M. 2020. Analyses of sexual reproductive traits in *Dactylorhiza majalis*: a case study from East Germany. *Biologia* 75(4): 507–521 (doi: 10.2478/s11756-020-00423-z).

Scopece, G., Palma-Silva, C., Cafasso, D., Lexer, C., and Cozzolino, S. 2020. Phenotypic expression of floral traits in hybrid zones provides insights into their genetic architecture. *New Phytologist* 227(3): 967–975 (doi: 10.1111/nph.16566) [*Anacamptis, Orchis*].

Shefferson, R. P., Jacquemyn, H., Kull, T., and Hutchings, M. J. 2020. The demography of terrestrial orchids: Life history, population dynamics and conservation. *Botanical Journal of the Linnean Society* 192(2): 315–332 (doi: 10.1093/botlinnean/boz084).

Shigeta, K. and Suetsugu, K. 2020. Correction to: Contribution of thrips to seed production in *Habenaria radiata*, an orchid morphologically adapted to hawkmoths (Journal of Plant Research, (2020), 133, 4, (499-506), 10.1007/s10265-020-01205-z). *Journal of Plant Research* 133(4): 507–508 (doi: 10.1007/s10265-020-01208-w).

Shrestha, M., Dyer, A. G., Dorin, A., Ren, Z. X., and Burd, M. 2020. Rewardlessness in orchids: how frequent and how rewardless? *Plant Biology* 22(4): 555–561 (doi: 10.1111/plb.13113).

- Söderquist, L., Broberg, A., Rosenberg, V., and Sletvold, N. 2020. Predicting heterosis and inbreeding depression from population size and density to inform management efforts. *Journal of Applied Ecology* 57(8): 1459–1468 (doi: 10.1111/1365-2664.13643) [*Gymnadenia conopsea*].
- Son, H. D., Yun, S. A., Kim, S. C., and Im, H. T. 2020. Hydrocarbon patterns in *Cleisostoma scolopendrifolium* (Orchidaceae) as a key mechanism for pollination. *Korean Journal of Plant Taxonomy* 50(2): 148–153 (doi: 10.11110/kjpt.2020.50.2.148).
- Štípková, Z., Tsiftsis, S., and Kindlmann, P. 2020. Pollination mechanisms are driving orchid distribution in space. *Scientific Reports* 10(1): art. 850 (doi: 10.1038/s41598-020-57871-5) [Czech Republic].
- Suetsugu, K. 2020. Gynomonoeicy in a mycoheterotrophic orchid *Eulophia zollingeri* with autonomous selfing hermaphroditic flowers and putatively outcrossing female flowers. *PeerJ* 8: art. 10272 (doi: 10.7717/peerj.10272).
- Suwankitti, W., Wankaew, S., La-Ongdet, B., Peyachoknagul, S., Homchan, S., Kongbangkerd, A., and Nakkuntod, M. 2020. Population analysis of *Epipactis flava* Seidenf. in Thailand using SRAP and RAPD markers. *Songklanakarinn Journal of Science and Technology* 42(5): 1065–1070.
- Tan, K. H. 2020. Recaptures of feral *Bactrocera dorsalis* and *B. umbrosa* (Diptera: Tephritidae) males after feeding on methyl eugenol. *Bulletin of Entomological Research* 110(1): 15–21 (doi: 10.1017/S0007485319000208) [*Bulbophyllum*].
- Travers, S. E., Anderson, K., Harris, M. O., and Vitt, P. 2020. Correction: Breeding system and inbreeding depression in the rare orchid, *Platanthera praeclara*, in a fragmented grassland landscape (Botany, (2018) 96, 3, (151–159), 10.1139/cjb-2017-0104). *Botany* 98(6): 341 (doi: 10.1139/cjb-2018-0186).
- Trunschke, J., Sletvold, N., and Ågren, J. 2020. Manipulation of trait expression and pollination regime reveals the adaptive significance of spur length. *Evolution* 74(3): 597–609 (doi: 10.1111/evo.13927) [*Platanthera bifolia*].
- Tsiftsis, S. 2020. The complex effect of heterogeneity and isolation in determining alpha and beta orchid diversity on islands in the Aegean archipelago. *Systematics and Biodiversity* 18(3): 281–294 (doi: 10.1080/14772000.2020.1738584).
- Tsiftsis, S. and Djordjević, V. 2020. Modelling sexually deceptive orchid species distributions under future climates: the importance of plant–pollinator interactions. *Scientific Reports* 10(1): art. 10623 (doi: 10.1038/s41598-020-67491-8) [*Ophrys argolica*, *O. delphinensis*].
- Wakamura, S., Arakaki, N., Moriyama, D., Kanayama, S., Oike, M., Kimura, A., Wajima, S., Ono, H., and Yasui, H. 2020. Does the orchid *Luisia teres* attract its male chafer pollinators (Scarabaeidae: *Protaetia pryeri pryeri*) by sexual deception? *Chemoecology* 30(2): 49–57 (doi: 10.1007/s00049-019-00297-x).

Wu, Y., Duan, X. Y., Xiang, Y., Weng, S. B., Zhong, J. Y., Li, J., and Li, Q. J. 2020. Pollinator-dependent evolution of floral trait combinations in an orchid herb. *Journal of Plant Ecology* 13(4): 450–459 (doi: 10.1093/jpe/rtaa033) [*Spiranthes sinensis*].

Xiong, Y. Z., Jia, L. B., Liu, C. Q., and Huang, S. Q. 2020. Effective pollinia transfer by settling moths' legs in an orchid *Habenaria aitchisonii*. *Journal of Systematics and Evolution* 58(2): 174–181 (doi: 10.1111/jse.12485).

Yun, S. A., Son, H. D., Im, H. T., and Kim, S. C. 2020. Genetic diversity and population structure of the endangered orchid *Pelatantheria scolopendrifolia* (Orchidaceae) in Korea. *PLoS ONE* 15(8 August): art. e0237546 (doi: 10.1371/journal.pone.0237546).

Zhang, Z., Cui, X., Zhou, J., Huang, C., Deng, J., Tang, X., and Luo, S. 2021. Pollination of the orchid *Habenaria rhodocheila* by the swallowtail butterfly *Papilio helenus* in subtropical evergreen broad-leaved forests in southern China. *Flora: Morphology, Distribution, Functional Ecology of Plants* 274: art. 151736 (doi: 10.1016/j.flora.2020.151736).

Systematics and distribution

AFRICA (excluding NORTH AFRICA, including the southern part of the ARABIAN PENINSULA)

Botes, C., van der Niet, T., Cowling, R. M., and Johnson, S. D. 2020. Is biodiversity underestimated by classical herbarium-based taxonomy? A multi-disciplinary case study in *Satyrium* (Orchidaceae). *Botanical Journal of the Linnean Society* 194(3): 342–357 (doi: 10.1093/botlinnean/boaa041).

Farminhão, J. N. M. and Cribb, P. J. 2020. Two new species of *Rhipidoglossum* (Orchidaceae: Angraecinae) from Tanzania and Zimbabwe. *Kew Bulletin* 75(2): art. 30 (doi: 10.1007/s12225-020-09888-2).

Farminhão, J. N. M., D'Hajjère, T., Droissart, V., Isonga, L. D., Dong, L., Verlynde, S., Plunkett, G. M., Simo-Droissart, M., and Stévar, T. 2020. An elegy to *Rangaeris*, including a description of two new genera in the *Cyrtorchis-Tridactyle* clade (Orchidaceae, Angraecinae). *Annals of the Missouri Botanical Garden* 105(3): 300–322 (doi: 10.3417/2020472).

Fibeck, W. and Phiri, V. 2020. *Polystachya dendrobiiiflora* Rchb.f.—Das Fleißige Lieschen unter den Polystachyen. *Die Orchidee* 71(3): 224–230.

Hermans, J. 2020. *Cynorkis prehsleri*: A new orchid from northern Madagascar; Orchidaceae. *Curtis's Botanical Magazine* 37(3): 376–384 (doi: 10.1111/curt.12352).

Hermans, J. 2020. *Gastrodia agnicellus*: A new holomycotrophic orchid from southeast Madagascar Orchidaceae. *Curtis's Botanical Magazine* 37(3): 385–395 (doi: 10.1111/curt.12354).

Hermans, J., Rajaovelona, L., Cribb, P., Hervouet, J.-M., Sieder, A., and Andriantiana, J. 2020. New species and nomenclatural changes in *Cynorkis* (Orchidaceae) from Madagascar, the Comoros and the Mascarenes. *Kew Bulletin* 75(4): art. 50 (doi: 10.1007/s12225-020-09904-5).

Hermans, J., Verlynde, S., Cribb, P., Ramandimbisoa, B., Hervouet, J.-M., and Bernet, P. 2020. Malaxideae (Orchidaceae) in Madagascar, the Mascarenes, Seychelles and Comoro Islands. *Kew Bulletin* 75: art. 3 (doi: 10.1007/s12225-020-09885-5).

Hermans, J., Verlynde, S., Cribb, P., Ramandimbisoa, B., Hervouet, J.-M., and Bernet, P. 2020. Correction to: Malaxideae (Orchidaceae) in Madagascar, the Mascarenes, Seychelles and Comoro Islands. *Kew Bulletin* 75(2): art. 27 (doi: 10.1007/s12225-020-09885-5).

Hermans, J., Verlynde, S., Rajaovelona, L., Cribb, P., and Hervouet, J.-M. 2020. New species and nomenclatural changes in *Angraecum* (Orchidaceae) from Madagascar. *Kew Bulletin* 75(4): art. 49 (doi: 10.1007/s12225-020-09902-7).

Le Péchon, T. and Bytebier, B. 2020. Proposal to conserve *Holothrix*, nom. cons. against the additional name *Bartholina* (Orchidaceae: Orchidoideae). *Taxon* 68(5): 1120 (doi: 10.1002/tax.12144).

Le Péchon, T., Johnson, S. D., and Bytebier, B. 2020. The spider orchid trapped in its molecular web: Phylogeny and morphological evolution of the orchid genera *Bartholina* and *Holothrix* (Orchidaceae: Orchidoideae). *Taxon* 68(5): 893–904 (doi: 10.1002/tax.12134).

Ngugi, G., Le Péchon, T., Martos, F., Pailler, T., Bellstedt, D. U., and Bytebier, B. 2020. Phylogenetic relationships amongst the African genera of subtribe Orchidinae s.l. (Orchidaceae; Orchidoideae): Implications for subtribal and generic delimitations. *Molecular Phylogenetics and Evolution* 153: art. 106946 (doi: 10.1016/j.ympev.2020.106946).

Pailler, T., Rakotoarivelo, F. P., Razafimandimbison, S. G., Bytebier, B., Florens, F. B. V., Martos, F., and Baider, C. 2020. Taxonomic revision of *Jumellea* (Orchidaceae, Angraecinae) in the Mascarenes. *Phytotaxa* 477(1): 1–34 (doi: 10.11646/phytotaxa.477.1.1).

Pailler, T., Verlynde, S., Bytebier, B., Florens, F. B. V., and Baider, C. 2020. Revision of *Angraecum* sect. *Perrierangraecum* (Orchidaceae; Epidendroideae; Vandeeae) for the Mascarenes, with a description of a new endemic species for Mauritius. *Phytotaxa* 442(3): 185–195 (doi: 10.11646/phytotaxa.442.3.4).

Phillips, D. P. and Bytebier, B. 2020. A taxonomic revision of *Stenoglottis* (Orchidoideae, Orchidaceae). *Phytotaxa* 456(3): 219–243 (doi: 10.11646/phytotaxa.456.3.1).

Phillips, D. P. and Bytebier, B. 2020. A morphometric and molecular phylogenetic analysis of the African orchid genus *Stenoglottis* (Orchidaceae: Orchidoideae). *Botanical Journal of the Linnean Society* 193(3): 340–362 (doi: 10.1093/botlinnean/boaa018).

Rajaovelona, L., Kompalli, B., and Cribb, P. 2020. *Angraecum longicalcar*: Orchidaceae. *Curtis's Botanical Magazine* 37(3): 260–270 (doi: 10.1111/curt.12340).

AMERICA

Abarca, L. V.-., Jiménez, M. M., and Baquero, L. E. 2020. *Octomeria candidae* (Orchidaceae: Pleurothallidinae), a new species from the Cordillera del Cóndor, Ecuador. *Lankesteriana* 20(3): 345–351 (doi: 10.15517/lank.v20i3.45095).

Archila Morales, F. and Chiron, G. 2020. *Stanhopea* (Orchidaceae), its diversity in Guatemala, and a new species. *Richardiana, nouv. sér.* 4: 157–171.

Archila Morales, F., Chiron, G., and Tribouillier Navas, E. 2020. *Warrea rubroglossa* (Orchidaceae), a new very showy geophyte. *Richardiana, nouv. sér.* 4: 172–178 [Guatemala].

Baltazar, S. and Solano, R. 2020. Diversity and functional traits of terrestrial orchids in forest of a protected natural area of northeastern Mexico. *Botanical Sciences* 98(4): 468–485 (doi: 10.17129/botsoci.2600).

Baquero, L. E., Donoso T., J. J., and Jiménez, M. M. 2020. A new gold-colored *Lepanthes* (Pleurothallidinae: Orchidaceae) from southeast Ecuador. *Lankesteriana* 20(2): 257–262 (doi: 10.15517/lank.v20i2.43556).

Baquero, L. E., Minda, A. F., and Yeager, J. 2020. A new species of Pleurothallidinae (Orchidaceae) from the south-east of Ecuador. *Lankesteriana* 20(2): 129–136 (doi: 10.15517/lank.v20i2.41722) [*Porroglossum*].

Baquero, L. E. and Monteros, M. F. 2020. A new tall and exceptional species of *Lepanthes* from north-west Ecuador (Orchidaceae: Pleurothallidinae). *Lankesteriana* 20(3): 331–338 (doi: 10.15517/lank.v20i3.44602).

Barberena, F. F. V. A., da Costa, D. L. L., and Rocha Junior, J. A. L. 2020. Re-discovery of *Catasetum mojuense* (Orchidaceae: Catasetinae), a poorly-known Amazonian species. *Neotropical Biology and Conservation* 15(4): 447–452 (doi: 10.3897/neotropical.15.e54142).

Bogarín, D. 2020. A new species of *Eurystyles* (Orchidaceae: Spiranthinae) from Costa Rica. *Blumea* 65(1): 65–68 (doi: 10.3767/blumea.2020.65.01.07).

Bogarín, D., Chinchilla, I. F., and Cedeño-Fonseca, M. 2020. Two new species of *Lepanthes* (Orchidaceae: Pleurothallidinae) from Costa Rica and their phylogenetic affinity. *Plant Systematics and Evolution* 306(2): art. 20 (doi: 10.1007/s00606-020-01653-z).

- Buzatto, C. R., Singer, R. B., Van den Berg, C., de Souza, É. R., and Mota, B. M. 2020. *Capanemia* (Oncidiinae): an orchid genus revised and simplified. *Plant Systematics and Evolution* 306(2): art. 25 (doi: 10.1007/s00606-020-01632-4).
- Castro Neto, V. P., da Luz Fernandes Menezes, E., and Speckmaier, M. 2020. Zwei neue *Pseudolaelia*-Arten aus der Region um Diamantina, Minas Gerais, Brasilien. *Die Orchidee* 71(2): 142–151.
- Cetzal-Ix, W., Carnevali, G., Jiménez-Machorro, R., and Pérez-García, E. A. 2020. *Laelia* × *meavei*: A new natural hybrid between *L. dawsonii* fo. *dawsonii* and *L. rubescens* fo. *peduncularis* (Orchidaceae: Laeliinae) from Oaxaca, Mexico. *Phytotaxa* 446(2): 81–94 (doi: 10.11646/phytotaxa.446.2.1).
- Chinchilla, I. F., Aguilar, R., and Bogarín, D. 2020. A new *Lepanthes* (Orchidaceae: Pleurothallidinae) from Península de Osa, Puntarenas, Costa Rica. *Harvard Papers in Botany* 25(2): 215–219 (doi: 10.3100/hpib.v25iss2.2020.n9).
- da Silva, H. L., Calazans, L. S. B., Valadares, R. T., and Dutra, V. F. 2020. First natural report of *Pabstiella teschiana* Chiron & Xim.Bols. (Orchidaceae) from the Brazilian Atlantic Rainforest: notes on morphology, ecology and conservation. *Brazilian Journal of Botany* 43(3): 551–554 (doi: 10.1007/s40415-020-00617-4).
- Dalström, S. 2020. New combinations in *Cyrtochilum* (Orchidaceae: Oncidiinae). *Lankesteriana* 20(1): 21–29 (doi: 10.15517/LANK.V20I1.41110).
- Dalström, S. and Castro, C. 2020. A new unusual-looking *Cyrtochilum* (Orchidaceae) from Sierra Nevada de Santa Marta in Colombia. *Lankesteriana* 20(2): 249–255 (doi: 10.15517/lank.v20i2.43555).
- Dalström, S. and Higgins, W. 2020. A new small-flowered *Cyrtochilum* (Orchidaceae: Oncidiinae) from the Condor mountains in Ecuador. *Lankesteriana* 20(2): 159–166 (doi: 10.15517/lank.v20i2.42396).
- Dalström, S. and Trujillo, D. 2020. A new golden yellow small-flowered *Cyrtochilum* species (Orchidaceae: Oncidiinae) from Peru. *Lankesteriana* 20(1): 15–19 (doi: 10.15517/LANK.V20I1.41097).
- Damián, A. and Mitidieri, N. 2020. Living in the clouds: A new high-elevation species of *Vanilla* (Orchidaceae, Vanilloideae) from Perú. *Phytotaxa* 451(2): 154–160 (doi: 10.11646/phytotaxa.451.2.5).
- Damián, A., Salazar, G. A., Mitidieri, N., and Altamirano, S. 2020. A new species and first record of the genus *Solenocentrum* (Orchidaceae: Cranichidinae) from Peru. *Lankesteriana* 20(3): 339–344 (doi: 10.15517/lank.v20i3.45012).
- Damián, A., Salazar, G. A., and Rimarachín, L. 2020. A new species and a new record of *Liparis* sect. *Decumbentes* (Malaxidinae, Orchidaceae) from Peru. *PhytoKeys* 146: 37–46 (doi: 10.3897/phytokeys.146.47229).

Díaz-Morales, M. and Pupulin, F. 2019. The New Refugium Botanicum—*Phragmipedium* × *talamancanum*. *Orchids, the Bulletin of the American Orchid Society* 88(12): 896–899.

Díaz-Morales, M. and Pupulin, F. 2019. The strange case of *Phragmipedium* × *talamancanum*—An international story of conservation and taxonomy. *Orchids, the Bulletin of the American Orchid Society* 88(12): 906–915.

dos Santos, I. S. and da Silva, M. J. 2019. New record of *Scaphyglottis livida* (Lindl.) Schltr. (Orchidaceae, Epidendroideae) in Goiás, and a key to *Scaphyglottis* species in the central-west region of Brazil. *Check List* 16(1): 9–15 (doi: 10.15560/16.1.9).

dos Santos, I. S. and Silva, M. J. 2020. *Epidendrum* L. (Orchidaceae, Epidendroideae) no Parque Nacional da Chapada dos Veadeiros, Estado de Goiás, Brasil. *Hoehnea* 47: art. e202020 (doi: 10.1590/2236-8906-20/2020).

Engels, M. E., Dias, D. C., and Koch, A. K. 2020. Increased morphological variation and a new record of *Vanilla labellopapillata* (Orchidaceae) from the Mato Grosso State, Brazil. *Phytotaxa* 472(1): 063–068 (doi: 10.11646/phytotaxa.472.1.8).

Engels, M. E., Ferneda Rocha, L. C., and de Camargo Smidt, E. 2020. A new species of *Mormodes* (Orchidaceae: Catasetinae) from southern Amazon, Brazil. *Brazilian Journal of Botany* 43(3): 555–561 (doi: 10.1007/s40415-020-00632-5).

Engels, M. E., Ferneda Rocha, L. C., Koch, A. K., and Gerlach, G. 2020. O gênero *Gongora* (Orchidaceae, Stanhopeinae) no estado de Mato Grosso, Brasil | The genus *Gongora* (Orchidaceae, Stanhopeinae) from state of Mato Grosso, Brazil. *Rodriguésia* 71: art. e03132018 (doi: 10.1590/2175-7860202071068).

Engels, M. E., Ferneda Rocha, L. C., and de Camargo Smidt, E. 2020. A new species of *Mormodes* (Orchidaceae: Catasetinae) from southern Amazon, Brazil. *Revista Brasileira de Botânica* 43(3): 555–561 (doi: 10.1007/s40415-020-00632-5).

Faria dos Santos, T., Toscano de Brito, A. L. V., and de Camargo Smidt, E. 2020. *Octomeria* (Orchidaceae: Pleurothallidinae) no estado do Paraná, Brasil | *Octomeria* (Orchidaceae: Pleurothallidinae) in Paraná state, Brazil. *Rodriguésia* 71: art. e00752018 (doi: 10.1590/2175-7860202071026).

Ferreira Filho, R. L. and Barberena, F. F. V. A. 2020. *Palmorchis triquilhada* sp. nov. (Orchidaceae; Neottieae) from the Brazilian Amazon. *Nordic Journal of Botany* 38(8): art. Njb12432 (doi: 10.1111/njb.02740).

Gerlach, G. and Pupulin, F. 2020. Stanhopeinae Mesoamericanae VI. On the identity of *Polycycnis barbata* (Orchidaceae), and other notes on the genus *Polycycnis*. *Phytotaxa* 432(2): 155–170 (doi: 10.11646/phytotaxa.432.2.5).

- Grajeda–Estrada, R., Rustrían–López, J. P., Serrano, M. J., Villalobos–Soberanis, A., Maldonado, M. L., Dix, M. R., and Álvarez–Ruano, M. A. 2020. The elusive *Sobralia amabilis* (Orchidaceae): a range extension of its distribution to Alta Verapaz, Guatemala, with notes on its habitat. *Lankesteriana* 20(1): 1–6 (doi: 10.15517/LANK.V20I1.40754).
- Hágsater, E. and Krahl, A. H. 2020. *Epidendrum deditae*, a new species of Orchidaceae (Laeliinae) from northern Brazil. *Phytotaxa* 440(3): 225–231 (doi: 10.11646/phytotaxa.440.3.4).
- Hágsater, E. and Santiago, E. (eds.). 2020. The genus *Epidendrum* Part 13—Species new & old in *Epidendrum*. *Icones Orchidacearum* 17(2) [published on the internet: https://herbarioamo.org/index_archivos/Fascicle17_2.pdf].
- Hágsater, E. and Santiago, E. (eds.). 2020. The genus *Epidendrum* Part 14—Species new & old in *Epidendrum*. *Icones Orchidacearum* 18(1) [published on the internet: https://herbarioamo.org/index_archivos/Fascicle18_1.pdf].
- Hágsater, E. and Wrazidlo, M. 2020. *Epidendrum katarun-yariku* (Orchidaceae), a new species of the *Schistochilum* group from the tepuis of the Guiana Highlands in South America. *Phytotaxa* 472(1): 033–040 (doi: 10.11646/phytotaxa.472.1.4).
- Jiménez, M. M., Ocupa Horna, L., and Vélez-Abarca, L. 2020. *Compartmentia bennettii* (Orchidaceae: Oncidiinae), a new record for Ecuador. *Lankesteriana* 20(3): 353–357 (doi: 10.15517/lank.v20i3.45130).
- Karremans, A., Salguero, G., Bogarín, D., Osés, L., and Cedeño-Fonseca, M. 2020. Illustrations and studies in Neotropical Orchidaceae: the *Specklinia brighamii* group (Pleurothallidinae) in Costa Rica. *Phytotaxa* 447(1): 16–30 (doi: 10.11646/phytotaxa.447.1.2).
- Karremans, A. P., Chinchilla, I. F., Rojas-Alvarado, G., Cedeño-Fonseca, M., Damián, A., and Léotards, G. 2020. A reappraisal of Neotropical *Vanilla*. With a note on taxonomic inflation and the importance of alpha taxonomy in biological studies. *Lankesteriana* 20(3): 396–497 (doi: 10.15517/lank.v20i3.45203).
- Karremans, A. P. and Vieira Uribe, S. (eds.). 2020. *Icones Colombianae* 4 [*Andinia*, *Caucaea*, *Dichaea*, *Elleanthus*, *Epidendrum*, *Ida*, *Lepanthes*, *Masdevallia*, *Ornithocephalus*, *Prosthechea*]; published on the internet: <https://www.speciesorchidacearum.org/wp-content/uploads/2020/05/Species-Orchidacearum-4-Icones-Colombianae-4-1.pdf>].
- Kolanowska, M., Nowak, S., and Szlachetko, D. L. 2019. A new species of *Heteranthocidium* (Orchidaceae) from Ecuador. *Phyton, Annales Rei Botanicae, Horn* 59: 43–48.
- Kolanowska, M., Rykaczewski, M., and Szlachetko, D. L. 2020. *Pleurothallopsis renziana* (Orchidaceae), a new species from Venezuelan Andes. *Annales Botanici Fennici* 57(4–6): 351–355 (doi: 10.5735/085.057.0418).

Kolanowska, M. and Szlachetko, D. L. 2020. *Acianthera lueri*, a new orchid species from the Peruvian Amazon region. *Systematic Botany* 45(1): 6–10 (doi: 10.1600/036364420X15801369352252).

Kolanowska, M. and Szlachetko, D. L. 2020. *Cranichis crenatifolia* (Orchidaceae), a new species from Valle de Sibundoy, Colombia. *Annales Botanici Fennici* 57(1–3): 61–65 (doi: 10.5735/085.057.0108).

Kolanowska, M. and Szlachetko, D. L. 2020. *Lepanthopsis undulata* (Orchidaceae), a new species from Colombia. *Annales Botanici Fennici* 57(1–3): 139–142 (doi: 10.5735/085.057.0119).

Martel, C., Edquen, J., Collantes, B., and Ocupa, L. 2020. *Telipogon chachapoyensis* (Orchidaceae), a new species from Peru similar to *T. microglossus*. *Systematic Botany* 45(2): 227–232 (doi: 10.1600/036364420X15862837791285).

Martín, C. M., Zanotti, C. A., and Scrocchi, G. J. 2020. *Aa* (Orchidaceae) of southern central Andes: Taxonomy, nomenclature, and a new species with dark flowers. *Systematic Botany* 45(4): 760–766 (doi: 10.1600/036364420X16033962925178).

Medina, H., Portilla, J., and Hirtz, A. 2019. New Ecuadorian orchids, part 3—A new species of *Caucaea* (Orchidaceae: Oncidiinae) from southwestern Ecuador. *Orchids, the Bulletin of the American Orchid Society* 88(11): 870–873.

Meneguzzo, T. E. C. 2020. New additions to *Gomesa* from old known names (Orchidaceae). *Phytotaxa* 450(1): 55–72 (doi: 10.11646/phytotaxa.450.1.4).

Meneguzzo, T. E. C., Proença, C. E. B., and Prado, J. 2020. Proposal to conserve the name *Oncidium barbaceniae* (*Gomesa barbaceniae*) (Orchidaceae) with a conserved type. *Taxon* 69(2): 403–404 (doi: 10.1002/tax.12220).

Meneguzzo, T. E. C. and Van den Berg, C. 2020. Chimaeras and ghosts: solving a chimaeric specimen and two neglected orchid names. *Willdenowia* 50(1): 139–146 (doi: 10.3372/wi.50.50113) [*Bifrenaria*, *Cleistis*, *Pleurothallis*].

Mó, E., Cetzal-Ix, W., Zacarías-Coxic, C. J., Carnevali, G., and Vega, H. 2020. A new species of *Lophiaris* (Orchidaceae, Oncidiinae) from Quiché, Guatemala, in the *L. straminea* complex. *Phytotaxa* 456(1): 63–74 (doi: 10.11646/phytotaxa.456.1.4).

Monsalvo, M. A., Sánchez, M. I., and Fortunato, R. 2019. Taxonomic novelties in *Myrosmodus* (Orchidaceae) from the northwestern Argentine Andes. *Brittonia* 72(1): 49–56 (doi: 10.1007/s12228-019-09588-7).

Morales, F. A. and Chiron, G. 2020. Taxonomic additions to the genus *Chysis* (Orchidaceae). *Richardiana, nouv. sér.* 4: 112–125.

Morales, F. A. and Chiron, G. R. 2020. Notes on the genus *Trichopilia* (Orchidaceae) in Guatemala with a new species. *Richardiana, nouv. sér.* 4: 71–80.

- Moreira, L. H. L., Neto, R. L. S., and de Vasconcellos Barbosa, M. R. 2020. Flora of the Buraquinho forest, João Pessoa, Paraíba: Orchidaceae | Flora da mata do Buraquinho, João Pessoa, Paraíba: Orchidaceae. *Rodriguésia* 71: art. e00362018 (doi: 10.1590/2175-7860202071036).
- Moreno, J. S., Baquero R., L. E., and Vieira-Uribe, S. 2020. Two new species of *Lepanthes* (Orchidaceae: Pleurothallidinae) from the Anchicayá river valley in Colombia. *Harvard Papers in Botany* 25(1): 99–110 (doi: 10.3100/hpib.v25iss1.2020.n13).
- Moreno, J. S., Pisso-Florez, G. A., and Vieira-Uribe, S. 2020. Discoveries in indigenous territories: two new species of *Lepanthes* (Orchidaceae: Pleurothallidinae) in southwestern Colombia. *Lankesteriana* 20(2): 229–239 (doi: 10.15517/lank.v20i2.43358).
- Navarro Romo, W. C., Quispe-Melgar, H. R., and Hágsater, E. 2020. *Epidendrum curimarcense* (Orchidaceae), a new species from Central Peru. *Lankesteriana* 20(1): 7–13 (doi: 10.15517/LANK.V20I1.40781).
- Navarro-Romo, W. C., Quispe-Melgar, H. R., Nauray-Huari, W., Linares-Perea, E., and Galán de Mera, A. 2020. Types of *Epidendrum antenniferum* Bonpl. and its synonyms (Orchidaceae, Oncidiidae). *Annales Botanici Fennici* 57(1–3): 83–86 (doi: 10.5735/085.057.0111).
- Noguera-Savelli, E. 2020. Systematics of neotropical genus *Brassavola* (Orchidaceae). *Caldasia* 42(2): 188–219 (doi: 10.15446/caldasia.v42n2.68125).
- Ormerod, P. 2019. Neotropical orchid miscellanea 2. *Harvard Papers in Botany* 24(2): 275–278 (doi: 10.3100/hpib.v24iss2.2019.n13) [*Bifrenaria*, *Ida*, *Microchilus*].
- Oses-Salas, L. and Pupulin, F. 2020. The New Refugium Botanicum—*Coryanthes kaiseriana*. *Orchids, the Bulletin of the American Orchid Society* 89(2): 102–104.
- Pace, M. C. 2020. New species of *Microchilus* and *Pelexia* (Orchidaceae) from the Yungas and western Amazonia of Bolivia and Peru. *Brittonia* 72(2): 141–153 (doi: 10.1007/s12228-020-09612-1).
- Pansarin, E. R., Augusto, S. G., and Ferreira, A. W. C. 2020. Resurrection of *Liparis inundata* (Orchidaceae). *Phytotaxa* 441(3): 294–300 (doi: 10.11646/phytotaxa.441.3.6).
- Passos Krahl, D. R., Krahl, A. H., and Chiron, G. 2020. *Catasetum* × *louisiae* (Orchidaceae: Catasetinae), a new natural hybrid for the Brazilian Amazon. *Richardiana, nouv. sér.* 4: 214–223.
- Passos Krahl, D. R., Krahl, A. H., Chiron, G., and Terra-Araújo, M. H. 2020. First record of *Coryanthes mystax* (Orchidaceae) for the Amazonas State, Brazil. *Richardiana, nouv. sér.* 4: 207–213.

Peláez, N., Meyer, G. E., Rendon-Jaramillo, U., Fernández, J. D., López-Álvarez, N., and Mazariegos H., L. A. 2020. *Dracula irmelinae*, a new species in the subtribe Pleurothallidinae (Orchidaceae) from the Western Andes of Colombia. *Lankesteriana* 20(2): 137–149 (doi: 10.15517/lank.v20i2.41823).

Perdomo, O., Coca, L. F., and Trujillo, E. T. 2020. New records of *Epidendrum* (Orchidaceae) for Colombia: *Epidendrum porphyreonocturnum* Hágsater & R. Jiménez and *Epidendrum whittenii* Hágsater & Dodson. *Revista Peruana de Biología* 27(3): 411–416 (doi: 10.15381/rpb.v27i3.17901).

Pérez, L. M., Pessoa, E. M., and Alves, M. 2020. Lista comentada de Orchidaceae en Uruguay y su distribución en ambientes y eco-regiones. *Lankesteriana* 20(3): 359–394 (doi: 10.15517/lank.v20i3.45193).

Pérez-Alva, B. R. and Pérez-Flores, G. A. 2020. New record of *Govenia purpusii* (Orchidaceae) in La Malinche National Park, Tlaxcala, Mexico. *Acta Botanica Mexicana* (127): art. e1667 (doi: 10.2189/abm127.2020.1667).

Pessoa, E. M. 2020. A comprehensive checklist of the Colombian *Campylocentrum* sect. *Campylocentrum* (Orchidaceae, Vandaeae, Angraecinae) with a new species. *Phytotaxa* 454(4): 255–266 (doi: 10.11646/phytotaxa.454.4.3).

Ponert, J., Portilla Andrade, M., Chumová, Z., and Trávníček, P. 2020. A new species of *Andinia* (Pleurothallidinae, Orchidaceae) with unusual bearded flowers from Ecuador. *Phytotaxa* 439(1): 77–84 (doi: 10.11646/phytotaxa.439.1.5).

Pupulin, F. 2019. *Zygopetalinae novae et criticae* (Orchidaceae). *Harvard Papers in Botany* 24(2): 291–339 (doi: 10.3100/hpib.v24iss2.2019.n16).

Pupulin, F., Belfort-Oconitrillo, N., Karremans, A. P., and Bogarín, D. 2020. Florae Costaricensis Subtribui Pleurothallidinis Prodrromus—Systematics of *Echinosepala* (Orchidaceae). *Harvard Papers in Botany* 25(2): 155–190 (doi: 10.3100/hpib.v25iss2.2020.n5).

Pupulin, F. and Karremans, A. P. 2020. A new and unusual species of *Dichaea* (Orchidaceae: Zygopetalinae) from Costa Rica. *Blumea* 65(1): 61–64 (doi: 10.3767/blumea.2020.65.01.06).

Reina-Rodríguez, G. A., Karremans, A. P., López-Machado, F., and Cruz-Salcedo, J. 2020. A new *Stelis* (Orchidaceae: Pleurothallidinae) from the Western Andes of Colombia. *Lankesteriana* 20(2): 151–158 (doi: 10.15517/lank.v20i2.41876).

Reis, M. M. R. and de Camargo Smidt, E. 2019. O gênero *Polystachya* (Orchidaceae, Polystachyinae) no estado do Paraná, Brasil. *Rodriguésia* 70: art. e04492017. 04492019 (doi: 10.1590/2175-7860201970075).

Rincón-González, M. and Escalante, M. F. 2020. *Epidendrum machinense* (Orchidaceae: Laeliinae), a new species from Colombia. *Phytotaxa* 435(1): 033–040 (doi: 10.11646/phytotaxa.435.1.4).

- Rincón-González, M., Sierra-Ariza, M. A., and Karremans, A. P. 2020. A new species of *Acianthera* (Orchidaceae, Pleurothallidinae) from the Cordillera Central of Colombia. *Phytotaxa* 474(1): 093–098 (doi: 10.11646/phytotaxa.474.1.10).
- Rojas-Alvarado, G. and Karremans, A. 2020. Revision of the Costa Rican species of *Myoxanthus* (Pleurothallidinae: Orchidaceae). *Phytotaxa* 448(1): 1–70 (doi: 10.11646/phytotaxa.448.1.1).
- Rysy, W. and Baumbach, N. 2020. *Maxillaria pseudopicta* Rysy et Baumbach spec. nov. *Die Orchidee* 71(3): 188–193.
- Salguero, G. and Pupulin, F. 2019. The New Refugium Botanicum—*Cochleanthes aromatica*. *Orchids, the Bulletin of the American Orchid Society* 88(11): 822–824.
- Sambin, A. 2020. Contribution à l’inventaire de la flore d’Orchidaceae de Guyane II—Orchidoideae, Epidendroideae (Eulophiinae, Laeliinae, Polystachyinae et Pleurothallidinae). *Richardiana, nouv. sér.* 4: 81–111.
- Sambin, A. and Aucourd, M. 2020. Mise à jour de l’inventaire des orchidées présentes sur le plateau culminant des Monts Atachi-Bakka avec un enregistrement nouveau, *Ornithidium mapiriense*, et la présence confirmée d’*Ornithidium pendulum* en Guyane. *Richardiana, nouv. sér.* 4: 179–206.
- Sambin, A., Aucourd, M., and Chiron, G. R. 2020. Révision des espèces du genre *Palmorchis* (Orchidaceae) de Guyane. *Richardiana, nouv. sér.* 4: 41–70.
- Sambin, A. and Chiron, G. R. 2020. Notes sur le complexe *Selenipedium palmifolium* (Orchidaceae, Cyripedioideae) en Guyane française et description d’une nouvelle espèce. *Richardiana, nouv. sér.* 4: 24–40.
- Santos, M. C., Toscano De Brito, A. L. V., and de Camargo Smidt, E. 2019. *Anathallis* (Orchidaceae: Pleurothallidinae) no estado do Paraná, Brasil. *Rodriguésia* 70: art. e02722017. 02722019-02722036 (doi: 10.1590/2175-7860201970031).
- Soares dos Santos, I., Alonso, A. A., and da Silva, M. J. 2020. Uma nova ocorrência de *Bulbophyllum* (Orchidaceae, Epidendroideae) para o estado de Goiás, Brasil | A new occurrence of *Bulbophyllum* (Orchidaceae, Epidendroideae) for the state of Goiás, Brazil. *Rodriguésia* 71: art. : e02262018 (doi: 10.1590/2175-7860202071122).
- Sosa, V. and Chase, M. W. 2020. New combinations and a new name in *Bletia* (Bletiinae; Orchidaceae). *Phytotaxa* 456(3): 296–298 (doi: 10.11646/phytotaxa.456.3.6).
- Szlachetko, D. L. and Kolanowska, M. 2019. A new species of *Ornithocephalus* (Orchidaceae) from Colombia with notes on national genus representatives. *Wulfenia* 26: 141–146.
- Szlachetko, D. L. and Kolanowska, M. 2020. Towards a taxonomic revision of the genus *Cyrtochilum* (Orchidaceae) in northwestern South America (northern Peru, Ecuador, Colombia, Venezuela). *PeerJ* 2020(2): art. e8566 (doi: 10.7717/peerj.8566).

Szlachetko, D., Kolanowska, M., and Baranow, P. 2020. Materials to the taxonomic revision of the genus *Epistephium* (Orchidaceae, Vanilloideae) in Colombia. *Systematic Botany* 45(1): 26–46 (doi: 10.1600/036364420X15801369352270).

Szlachetko, D. L., Kolanowska, M., Dudek, M., Chiron, G., and Rutkowski, P. 2019. Generic delimitation in the *Gomesa* alliance (Orchidaceae, Oncidiinae) based on molecular and morphological evidence. *Wulfenia* 26: 79–131.

Szlachetko, D. L., Olędrzyńska, N., and Lipińska, M. 2019. Three new species of the genus *Rhetinantha* (Orchidaceae) from Colombia and Peru. *Phyton, Annales Rei Botanicae, Horn* 59: 49–53.

Szlachetko, D. L., Olędrzyńska, N., and Lipińska, M. M. 2020. Notes on the genus *Sauvetrea* (Orchidaceae, Maxillariinae), with a description of a new species. *Turkish Journal of Botany* 44(1): 93–100 (doi: 10.3906/bot-1906-28).

Tamayo-Cen, I., Carnevali, G., Horna, L. O., Tapia, J. L., and Romero-González, G. 2020. *Encyclia sclerocladia* (Orchidaceae: Laeliinae) revisited: A new name, its phylogenetic position, and an annotated checklist of Peruvian *Encyclia*. *Systematic Botany* 45(1): 11–25 (doi: 10.1600/036364420X15801369352261).

Tamayo-Cen, I., Carnevali, G., and Romero, G. A. 2020. On *Encyclia rhizomatosa* (Laeliinae: Orchidaceae). *Harvard Papers in Botany* 25(2): 253 (doi: 10.3100/hpib.v25iss2.2020.n15).

Trujillo, D. and Paredes-Burneo, D. 2020. The *Chloraea* from Lima, a little-known species but described several times. *Lankesteriana* 20(1): 91–106 (doi: 10.15517/LANK.V20I1.41443).

Uribe-Velez, C. and Sauleda, R. P. 2020. A new species of *Huntleya* Bateman ex Lindl. (Orchidaceae) is described from the Serranía del Perijá, along the Colombia Venezuela border. *New World Orchidaceae—Nomenclatural Notes* 62: 1–12 [published on the internet: <http://rsauleda.tripod.com/colombo.pdf>].

Vasquez, R., Gerlach, G., and Jimenez-Perez, I. 2020. *Gongora guaraya*, a new species from the Amazon forest of Bolivia. *Revista de la Sociedad Boliviana de Botanica* 11(1): 5–9.

Vieira, T. L. and Van den Berg, C. 2020. Typification of three names of Brazilian *Prosthechea* (Orchidaceae: Laeliinae). *Phytotaxa* 438(3): 213–220 (doi: 10.11646/phytotaxa.438.3.6).

Vierling, G. 2019. Acht neue *Phloeophila*-Arten. *OrchideenJournal* 26(4): 141–154.

Wängler, M. S., Meneguzzo, T. E. C., Berg, C. V. D., and Baumgratz, J. F. A. 2020. Untangling the type collection and recircumscription[sic] of *Pseudolaelia corcovadensis*: a threatened orchid species from Brazilian Atlantic Rain Forest. *Phytotaxa* 433(4): 265–276 (doi: 10.11646/phytotaxa.433.4.2).

ASIA - PACIFIC (excluding the MIDDLE EAST, AUSTRALIA, and NEW ZEALAND)

Adams, P. B. 2020. *Dendrobium* section *Rhizobium* Lindl.: A review of taxa 1800–2020. *Malesian Orchid Journal* 24: 63–96.

Adit, A., Koul, M., and Tandon, R. 2019. Twelve new additions in the orchid flora of Tripura, north-east India. *Check List* 16(1): 17–25 (doi: 10.15560/16.1.17).

Agrawala, D. K., Panda, S., Bhaumik, M., and Bhattacharjee, A. 2020. Occurrence and Red List assessment of *Hemipilia purpureopunctata* (Orchidaceae) in India. *Richardiana, nouv. sér.* 4: 1–8.

Alappatt, J. P. 2018. *Bulbophyllum aberrans* (Orchidaceae)—An addition to the orchid flora of India. *The Journal of Japanese Botany* 93(3): 220–222.

Averyanov, L. V., Eskov, A. K., Truong, B. V., Nguyen, V. C., Prilepsky, N. G., Nuraliev, M. S., Maisak, T. V., and Manh, V. 2020. The genus *Octarrhena* (Orchidaceae, Thelasiinae) in Vietnam with description of two new species. *Phytotaxa* 459(4): 265–275 (doi: 10.11646/phytotaxa.459.4.2).

Averyanov, L. V., Nguyen, K. S., Maisak, T. V., Nguyen, H. T., Orlov, N. L., Slastunov, D. D., and Sokolova, I. V. 2019. New orchid species (Orchidaceae) in the flora of Laos. *Novitates Systematicae Plantarum Vascularium* 50: 25–40 (doi: 10.31111/novitates/2019.50.25).

Averyanov, L. V., Truong, B. V., Nguyen, V. C., Maisak, T. V., Dinh, Q. D., Nuraliev, M. S., Nguyen, K. S., and Chu, V. T. 2020. New orchids in the flora of Vietnam III (Collabieae, Malaxideae, Nervilieae and Orchideae). *Taiwania* 65(4): 478–492 (doi: 10.6165/tai.2020.65.478).

Bandara, C., Priyankara, T., Atthanagoda, A. G., Lakkana, T., Ediriweera, S., and Kumar, P. 2020. *Gastrodia gunatillekeorum* (Gastrodieae, Epidendroideae, Orchidaceae), a new species from a lowland rainforest of Sri Lanka. *Phytotaxa* 436(1): 055–062 (doi: 10.11646/phytotaxa.436.1.5).

Belfort-Oconitrillo, N. and Pupulin, F. 2020. The New Refugium Botanicum—*Dendrobium macrophyllum*. *Orchids, the Bulletin of the American Orchid Society* 89(1): 14–17.

Besi, E. E., Nikong, D., Mustafa, M., and Go, R. 2020. A new species of *Bromheadia* sect. *Aporodes* (Orchidaceae) from Terengganu, Peninsular Malaysia *Pakistan Journal of Botany* 52(3): 1–5 (doi: 10.30848/PJB2020-3(21)).

Besi, E. E., Nikong, D., Mustafa, M., Yong, C. S. Y., and Go, R. 2020. Taxonomic placement of four confusable *Crepidium* species (Orchidaceae, Malaxidinae) based on macro- and micro-morphological analyses, including a note on two new records to Peninsular Malaysia. *Phytotaxa* 454(1): 31–44 (doi: 10.11646/phytotaxa.454.1.3).

Bhandari, P., Shakya, L. R., and Chaudhary, R. P. 2019. *Zeuxine lindleyana* (Orchidaceae)—A new record for the flora of Nepal. *The Journal of Japanese Botany* 94(1): 45–46.

Bhandari, P., Shrestha, K., Shresta, A. K. C., and Shrestha, K. K. 2020. Three new records of orchids from Nepal. *The Journal of Japanese Botany* 95(1): 41–46.

Bhandari, P., Uprety, Y., and Shakya, L. R. 2019. *Platanthera carnosilabris* (Orchidaceae), an addition to the flora of Nepal. *The Journal of Japanese Botany* 94(1): 42–44.

Bhatt, V. P. 2020. Species diversity and distribution of orchids in Rudraprayag District, Uttarakhand, India. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 139–148.

Broto, B., Kuswoyo, T. H., and Setiyani, A. D. 2020. Orchid conservation in a small island: Current study and challenges of *Dendrobium striaenopsis* conservation in Angwarmase island nature reserve, Moluccas, Indonesia. *IOP Conference Series: Earth and Environmental Science* 486: art. 012078 (doi: 10.1088/1755-1315/486/1/012078).

Cabactulan, D., Cootes, J., De Leon, M. D., and Pimentel, R. 2019. Drie neue Orchideenarten von den Philippinen. *OrchideenJournal* 26(4): 136–140 [*Aerides*].

Cavestro, W. and Wibawa, R. 2020. *Bulbophyllum declinatum* Cavestro et R. Wibawa—eine neue Art aus Westjava/Indonesien | *Bulbophyllum declinatum* Cavestro et R. Wibawa—a new species from West Java/Indonesia. *Die Orchidee* 71(1): 64–69.

Chantanaorrapint, S., Chantanaorrapint, A., and Wai, J. S. 2020. The genus *Mycaranthes* Blume (Orchidaceae) in Thailand. *Taiwania* 65(3): 329–335 (doi: 10.6165/tai.2020.65.329).

Cheah, Y. H. 2020. A revision of *Ludisia* (Orchidaceae) in Peninsular Malaysia. *Malesian Orchid Journal* 24: 45–51.

Cheah, Y. H. and Ong, P. T. 2019. *Dendrobium dianiae*. *Orchid Review* 127(1328): 242–247.

Chen, Y.-Q., Zhu, Y.-T., Zhong, H., Li, Z.-X., Liu, Z.-J., Zhai, J.-W., and Lan, S.-R. 2020. *Calanthe tsiana*, a new orchid species from China (Epidendroideae: Collabieae): evidence from morphological and molecular analyses. *Phytotaxa* 428(1): 062–072 (doi: 10.11646/phytotaxa.428.1.7).

Chowlu, K. and Rao, A. N. 2020. *Stereochilus arunachalensis*, a new orchid species of Orchidaceae (Epidendroideae: Vandeeae: Aeridinae) from Arunachal Pradesh, India. *Phytotaxa* 433(2): 177–180 (doi: 10.11646/phytotaxa.433.2.10).

Chowlu, K., Rao, A. N., and Deori, C. 2020. Synopsis of *Eulophia* R.Br. (Orchidaceae) in Manipur (India) with a new distributional record to the state. *Pleione* 14(2): 361–366 (doi: 10.26679/Pleione.14.2.2020.361-366).

Chowlu, K., Rao, A. N., and Maity, R. 2020. Two additions to orchid flora of Manipur, India. *Richardiana, nouv. sér.* 4: 139–146 [*Geodorum*, *Peristylus*].

Cribb, P. and Schuiteman, A. 2020. *Bulbophyllum ankylochele*: Orchidaceae. *Curtis's Botanical Magazine* 37(2): 155–163 (doi: 10.1111/curt.12330).

Cribb, P. and Schuiteman, A. 2020. *Cymbidium dayanum* var. *angustifolium*: Orchidaceae. *Curtis's Botanical Magazine* 37(2): 171–179 (doi: 10.1111/curt.12332).

Cribb, P. and Schuiteman, A. 2020. Does *Coelogyne testacea* occur in Sumatra? *Orchid Society of Great Britain Journal* 69(2): 108–110.

Dai, X., Jiang, M., Li, W., Zhao, Y., Chen, L., Zhai, J., Peng, D., and Wu, S. 2020. The taxonomic revision of *Pleione formosana* (Arethuseae, Epidendroideae, Orchidaceae) based on molecular, morphological and cytological analyses. *Phytotaxa* 477(1): 60–70 (doi: 10.11646/phytotaxa.477.1.4).

Dalström, S. and Kolanowska, M. 2020. A new yellow-flowered *Chiloschista* (Orchidaceae: Aeridinae) from Thailand. *Lankesteriana* 20(2): 241–248 (doi: 10.15517/LANK.V20I2.43454).

Deb, C. R. and Jakha, H. Y. 2019. Orchid diversity in three districts [Kiphire, Tuensang and Zunheboto] of Nagaland, India. *Pleione* 13(2): 203–215 (doi: 10.26679/Pleione.13.2.2019.203-215).

Devi, R. S., Kumar, S., Dhal, N. K., and Solanki, H. A. 2020. *Cymbidium viride* (Orchidaceae): a new species from India. *Richardiana, nouv. sér.* 4: 15–23.

Fang, N., Gruss, O., and Koopowitz, H. 2019. The *Phalaenopsis speciosa-tetraspis* complex. *Orchid Digest* 83(4): 275–284.

Gale, S. W., Yeung, W. K., Ho, N., Chan, C. S., and Kumar, P. 2020. Four new additions and a taxonomic amendment to the orchid flora of Hong Kong. *Taiwania* 65(4): 575–587 (doi: 10.6165/tai.2020.65.575).

Geiger, D. L. 2019. Identifying *Oberonia*. *Malayan Orchid Review* 53: 90–97.

Gogoi, K. and Rinya, K. 2019. *Thrixspermum japonicum* (Miq.) Rehb.f. [Orchidaceae: Epidendroideae: Vandeae: Aeridinae]—an addition to the orchid flora of India. *Pleione* 13(2): 403–406 (doi: 10.26679/Pleione.13.2.2019.403-406).

Gogoi, K. and Rinya, K. 2020. *Bulbophyllum reflexipetalum* (Orchidaceae, Epidendroideae, Malaxideae), a new addition to the flora of India. *Richardiana, nouv. sér.* 4: 9–14.

Gogoi, K. and Rinya, K. 2020. *Ceratostylis siamensis* (Orchidaceae), a new addition to the flora of India. *Richardiana, nouv. sér.* 4: 134–138.

Gogoi, K. and Rinya, K. 2020. *Phalaenopsis arunachalensis* sp. nov. (Orchidaceae: Epidendroideae: Aeridinae)—A new epiphytic orchid from Arunachal Pradesh, Northeast India. *Lankesteriana* 20(3): 275–280 (doi: 10.15517/lank.v20i3.44102).

Gogoi, K. and Rinya, K. 2020. *Gastrochilus changjiangensis* Q.Liu & M.Z.Huang (Orchidaceae: Epidendroideae: Vandaeae: Aeridinae)—a new record for India. *Pleione* 14(1): 153–157 (doi: 10.26679/Pleione.14.1.2020.153-157).

Gogoi, K., Rinya, K., and Reddy, S. K. 2019. *Gastrochilus platycalcaratus* (Rolfe) Schltr. (Orchidaceae: Epidendroideae: Vandaeae: Aeridinae)—a new record for India. *Pleione* 13(2): 407–410 (doi: 10.26679/Pleione.13.2.2019.407-4106).

Gruss, O., Averyanov, I., Koopowitz, H., Nguyen, H. T., and Chu, X. C. 2020. *Paphiopedilum trungkieni*, a new species from Vietnam formerly described as a variety of *Paphiopedilum concolor*. *Orchid Digest* 84(1): 26–31.

Gruss, O., Nguyen, H. T., Vuong, T. B., and Nguyen, V. C. 2019. Drei Arten der Gattung *Cymbidium* erstmals in Vietnam entdeckt. *OrchideenJournal* 26(4): 160–168.

Gyeltshen, N., Gyeltshen, C., Tobgay, K., Dalström, S., Gurung, D. B., Gyeltshen, N., and Ghalley, B. B. 2020. Two new spotted *Chiloschista* species (Orchidaceae: Aeridinae) from Bhutan. *Lankesteriana* 20(3): 281–299 (doi: 10.15517/lank.v20i3.44149).

Gyeltshen, P., Gurung, D. B., and Kumar, P. 2020. *Bulbophyllum trongsaense* (Orchidaceae: Epidendroideae: Dendrobieae), a new species from Bhutan. *Phytotaxa* 436(1): 085–091 (doi: 10.11646/phytotaxa.436.1.9).

Hartini, S. and Aprilianti, P. 2020. Orchid exploration in Tanjung Peropa wildlife reserves for Kendari Botanic Gardens collection, Indonesia. *Biodiversitas* 21(5): 2244–2250 (doi: 10.13057/biodiv/d210554).

Hayakawa, H., Suetsugu, K., Fujimori, S., Shitara, T., Yokoyama, J., and Yukawa, T. 2020. A new peloric form of *Cephalanthera erecta* (Orchidaceae) from Japan. *Acta Phytotaxonomica et Geobotanica* 71(2): 163–169 (doi: 10.18942/apg.201918).

Higgins, W. E. 2019. An annotated checklist of *Phalaenopsis* species. *Orchid Digest* 83(4): 206–263.

Hu, A.-Q., Gale, S. W., Liu, Z.-J., Suddee, S., Hsu, T.-C., Fischer, G. A., and Saunders, R. M. K. 2020. Molecular phylogenetics and floral evolution of the *Cirrhopetalum* alliance (*Bulbophyllum*, Orchidaceae): Evolutionary transitions and phylogenetic signal variation. *Molecular Phylogenetics and Evolution* 143: art. 106689 (doi: 10.1016/j.ympev.2019.106689).

- Huang, J., Yu, Y. Y., Chen, G.-Z., Liao, X.-Y., Liu, Z.-J., and Peng, D.-H. 2020. *Luisia yunnanensis* (Orchidaceae; Epidendroideae), a new species from China: evidence from morphology and DNA analyses. *Phytotaxa* 475(1): 052–058 (doi: 10.11646/phytotaxa.475.1.5).
- Huang, M. Z., Liu, D. K., Yin, J. M., and Yang, G. S. 2020. *Cleisostoma hainanense*, a new species (Orchidaceae: Epidendroideae) from Hainan, China: Evidence from morphological and DNA analyses. *Phytotaxa* 428(3): 263–270 (doi: 10.11646/phytotaxa.428.3.7).
- Huang, M.-Z., Yang, G.-S., Lan, S.-R., and Yin, J.-M. 2020. *Bulbophyllum lingii*, a new species (Malaxideae, Epidendroideae[sic], Orchidaceae) from Hainan, China. *Phytotaxa* 452(2): 185–188 (doi: 10.11646/phytotaxa.452.2.8).
- Jalal, J. S., Rai, I. D., Bhattacharjee, A., and Singh, G. 2020. New distributional record of *Gastrochilus affinis* (Orchidaceae) from western Himalaya with notes on a new synonym and typification. *Nelumbo* 62(1): 12–15 (doi: 10.20324/nelumbo/v62/2020/153741).
- Jenny, R. 2019. *Bulbophyllum bieleckii*, a new species. *Orchid Review* 127(1328): 214–217 [Borneo].
- Jiang, Y., Ma, L., Lin, R., Xiong, Y., Jiang, S., Liu, B., Liu, Z.-J., and Chen, S. 2020. *Cymbidium codonanthum* (Orchidaceae; Epidendroideae; Cymbidiinae), a new species from China: evidence from morphological and molecular analyses. *Phytotaxa* 453(3): 275–283 (doi: 10.11646/phytotaxa.453.3.9).
- Kikuchi, I. A. B. S., Keßler, P. J. A., Schuiteman, A., Murata, J., Ohi-Toma, T., Yukawa, T., and Tsukaya, H. 2020. Molecular phylogenetic study of the tribe Tropidieae (Orchidaceae, Epidendroideae) with taxonomic and evolutionary implications. *PhytoKeys* 140: 11–22 (doi: 10.3897/phytokeys.140.46842).
- Kulloli, R. N. and Purohit, C. S. 2020. *Habenaria gibsonii* var. *foetida* (Orchidaceae): An addition to the flora of Rajasthan. *Species* 21(67): 202–207.
- Kumar, P., Bouamanivong, S., Fischer, G. A., and Gale, S. W. 2020. *Didymoplexiella laosensis* (Orchidaceae: Epidendroideae: Gastrodieae), a new holomycotrophic orchid from Lao PDR. *Phytotaxa* 430(1): 001–008 (doi: 10.11646/phytotaxa.430.1.1).
- Kumar, P. and Gale, S. W. 2020. Additions to the orchid flora of Laos and taxonomic notes on orchids of the Indo-Burma region—II. *Taiwania* 65(1): 47–60 (doi: 10.6165/tai.2020.65.47).
- Kumar, P. and Gale, S. W. 2020. *Anoectochilus formosanus*, a new record for Hongkong. *Rhedeia* 30(2): 293–298 (doi: 10.22244/rhedeia.2020.30.02.06).
- Kumar, P., Sharma, J., Isaac-Williams, M., and Rawat, G. S. 2020. *Dendrobium hesperis*: Orchidaceae. *Curtis's Botanical Magazine* 37(2): 180–190 (doi: 10.1111/curt.12333).

- Kurniawan, F. Y., Putri, F., Suyoko, A., Masyhuri, H., Sulistianingrum, M. P., and Semiarti, E. 2020. The diversity of wild orchids in the southern slope of Mount Merapi, Yogyakarta, Indonesia eight years after the 2010 eruption. *Biodiversitas* 21(9): 4457–4465 (doi: 10.13057/biodiv/d210964).
- Kurzweil, H. 2020. Five new orchid records from Myanmar. *Thai Journal of Botany* 12(1): 23–34 [*Arachnis cathcartii*, *Cleisostoma complicatum*, *Gastrochilus linearifolius*, *Habenaria longitheca*, *Neottia microphylla*].
- Kurzweil, H. and Ormerod, P. 2019. A review of the *Calanthe* group in Myanmar. *Thai Forest Bulletin (Botany)* 47(2): 196–225 (doi: 10.20531/tfb.2019.47.2.12).
- Kurzweil, H., Ormerod, P., and Schuiteman, A. 2020. The long-lost Myanmar endemic *Arundina subsessilis* (Orchidaceae) found congeneric with the recently described Chinese *Thuniopsis cleistogama*. *Gardens' Bulletin Singapore* 72(1): 97–107 (doi: 10.26492/gbs72(1).2020-09).
- Lanorsavanh, S., Souvannakhoummane, K., Kumar, P., Gale, S. W., Lamxay, V., Bounphanmy, S., and Chanthavongsa, K. 2019. Two new distribution records of *Odontochilus* Blume (Orchidaceae) from Laos. *Thai Journal of Botany* 11(2): 85–93.
- Li, L., Chung, S.-W., Li, B., Zeng, S.-J., Yan, H.-F., and Li, S.-J. 2020. New insight into the molecular phylogeny of the genus *Liparis* s.l. (Orchidaceae: Malaxideae) with a new generic segregate: *Blepharoglossum*. *Plant Systematics and Evolution* 306(3): art. 54 (doi: 10.1007/s00606-020-01679-3).
- Li, Y.-L., Tong, Y., Ye, D.-P., Yao, G., and Xing, F.-W. 2020. *Oberonia integrilabris* (Orchidaceae), a new species from China. *Phytotaxa* 432(1): 104–110 (doi: 10.11646/phytotaxa.432.1.9).
- Lin, T. P. 2020. New additions of *Oreorchis*, *Cheirostylis*, and *Cymbidium* (Orchidaceae) from Taiwan. *Taiwania* 65(4): 463–472 (doi: 10.6165/tai.2020.65.463).
- Liu, D. K., Tu, X. D., Zhao, Z., Zeng, M. Y., Zhang, S., Ma, L., Zhang, G. Q., Wang, M. M., Liu, Z. J., Lan, S. R., Li, M. H., and Chen, S. P. 2020. Plastid phylogenomic data yield new and robust insights into the phylogeny of *Cleisostoma-Gastrochilus* clades (Orchidaceae, Aeridinae). *Molecular Phylogenetics and Evolution* 145: art. 106729 (doi: 10.1016/j.ympev.2019.106729).
- Luo, Y., Deng, J.-P., Peng, Y.-L., Yan, L.-C., and Li, J.-W. 2020. *Bulbophyllum gedangense* (Orchidaceae, Epidendroideae, Malaxideae), a new species from Tibet, China. *Phytotaxa* 453(2): 145–150 (doi: 10.11646/phytotaxa.453.2.6).
- Ma, L., Zhang, S., Zhou, Z., Lan, S.-R., and Chen, S.-P. 2020. *Bulbophyllum linzhiense* (Orchidaceae, Malaxideae), a new species from China. *Phytotaxa* 429(4): 281–288 (doi: 10.11646/phytotaxa.429.4.4).
- Mahesh, Y., Rasingam, L., and Ramana, M. V. 2020. *Habenaria reniformis* (D. Don) Hook.f. (Orchidaceae)—A new distributional record for Andhra Pradesh. *Nelumbo* 62(1): 57–59 (doi: 10.20324/nelumbo/v62/2020/151333).

- Maity, D., Ghosh, J., Pradhan, N., Mukherjee, S. K., and Maiti, G. G. 2019. Enumeration of orchids of Sikkim. *Pleione* 13(2): 355–384 (doi: 10.26679/Pleione.13.2.2019.355-384).
- Margońska, H. B. 2020. Notes on the genus *Pseudoliparis* (Orchidaceae, Malaxidinae), with description of a new species from New Guinea and a new synonymous name. *Phytotaxa* 435(3): 243–247 (doi: 10.11646/phytotaxa.435.3.4).
- Mathew, M. J. and Mathew, J. 2020. *Cleisocentron* Brühl (Orchidaceae: Vandae: Deceptorinae), a new generic record for Peninsular India with a new species. *Species* 21(67): 109–112.
- Metusala, D. 2020. A new synonym of *Spathoglottis tricallosa* (Orchidaceae). *Phytotaxa* 452(4): 298–300 (doi: 10.11646/phytotaxa.452.4.6).
- Metusala, D. 2020. *Gastrodia khangii*, a new synonym and new record of *Gastrodia bambu* (Orchidaceae) in Vietnam. *Phytotaxa* 454(1): 55–62 (doi: 10.11646/phytotaxa.454.1.5).
- Metusala, D. and O’Byrne, P. 2020. *Dendrobium rubrostriatum*, a new species of *Dendrobium* section *Aporum* from West Kalimantan, Indonesian Borneo. *Phytotaxa* 443(3): 279–286 (doi: 10.11646/phytotaxa.443.3.4).
- Metusala, D., Wibowo, A. R. U., Mambrasar, Y. M., and Hendrian, H. 2020. A new synonym of *Bulbophyllum ovalifolium* (Orchidaceae: Epidendroideae). *Phytotaxa* 464(3): 227–235 (doi: 10.11646/phytotaxa.464.3.4).
- Mishra, S., Jalal, J. S., Paulose, V. C., and Singh, L. J. 2020. Two new species of *Luisia* (Vandae, Orchidaceae) from the Andaman and Nicobar Islands, India. *Phytotaxa* 453(3): 255–264 (doi: 10.11646/phytotaxa.453.3.7).
- Mishra, S., Jalal, J. S., Vivek, C. P., Ekka, G. A., Agrawala, D. K., and Singh, L. J. 2020. A note on the occurrence of *Luisia unguiculata* (Orchidaceae) in Andaman and Nicobar Islands, India. *Nelumbo* 62(1): 50–53 (doi: 10.20324/nelumbo/v62/2020/152396).
- Misra, S. 2020. Excursion orchid Flora of the Pushpagiri Wildlife Sanctuary in Karnataka, India. *Nelumbo* 62(2): 178–191 (doi: 10.20324/nelumbo/v62/2020/156895).
- Mu, A.-T., Aung, M.-H., and Jin, X.-H. 2020. *Neottia nyinyikyawii* (Orchidaceae: Epidendroideae), a new species from Chin State, Myanmar. *Phytotaxa* 446(3): 205–208 (doi: 10.11646/phytotaxa.446.3.5).
- Mudiana, D. and Ariyanti, E. E. 2020. Field notes: Terrestrial orchids in the Lappadata Forest, Bone, South Sulawesi. *IOP Conference Series: Earth and Environmental Science* 456: art. 012040 (doi: 10.1088/1755-1315/456/1/012040).
- Naive, M. A. K., Dalisay, J. A. G. P., and Bangcaya, P. S. 2020. *Cymbidium sigmoideum* (Orchidaceae), a new addition to the flora of the Philippines. *Lankesteriana* 20(2): 217–220 (doi: 10.15517/lank.v20i2.43211).

- Naive, M. A. K. and Sanders, T. 2020. Typification of two species names in *Dendrochilum* (Orchidaceae, subgenus *Platyclinis*). *Phytotaxa* 470(4): 298–299 (doi: 10.11646/phytotaxa.470.4.4).
- Nguyen, V. C., Averyanov, L., Hoang, N. S., Dang, V. S., and Truong, B. V. 2020. *Sunipia quangdangii*, new orchid species (Orchidaceae) from southern Vietnam. *Phytotaxa* 452(1): 92–98 (doi: 10.11646/phytotaxa.452.1.9).
- Nguyen, V. C., Averyanov, L. V., Nguyen, V. K., Pham, T. T. D., Maisak, T. V., and Truong, B. V. 2020. *Cylindrolobus chienii* (Orchidaceae), a new species from central highlands of Vietnam. *Taiwania* 65(3): 272–276 (doi: 10.6165/tai.2020.65.272).
- Niissalo, M. A., Choo, L. M., Kurzweil, H., Yam, T. W., and Khew, G. S. 2020. A new species of *Nervilia* (Orchidaceae) from Singapore. *Gardens' Bulletin Singapore* 72(1): 1–14 (doi: 10.26492/gbs72(1).2020-01).
- Nowak, S., Efimov, P., Szlachetko, D. L., and Kolanowska, M. 2020. The genus *Platanthera* (Orchidaceae) in New Guinea with description of *Platanthera valkenburgii* sp. nov. *New Zealand Journal of Botany* 58(3): 236–244 (doi: 10.1080/0028825X.2020.1722184).
- O'Byrne, P. 2020. Flora of Peninsular Malaysia—A revision of *Robiquetia* (Orchidaceae: Aeridinae). *Malesian Orchid Journal* 24: 5–38.
- Odyuo, N., Roy, D. K., Daimary, R., Mao, A. A., and Deori, C. 2019. *Porpax lanii* (Orchidaceae): A new addition to the orchid flora of India. *The Journal of Japanese Botany* 94(1): 47–50.
- Odyuo, N., Roy, D. K., Deori, C., and Mao, A. A. 2019. Two new additions to the orchid flora of India from Nagaland. *The Journal of Japanese Botany* 94(1): 51–55 [*Oberonia gigantea*, *Sarcoglyphis mirabilis*].
- Ong, P. T., Kiew, R., Rahman, R. A., and Kamin, I. 2020. *Didymoplexis micradenia*, a new orchid record for Peninsular Malaysia and a critically endangered species from the cement quarry on Gunung Kanthan, Perak. *Malesian Orchid Journal* 24: 39–44.
- Ong, P. T. and Latif, N. A. 2020. *Liparis latifiana* (Orchidaceae), a new species from Peninsular Malaysia. *Malesian Orchid Journal* 24: 53–62.
- Ong, P. T., Tan, P. C. J., and Chacko, R. P. 2019. Clarification of the status of *Taeniophyllum hasseltii* Rchb.f. in Peninsular Malaysia. *Malayan Orchid Review* 53: 85–89.
- Ormerod, P. 2020. A new record and species of *Dendrobium* section *Grastidium* (Orchidaceae) from the Solomon Islands. *Harvard Papers in Botany* 25(2): 147–148 (doi: 10.3100/hpib.v25iss2.2020.n3).
- Ormerod, P. 2020. Five new Papuan species of *Stichorkis* Thouars (Orchidaceae: Malaxideae). *Malesian Orchid Journal* 24: 97–106.

Ormerod, P. and Juswara, L. 2020. Notes on some Malesian Orchidaceae II. *Harvard Papers in Botany* 25(2): 149–153 (doi: 10.3100/hpib.v25iss2.2020.n4) [*Alatiliparis*, *Dendrobium*, *Oberonioides*, *Styloglossum*, *Tropidia*].

Ormerod, P. and Kumar, C. S. 2020. A new Bhutanese *Gastrochilus* (Orchidaceae), and another transfer in Indian *Cylindrolobus*. *Harvard Papers in Botany* 25(1): 125–127 (doi: 10.3100/hpib.v25iss1.2020.n16).

Ormerod, P. and Kurzweil, H. 2019. Notes on the identities of three Malesian *Dendrobium* (Orchidaceae: Dendrobiinae). *Harvard Papers in Botany* 24(2): 279–280 (doi: 10.3100/hpib.v24iss2.2019.n14).

Ormerod, P. and Kurzweil, H. 2020. *Pinalia taunggyiensis* (Orchidaceae), a new species from Myanmar. *Harvard Papers in Botany* 25(1): 123–124 (doi: 10.3100/hpib.v25iss1.2020.n15).

Ormerod, P., Naïve, M. A., and Cootes, J. 2019. Notes on some Malesian Orchidaceae. *Harvard Papers in Botany* 24(2): 281–290 (doi: 10.3100/hpib.v24iss2.2019.n15) [*Cymboglossum*, *Dendrobium*, *Odontochilus*, *Pinalia*, *Thrixspermum*].

Pace, M. C. 2020. A recircumscription of *Goodyera* (Orchidaceae), including the description of *Paorchis* gen. nov., and resurrection of *Cionisaccus*, *Eucosia*, and *Salacistis*. *Brittonia* 72(3): 257–267 (doi: 10.1007/s12228-020-09623-y).

Pace, M. C. and Cameron, K. M. 2020. The enduring value of specimen-based research: a response to Surveswaran et al. (2020). *Botanical Journal of the Linnean Society* 194(3): 382–384 (doi: 10.1093/botlinnean/boaa069).

Pedersen, H. Æ., Petersen, G., Gravendeel, B., Barkman, T. J., Boer, H. D., Sulisty, B. P., and Seberg, O. 2020. Phylogenetics of *Dendrochilum* (Orchidaceae): Evidence of pronounced morphological homoplasy and predominantly centric endemism. *Taxon* 68(6): 1173–1188 (doi: 10.1002/tax.12184).

Pingyot, T., Suddee, S., Buddhawong, W., and Watthana, S. 2019. *Herminium coiloglossum* Schltr. (Orchidaceae), a new record for Thailand. *Thai Journal of Botany* 11(2): 79–83.

Prasad, K. 2019. *Peristylus intrudens* (Orchidaceae), a new record for mainland India. *The Journal of Japanese Botany* 94(2): 109–111.

Prasad, K. and Naik, M. C. 2020. *Habenaria rangatensis* (Orchidaceae), a new species from Andaman & Nicobar Islands, India. *Phytotaxa* 442(1): 27–32 (doi: 10.11646/phytotaxa.442.1.4).

Priyadarshana, T. S., Atthanagoda, A. G., Wijewardhane, I. H., Aberathna, N., Peabotuwage, I., and Kumar, P. 2020. *Dendrobium taprobanium* (Orchidaceae): a new species from Sri Lanka with taxonomic notes on some species of the genus. *Phytotaxa* 432(1): 081–094 (doi: 10.11646/phytotaxa.432.1.7).

- Puspitaningtyas, D. M. 2020. Orchid diversity in a logging concession in Tabalong District, South Kalimantan, Indonesia. *Biodiversitas* 21(11): 5455–5464 (doi: 10.13057/biodiv/d211154).
- Qin, Y., Huang, Y.-S., Meng, T., and Liu, Y. W. 2020. *Platanthera jiuwanshanensis* (Orchidaceae), a new species from Guangxi, China. *Phytotaxa* 436(1): 072–078 (doi: 10.11646/phytotaxa.436.1.7).
- Rabgay, K. and Dalström, S. 2020. Orchids of Bhutan—*Pholidota recurva*. *Orchids, the Bulletin of the American Orchid Society* 89(1): 52–55.
- Raffi, A., Nordin, F. A., Salim, J. M., and Chin, H. A. A. 2020. *Vanilla montana* Ridl.: a new locality record in Peninsular Malaysia and its amended description. *Journal of Sustainability Science and Management* 15(7): 49–55 (doi: 10.46754/jssm.2020.10.006).
- Rahamtulla, M., Roy, A. K., and Khasim, S. M. 2020. Orchid diversity in Darjeeling Himalaya, India: Present status and conservation. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 155–188.
- Ranjan, V., Krishna, G., Bhattacharjee, A., and Kumar, A. 2020. Addition of two rare ground orchids in flora of West Bengal (India). *Richardiana, nouv. sér.* 4: 147–156 [*Goodyera, Zeuxine*].
- Rao, A. N. 2020. Nomenclatural notes on the taxonomy of some Indian and Chinese orchids. *Pleione* 14(2): 347–350 (doi: 10.26679/Pleione.14.2.2020.347-350) [*Cleisostomopsis, Coelogyne, Cyllindrolobus, Sarcoglyphis*].
- Saputra, R., Mustaqim, W. A., Metusala, D., and Schuiteman, A. 2020. *Dendrobium sagin* (Orchidaceae: Epidendroideae), a new species from the Bird's Head Peninsula, West New Guinea. *Phytotaxa* 459(2): 190–196 (doi: 10.11646/phytotaxa.459.2.9).
- Saputra, R., Naive, M. A. K., Wanma, J. F., and Schuiteman, A. 2020. *Dendrobium moiorum* (Orchidaceae: Epidendroideae), a new species of *Dendrobium* section *Diplocaulobium* from West Papua, Indonesia. *Phytotaxa* 430(2): 142–146 (doi: 10.11646/phytotaxa.430.2.5).
- Sarma, J., Barbhuiya, H. A., Dey, S., and Suetsugu, K. 2019. *Lecanorchis taiwaniana* (Orchidaceae), a new record for the flora of India. *The Journal of Japanese Botany* 94(2): 103–108.
- Sato, H., Ito, M., and Kato, Y. 2018. New localities and habitat of *Calanthe puberula* var. *okushiriensis* (Orchidaceae) in Japan. *The Journal of Japanese Botany* 93(4): 278–286.
- Schettler, R. 2019. Eine neue Farbform von *Paphiopedilum henryanum*. *OrchideenJournal* 26(4): 154–156.

- Schuiteman, A. 2020. New combinations in *Calanthe* and *Porpax*. *Malesian Orchid Journal* 24: 107.
- Schuiteman, A. and Cribb, P. 2020. *Mediocalcar umboiense*: Orchidaceae. *Curtis's Botanical Magazine* 37(2): 164–170 (doi: 10.1111/curt.12331).
- Schuiteman, A., Cribb, P., Want, T., and King, C. 2020. *Coelogyne annamensis*: Orchidaceae. *Curtis's Botanical Magazine* 37(1): 3–12 (doi: 10.1111/curt.12316).
- Setyarini, A. A. Y., Agape, H., Silas, S. A., and Abner, W. 2020. Biodiversity mapping of *Dendrobium* Sw. section *Spathulata[sic]* Lindl. in the Ramsar Site of Wasur National Park of Indonesia New Guinea. *World Journal of Advanced Research and Reviews* 5(2): 167–176 (doi: 10.30574/wjarr.2020.5.2.0032).
- Singh, M., Jalal, J. S., Agrawala, D. K., and Negi, H. 2020. *Liparis pygmaea* (Malaxideae, Orchidaceae), a new distributional record from Western Himalaya, India with notes on typification. *Richardiana, nouv. sér.* 4: 126–133.
- Sosilawaty. 2020. Identifying the diversity of orchids in the Sebangau national park in Central Kalimantan. *International Journal of Advanced Research in Engineering and Technology* 11(3): 185–191 (doi: 10.34218/IJARET.11.3.2020.016).
- Subedi, C. K., Bhandari, P., Thapa, S., Pandey, M., Gurung, J., Shakya, L. R., and Chaudhary, R. P. 2018. *Cephalanthera erecta* var. *oblanceolata* (Orchidaceae)—A new record for the flora of Nepal. *The Journal of Japanese Botany* 93(4): 287–290.
- Suetsugu, K. 2018. The northernmost locality of the mycoheterotrophic orchid *Gastrodia flexistyloides* from Fukue-jima Island, Nagasaki Prefecture, Kyushu, Japan. *The Journal of Japanese Botany* 93(1): 61–64.
- Suetsugu, K., Fukunaga, H., and Hsu, T.-C. 2020. Clarification of the type of *Lecanorchis kiusiana* (Vanilleae, Vanilloideae, Orchidaceae). *The Journal of Japanese Botany* 95(2): 111–114.
- Suetsugu, K., Kaida, S., Fukunaga, H., and Sawa, S. 2020. A new form of the mycoheterotrophic plant *Lecanorchis japonica* (Orchidaceae) from Japan. *Acta Phytotaxonomica et Geobotanica* 71(3): 243–248 (doi: 10.18942/apg.201924).
- Suetsugu, K., Lin, J.-Z., Hsu, T.-C., and Hayakawa, H. 2020. Interspecific hybridization between *Spiranthes australis* and *S. sinensis* (Orchidaceae) in southern Taiwan. *Acta Phytotaxonomica et Geobotanica* 71(2): 177–184 (doi: 10.18942/apg.201922).
- Suetsugu, K., Morita, H., Higa, S., and Yokota, M. 2019. New locality of the mycoheterotrophic orchid *Didymoplexiella siamensis* (Orchidaceae) from Amami-Oshima Island, Kagoshima Prefecture, Japan. *The Journal of Japanese Botany* 94(3): 190–192.

- Surveswaran, S., Gowda, V., and Sun, M. 2020. Cryptic species and taxonomic troubles: A rebuttal of the systematic treatment of the Asian ladies' tresses orchids (*Spiranthes* species; Orchidaceae) by Pace et al. (2019). *Botanical Journal of the Linnean Society* 194(3): 375–381 (doi: 10.1093/botlinnean/boaa068).
- Tamayo, M. N., Pranada, M. A. K., and Bustamante, R. A. A. 2020. *Dendrochilum ignisiflorum* (Coelogyninae, Arethuseae, Orchidaceae), a new species from Luzon Island, Philippines. *Phytotaxa* 455(4): 240–244 (doi: 10.11646/phytotaxa.455.4.1).
- Tandang, D. N., Bustamante, R. A. A., Ferreras, U., Hadsall, A. S., Pym-Lyon, S., and Robinson, A. S. 2020. *Corybas circinatus* (Orchidaceae), a new species from Palawan, the Philippines. *Phytotaxa* 446(2): 135–140 (doi: 10.11646/phytotaxa.446.2.7).
- Tandang, D. N., Galindon, J. M. M., Tadosa, E. R., Coritico, F. P., Amoroso, V. B., Lagunday, N. E., Bustamante, R. A. A., Penneys, D. S., and Fritsch, P. W. 2020. *Dilochia deleoniae* (Orchidaceae), a new species from Mindanao, Philippines. *PhytoKeys* 139: 91–97 (doi: 10.3897/phytokeys.139.46935).
- Tandang, D. N., Reyes, T., Bustamante, R. A. A., Callado, J. R. C., Tadosa, E. R., Agoos, E. M., and Lyon, S. P. 2020. *Corybas boholensis* (Orchidaceae): A new jewel orchid species from Bohol Island, Central Visayas, Philippines. *Phytotaxa* 477(2): 261–268 (doi: 10.11646/phytotaxa.477.2.10).
- Thoerle, L. and Phillips, W. A. 2019. A new species of *Bulbophyllum* (Orchidaceae; Epidendroideae) from Papua New Guinea. *Phytotaxa* 425(3): 190–192 (doi: 10.11646/phytotaxa.425.3.7).
- Thoerle, L., Schuiteman, A., and Turkel, M. 2020. *Dendrobium aurifex* (Orchidaceae), eine schöne neue Art aus Papua Neuguinea | *Dendrobium aurifex* (Orchidaceae), a showy new species from Papua New Guinea. *OrchideenJournal* 27(1): 42–47.
- Truong, B. V., Averyanov, L. V., Amsler, R., Nguyen, V. C., Tran, H., Maisak, T. V., and Dang, V. S. 2020. New species, *Bulbophyllum trongquyetii* (Orchidaceae) from Vietnam. *Phytotaxa* 464(4): 293–298 (doi: 10.11646/phytotaxa.464.4.3).
- Truong, B. V., Cootes, J., Truong, Q. T., and Dang, V. S. 2020. *Liparis atosanguinea* Ridl. (Orchidaceae)—Ein Neufund für Vietnam im Phu Quoc Park, Kien Giang Provinz. *Die Orchidee* 71(3): 231–233.
- Truong, B. V., Dang, V. S., Tran, H., Maisak, T. V., and Averyanov, L. V. 2020. *Bulbophyllum sridithii* (Orchidaceae), new species from Vietnam. *Taiwania* 65(4): 473–477 (doi: 10.6165/tai.2020.65.473).
- Truong, V. B., Nguyen, V. C., Ormerod, P., Truong, Q. C., Chu, V. T., and Kumar, P. 2020. The genus *Corybas* in Vietnam, with two new records. *Lankesteriana* 20(1): 49–55 (doi: 10.15517/LANK.V20I1.41330).

- Truong, V. B., Truong, T. Q., Dang, V. S., Nguyen, T. M., and Vermeulen, J. J. 2020. New records of *Bulbophyllum* in the flora of Vietnam. *Lankesteriana* 20(1): 31–36 (doi: 10.15517/LANK.V20I1.41130).
- Tsai, C. C., Liao, P. C., Ko, Y. Z., Chen, C. H., and Chiang, Y. C. 2020. Phylogeny and historical biogeography of *Paphiopedilum* Pfitzer (Orchidaceae) based on nuclear and plastid DNA. *Frontiers in Plant Science* 11: art. 126 (doi: 10.3389/fpls.2020.00126).
- Tsering, J. and Prasad, K. 2020. *Spathoglottis arunachalensis* (Orchidaceae), a new species from Arunachal Pradesh, India. *Phytotaxa* 432(3): 289–295 (doi: 10.11646/phytotaxa.432.3.6).
- Tsering, J. and Prasad, K. 2020. *Bulbophyllum raskotii* (Orchidaceae): An addition to the orchid flora of India. *Nelumbo* 62(1): 1–3 (doi: 10.20324/nelumbo/v62/2020/150484).
- Tu, X.-D., Huang, M.-Z., Liu, D.-K., Ma, L., and Li, M.-H. 2020. *Liparis mai* (Orchidaceae; Malaxideae), a new species from China: evidence from morphological and molecular analyses. *Phytotaxa* 435(3): 235–242 (doi: 10.11646/phytotaxa.435.3.3).
- Turner, I. M. 2020. Proposal to conserve the name *Micropera rostrata* (Roxb.) N.P. Balakr. (Orchidaceae) against *M. rostrata* (Sacc. & Ellis) Höhn. (Phaeosphaeriaceae). *Taxon* 69(6): 1365–1366 (doi: 10.1002/tax.12397).
- Venkaiah, M., Rao, J. P., Naidu, M. T., Prameela, R., Rao, P. J., and Padal, S. B. 2020. Orchid diversity in the Eastern Ghats of northern Andhra Pradesh, India. In: Khasim, S. M., Hedge, S. N., Gonzalez-Arnoa, M. T., and Thammasiri, K. (eds.), *Orchid Biology: Recent Trends & Challenges*. Springer, Singapore, pp. 189–206.
- Vermeulen, J. J., Schuiteman, A., and Vogel, E. F. d. 2020. Sixteen new species of *Bulbophyllum* section *Polymeres* (Orchidaceae) from New Guinea. *Lankesteriana* 20(3): 301–330 (doi: 10.15517/lank.v20i3.44438).
- Wang, X., Wang, C., and Li, J. 2019. Additional notes on Orchidaceae from China. *Guihaia* 39(9): 1227–1232 (doi: 10.11931/guihaia.gxzw201804028).
- Wang, X.-L., Chen, J., and Jin, X.-H. 2020. *Goodyera nanshanensis* (Orchidaceae, Orchidoideae, Cranichideae, Goodyerinae), a new species from Hunan, China. *Phytotaxa* 460(4): 296–300 (doi: 10.11646/phytotaxa.460.4.7).
- Watthana, S. and Suddee, S. 2020. Lectotypification of *Porpax scaposa* (Orchidaceae). *Thai Forest Bulletin* 48(2): 204–205 (doi: 10.20531/tfb.2020.48.2.13).
- Wu, X.-F., Liu, Q., Li, J.-L., Tang, Z.-Y., and Xing, X.-K. 2020. *Cheirostylis barbata*, a new species Orchidaceae (Goodyerinae) from Yunnan, China. *Phytotaxa* 436(3): 293–297 (doi: 10.11646/phytotaxa.436.3.7).
- Wu, X.-F., Liu, Q., Tang, Y., Chi, K.-B., Wang, Y.-Q., Pang, X., Huang, Y.-H., and Peng, P.-H. 2020. *Epipogium taiwanense*, a detail[sic] morphological description and additional new record to mainland China. *Phytotaxa* 453(1): 43–48 (doi: 10.11646/phytotaxa.453.1.4).

Yang, B.-Y., Luo, H.-L., Huang, W.-C., Xiong, D.-J., Tan, S.-L., and Li, B. 2020. *Calanthe sieboldopsis* (Orchidaceae, Epidendroideae, Collabieae), a new species from Luoxiao Mountains, eastern China. *PhytoKeys* 145: 37–45 (doi: 10.3897/phytokeys.145.49386).

Zhang, D. Y., Tu, X. D., Bin, L. I. U., Liao, X. Y., Lan, S. R., and Liu, Z. J. 2020. *Cymbidium biflorens* (Orchidaceae; Epidendroideae), a new species from China: Evidence from morphological and molecular data. *Phytotaxa* 428(3): 271–278 (doi: 10.11646/phytotaxa.428.3.8).

Zheng, B.-Q., Zou, L.-H., Wan, X., and Wang, Y. 2020. *Dendrobium jinghuanum*, a new orchid species from Yunnan, China: evidence from both morphology and DNA. *Phytotaxa* 428(1): 030–042 (doi: 10.11646/phytotaxa.428.1.3).

Zhou, S., Zhou, X. X., Jin, Y., Schuiteman, A., Kumar, P., Yuan, D., and Tian, H. Z. 2020. *Goodyera araneosa*: a new species of Orchidaceae from Sichuan, China and its affinities. *Plant Biosystems—An International Journal Dealing with all Aspects of Plant Biology* (doi: 10.1080/11263504.2020.1747563).

Zhou, Z., Zhang, D., Chen, G.-Z., Yu, X., Li, C.-R., Lan, S.-R., and Liu, Z.-J. 2020. *Cymbidium brevifolium* (Orchidaceae; Epidendroideae), a new species from China: evidence from morphological and molecular data. *Phytotaxa* 464(3): 236–242 (doi: 10.11646/phytotaxa.464.3.5).

Zhou, Z., Zhang, S., Yang, Y.-P., Ma, L., and Lan, S.-R. 2020. Morphological and molecular evidence for a new species from China: *Dendrobium yongjiaense* (Orchidaceae: Malaxideae). *Phytotaxa* 441(2): 203–210 (doi: 10.11646/phytotaxa.441.2.7).

AUSTRALIA & NEW ZEALAND

Brown, A. P. and Edmonds, D. 2019. *Corybas autumnalis* (Orchidaceae) a rare new species of helmet orchid from south-west Western Australia. *The Orchadian* 19(9): 390–394.

Brundrett, M. C. and Hammer, T. A. 2020. The *Eriochilus dilatatus* (Orchidaceae) complex in Western Australia: subspecies taxonomy is not supported by consistent differences in morphology or distribution. *Australian Systematic Botany* 33(4): 329–345 (doi: 10.1071/SB19024).

Clements, M. A. and Jones, D. L. 2019. Notes on Australasian orchids 5: *Paraprasophyllum*, a new genus in Prasophyllinae (Diurideae). *Australian Orchid Review* 84(5): 25–38.

Clements, M. A. and Jones, D. L. 2020. Notes on Australasian orchids 6: A new species of *Rhizanthella* (Diurideae, subtribe Prasophyllinae) from eastern Australia. *Lankesteriana* 20(2): 221–227 (doi: 10.15517/LANK.V20I2.43271).

Jones, D. L. 2019. Characterisation of *Diplodium revolutum* (R.Br.) D.L.Jones & M.A.Clem. and the description of two new similar species. *Australian Orchid Review* 84(4): 34–39.

Jones, D. L. 2019. Four new species of *Corysanthes* (Orchidaceae: Acianthiinae[sic]) from southern Australia. *Australian Orchid Review* 84(5): 39–44.

Jones, D. L. 2020. Two new species of *Diuris* R.Br. from eastern Australia. *Australian Orchid Review* 84(6): 30–35.

Jones, D. L. 2020. Two threatened new species of Orchidaceae from Mount Canobolas in central-western New South Wales. *Australian Orchid Review* 84(6): 36–41 [*Caladenia*, *Paraprasophyllum*].

Jones, D. L. 2020. New combinations in Australian Orchidaceae. *Australian Orchid Review* 84(6): 42 [*Corysanthes*, *Pterostylis*].

Jones, D. L. 2020. New combinations in the Pterostylidinae. *Australian Orchid Review* 84(6): 42.

Jones, D. L. 2020. *Acianthus scopulus* (Orchidaceae: Acianthiinae[sic]). *Australian Orchid Review* 84(6): 43–45.

Jones, D. L. and Clements, M. A. 2019. *Danhatchia copelandii* (Orchidaceae: Goodyerinae), a newly discovered species of leafless orchid from northern New South Wales. *Australian Orchid Review* 84(4): 41–44.

Jones, D. L. and Clements, M. A. 2020. Notes on Australasian orchids 6: The *Dockrillia striolata* complex. *Australian Orchid Review* 84(6): 19.

Muller, G. 2019. Earlier descriptions of *Dendrobium* taxa by F.M. Bailey. *The Orchadian* 19(10): 466–469.

Renner, M. A. M. 2020. Proposal to conserve *Dendrobium* ×*gracillimum* against *D.* ×*nitidum* (Orchidaceae). *Taxon* 69(5): 1113–1114 (doi: 10.1002/tax.12336).

Wapstra, M., Swarts, N., Curry, G., and Fehre, P. 2019. Hybrids within *Caladenia* in Tasmania. *The Orchadian* 19(10): 438–447.

EUROPE, NORTH AFRICA & THE MIDDLE EAST (excluding the southern part of the ARABIAN PENINSULA)

Achstetter, M. and Bergfeld, D. 2020. Funde von *Himantoglossum robertianum* in Südbaden. *Journal Europäischer Orchideen* 52(2–4): 414–426.

Antonj, M., Bertinetti, P., Picone, G., and Gransinigh, E. 2020. Un nuovo ibrido di *Ophrys* nel territorio di Roma (Lazio). *GIROS Orchidee Spontanee d'Europa* 26(1): 37–42.

Bartók, A., Brădeanu, A. N., Bobocea, M. M., and Goja, P. L. 2019. Rediscovery and a new record of the elusive and enigmatic *Hammarbya paludosa* (L.) Kuntze (Orchidaceae) in Romania. *Contributii Botanice* 54: 99–106 (doi: 10.24193/Contrib.Bot.54.7).

- Bateman, R. M. 2020. Implications of next-generation sequencing for the systematics and evolution of the terrestrial orchid genus *Epipactis*, with particular reference to the British Isles. *Kew Bulletin* 75(1): art. 4 (doi: 10.1007/s12225-020-9870-x).
- Blatt, H. 2020. Zur Typisierung von *Orchis chlorantha*. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(1): 81–88.
- Blatt, H. 2020. Die nomenklatorischen Typen von *Orchis angustifolia* var. *haussknechtii*, *Orchis incarnata* var. *serotina* und *Orchis incarnata* var. *pulchella* sowie deren legitime Namen im Rang der Art, Unterart und Varietät. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 25–38.
- Bobocea, M.-M., Tomescu, C.-V., and Moscaliuc, L.-A. 2020. The rediscovery of the rare Carpathian endemic orchid *Nigritella carpatica* in Romania after 139 years. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 188–210.
- Bougaham, A. F., Rebbas, K., and Vela, E. 2020. Découverte d'*Epipactis microphylla* (Orchidaceae) au Djebel Babor (nord-est de l'Algérie), orchidée nouvelle pour l'Afrique du Nord. *Flora Mediterranea* 30: 261–271 (doi: 10.7320/FLMEDIT30.261).
- Buono, S. and Rempicci, M. 2020. New distributional records of rare orchids in Latium (Central Italy). *Journal Europäischer Orchideen* 52(1): 120–126.
- Cozzolino, S., Scopece, G., Roma, L., and Schlüter, P. M. 2020. Different filtering strategies of genotyping-by-sequencing data provide complementary resolutions of species boundaries and relationships in a clade of sexually deceptive orchids. *Journal of Systematics and Evolution* 58(2): 133–144 (doi: 10.1111/jse.12493) [*Ophrys*].
- D'Alonzo, F. 2020. Precisazioni sull'identità di *Ophrys gravinensis* e segnalazione die *Ophrys sipontensis* nel Materano (Basilicata). *GIROS Orchidee Spontanee d'Europa* 26(1): 50–55.
- D'Alonzo, F., Perilli, M., and Biagioli, M. 2020. Due nuovi ibridi garganici di *Ophrys sipontensis* (Puglia). *GIROS Orchidee Spontanee d'Europa* 26(1): 25–36.
- Doro, D. 2020. *Anacamptis berica*—una nuova specie tetraploide del gruppo di *Anacamptis pyramidalis*. *Journal Europäischer Orchideen* 52(2–4): 427–460.
- Dunn, J. 2020. Britain's hybrid orchids—it's a family affair. *British Wildlife* 31(6): 414–422.
- Fateryga, A. V., Pavlenko, A. V., and Fateryga, V. V. 2020. On taxonomic status of two species of orchids (Orchidaceae) from Turkmenistan. *Turczaninowia* 23(4): 65–71 (doi: 10.14258/turczaninowia.23.4.6) [*Epipactis*, *Ophrys*].
- Foelsche, W. 2020. Die Kohlröschen des Trenchtlings und ihre Bedeutung für die Erforschung der Gattung *Nigritella*. *Berichte aus den Arbeitskreisen Heimische Orchideen* 36(2): 75–122.

Foelsche, W., Foelsche, G., Wuest, R., Merz, E., Gerbaud, M., Gerbaud, O., Kreutz, C., and Kreutz, C. A. J. 2020. *Nigritella carniolica*, *Nigritella lithopolitanica* var. *luciae*, *Nigritella hydrophila* var. *pauciflora* und drei neue Hybriden von der slowenischen Seite der Koschuta. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 140–187.

Fohringer, F. 2020. *Epipactis wartensteinii*, eine lange übersehene Art aus dem Semmering-Gebiet in Niederösterreich. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 94–108.

Griebl, N. 2020. Orchideenfundorte im burgenländischen Leithagebirge (Österreich). *Journal Europäischer Orchideen* 52(1): 91–119.

Griebl, N. 2020. Beitrag zur Hybridgattung *x Pseuditella* (*Nigritella x Pseudorchis*). *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(1): 41–60.

Griebl, N. 2020. Orchideen-Neufunde in Österreich II. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 39–72.

Haas, J. and Lohr, M. 2020. Das dreizählige Knabenkraut *Neotinea tridentata*—Orchidee des Jahres 2019. *Journal Europäischer Orchideen* 52(1): 3–27.

Hamakhan, A. M., Galalaey, A. M. K., Shkwr, C. Y., Uzun, A., Shaban, M. A., Mahdi, H. S., and Youssef, S. M. A. 2020. New contribution on the distribution of orchids in Erbil Province in Kurdistan region (N-Iraq). *Journal Europäischer Orchideen* 52(1): 65–90.

Hedren, M. and Tyteca, D. 2020. On the hybrid origin of *Dactylorhiza brennensis* and implications for the taxonomy of allotetraploid *Dactylorhiza*. *Journal Europäischer Orchideen* 52(1): 33–64.

Hermosilla Fernández, C. E., Pérez Cañestro, J., and Soca, R. 2019. *Ophrys querciphila* Nicole, Hervy & Soca in the Iberian Peninsula. *Flora Montiberica* 75: 67–72.

Hertel, S. and Presser, H. 2020. Weitere Erkenntnisse zur Vielfalt der *Epipactis*-Arten im südlichen Italien. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(1): 61–80.

Hirth, M. and Paulus, H. F. 2020. *Ophrys eretriae*, eine neue Art aus dem *Ophrys mammosa*-Komplex von der Insel Euböa (Griechenland). *Journal Europäischer Orchideen* 52(1): 127–150.

Justić, M., Bučar, M., Vizec, P., Vukres, A., Šegota, V., and Vuković, N. 2020. The rare and endangered orchid *Cypripedium calceolus* L. in Croatia—re-found in Gorski Kotar (west Croatia) after 126 years. *Natura Croatica* 29(1): 55–62 (doi: 10.20302/NC.2020.29.6).

- Kreutz, C. A. J., Klaver, J. M. I., and Biagioli, M. 2020. *Ophrys metaurensis*, a new species from the Marche region (Central Italy). *GIROS Orchidee Spontanee d'Europa* 26(1): 137–151.
- Kreutz, C. A. J., Lewis, L., and Giles, G. 2020. *Epipactis neglecta* var. *collina*, a new variety of Neglected Helleborine from England. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 109–121.
- Lewis, L. 2020. *Dactylorhiza x salteri*, the correct name for *Dactylorhiza praetermissa x D. purpurella*. *Journal Europäischer Orchideen* 52(2–4): 461–470.
- Lewis, L., Clark, M. J., Spencer, E. J., and Kreutz, C. A. J. 2020. Observations on *Epipactis leptochila* var. *cordata*, an enigmatic variety of Narrow-lipped Helleborine from Britain. *Journal Europäischer Orchideen* 52(2–4): 279–286.
- Liberti, G. P., Petrilli, R., and Biagioli, M. 2020. Le Orchidaceae della Calabria meridionale ionica. *GIROS Orchidee Spontanee d'Europa* 26(1): 56–70.
- Lohr, M. and Margenburg, B. 2020. Das Breitblättrige Knabenkraut *Dactylorhiza majalis*—Orchidee des Jahres 2020. *Journal Europäischer Orchideen* 52(2–4): 287–323.
- Lorenz, R., Hedren, M., Kellenberger, R. T., Madl, J., and Schlueter, P. M. 2020. Die Bunten Brunellen vom Puflatsch in Südtirol—ein bedrohtes Naturwunder. *Journal Europäischer Orchideen* 52(2–4): 249–278 [*Nigritella*].
- Lumare, F., Medagli, P., and Anelli, S. 2020. Ibridi di *Ophrys* presso Lecce (Salento, Puglia)—Vi parte: Studio su tre nuovi ibridi di *Ophrys* e sui loro progenitori: *O. x laatanziae*, *O. x sancti-cataldi* e *O. x varolae*. *GIROS Orchidee Spontanee d'Europa* 26(1): 171–198.
- Lumare, F., Medagli, P., and Anelli, S. 2020. Le Orchidaceae delle Macchie di San Cataldo (Lecce). *GIROS Orchidee Spontanee d'Europa* 26(1): 207–217.
- Lumare, F., Medagli, P., Turco, A., Dura, T., and Anelli, S. 2020. Ricerche al Bosco Cuturi (taranto, Salento nord-occidentale, Puglia)—VI parte: Le Orchidaceae del Bosco Cuturi (Taranto). *GIROS Orchidee Spontanee d'Europa* 26(1): 199–206.
- Lussu, M., Marignani, M., Lai, R., Loi, M. C., Cogoni, A., and Cortis, P. 2020. A synopsis of Sardinian studies: Why is it important to work on island orchids? *Plants* 9(7): art. 853 (doi: 10.3390/plants9070853).
- Obletter, M., Prugger, I., and Biagioli, M. 2020. Orchidee spontanee della Val Gardena—La orchideies te Gherdeina—Wilde Orchideen in Gröden. *GIROS Orchidee Spontanee d'Europa* 26(1): 103–114.
- Rakosy, D., Paulus, H. F., and Hirth, M. 2020. *Ophrys dimidiata*, eine neue, bisher unbeschriebene Art aus dem *Ophrys tenthredinifera*-Komplex auf Kreta. *Journal Europäischer Orchideen* 52(1): 207–226.

- Reinbold, U. 2020. Weiss blühende *Orchis militaris* im Naturschutzgebiet "Rütscheten" im Marekgräflerland (Baden-Württemberg). *Journal Europäischer Orchideen* 52(1): 228–230.
- Reinbold, U. 2020. Weiss blühende Orchideen am Kaiserstuhl. *Journal Europäischer Orchideen* 52(2–4): 472–476.
- Rempicci, M. and Buono, S. 2020. *Dactylorhiza x serbica* nsubsp. *serbica*, a new hybrid for Latium (Central Italy). *Journal Europäischer Orchideen* 52(1): 28–32.
- Riechelmann, A. 2020. Siziliens Südosten—Hotspot für Barock und Orchideen. *Berichte aus den Arbeitskreisen Heimische Orchideen* 36(2): 47–74.
- Rieks, R. 2020. Zur Phänologie der Orchideen im Ulmer Raum (Südwest-Deutschland). *Journal Europäischer Orchideen* 52(1): 151–206.
- Rizzieri Masin, R. 2020. Orchidaceae nei Colli Euganei (Padova, Veneto). *GIROS Orchidee Spontanee d'Europa* 26(1): 71–89.
- Rode, P. 2020. Zwanzigjährige Beobachtungen an einem *Epipactis purpurata*-Bestand in Ostthüringen. *Berichte aus den Arbeitskreisen Heimische Orchideen* 36(2): 123–130.
- Šegota, V., Vilović, T., and Zovko, I. 2019. Orchid (Orchidaceae) diversity within Herbarium Croaticum (ZA) collection sensu stricto. *Natura Croatica* 28(2): 325–343 (doi: 10.20302/NC.2019.28.23).
- Sotgiu, F., Pau, A., and Orru, G. 2020. Nuovo ritrovamento in Sardegna di *Ophrys scolopax* subsp. *picta*. *GIROS Orchidee Spontanee d'Europa* 26(1): 131–136.
- Steffan, M. M. 2020. *Anacamptis x laniccae* (*A. morio* x *A. pyramidalis*), un ibrido nuovo per il Lazio. *GIROS Orchidee Spontanee d'Europa* 26(1): 152–157.
- Steinfeld, P. 2020. Bemerkungen zur Ausbreitung der Bocks-Riemenzunge (*Himantoglossum hircinum*) im Südost-Saarland. *Berichte aus den Arbeitskreisen Heimische Orchideen* 36(2): 31–39.
- Tyteca, D., Pessoa, J., and Borges, L. 2020. The Orchid Flora of Portugal. Addendum No. 8—*Ophrys beirana*, a new species in the *Ophrys scolopax* group. *Journal Europäischer Orchideen* 52(2–4): 324–348.
- Werson, R., Ratini, G. P., Bencivenga, G., Iannotti, M., and Biagioli, M. 2020. Prima segnalazione in Umbria (Assisi, provincia di Perugia) di *Dactylorhiza sambucina* f. *chusae*. *GIROS Orchidee Spontanee d'Europa* 26(1): 158–162.
- Wuest, R., Merz, E., Gerbaud, M., and Gerbaud, O. 2020. *Nigritella x wulfeniana*, *Nigritella x henningsiana* und *Nigritella x foelscheana*, drei neue Hybriden aus der Kohlröschen-Vielfalt der Koschuta-Südseite im slowenischen Teil der Karawanken. *Berichte aus den Arbeitskreisen Heimische Orchideen* 37(2): 122–139.

Yorke, B. 2020. *Epipactis atrorubens* var. *bicolor*, a new variety of Dark-red Helleborine from northern England. *BSBI News* 143: 29–30.

GENERAL

Chase, M. W., Christenhusz, M. J. M., and Schuiteman, A. 2020. Expansion of *Calanthe* to include the species of *Cephalantheropsis*, *Gastrorchis* and *Phaius* (Collabieae; Orchidaceae). *Phytotaxa* 472(2): 159–168 (doi: 10.11646/phytotaxa.472.2.6).

Chase, M. W., Christenhusz, M. J. M., and Schuiteman, A. 2020. Proposal to conserve *Calanthe*, nom. cons., against the additional names *Phaius*, *Cyanorkis*, and *Gastorkis* (Orchidaceae, Collabieae). *Taxon* 69(6): 1364–1365 (doi: 10.1002/tax.12396).

Forero, M. G., Beltrán, C. E., Troncoso, A., and González-Santos, C. 2020. Classification of *Cattleya trianae* and its varieties by using colorimetry. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 12088 LNCS: 35–44 (doi: 10.1007/978-3-030-49076-8_4).

Kim, Y.-K., Jo, S., Cheon, S.-H., Kwak, M., Kim, Y.-D., and Kim, K.-J. 2020. Plastome evolution and phylogeny of subtribe Aeridinae (Vandae, Orchidaceae). *Molecular Phylogenetics and Evolution* 44: art. 106721 (doi: 10.1016/j.ympev.2019.106721).

Nürk, N. M., Linder, H. P., Onstein, R. E., Larcombe, M. J., Hughes, C. E., Piñeiro Fernández, L., Schlüter, P. M., Valente, L., Beierkuhnlein, C., Cutts, V., Donoghue, M. J., Edwards, E. J., Field, R., Flantua, S. G. A., Higgins, S. I., Jentsch, A., Liedt-Schumann, S., and Pirie, M. D. 2020. Diversification in evolutionary arenas—Assessment and synthesis. *Ecology and Evolution* 10(12): 6163–6182 (doi: 10.1002/ece3.6313) [*Ophrys*].

Szlachetko, D. L., Górnjak, M., Kowalkowska, A. K., Kolanowska, M., Jurczak-Kurek, A., and Archila Morales, F. 2020. The natural history of the genus *Cypripedium* (Orchidaceae). *Plant Biosystems*: 1–25 (doi: 10.1080/11263504.2020.1785963).

Wettewa, E., Bailey, N., and Wallace, L. E. 2020. Comparative analysis of genetic and morphological variation within the *Platanthera hyperborea* complex (Orchidaceae). *Systematic Botany* 45(4): 767–778 (doi: 10.1600/036364420X16033962925303).

Literature categories

Anatomy and morphology	8
Bioinformatics	10
Books	11
Conservation	12
Cytogenetics and horticultural genetics	16
Ecology	17
Ethnobotany/(Ethno)pharmacology	20
History	24
Micropropagation/seed germination	24
Molecular biology	31
Mycorrhiza and endophytes	41
Pathology	45
Physiology/Phytochemistry	47
Pollination, etc.	50
Systematics and distribution	56
AFRICA	56
AMERICA	58
ASIA - PACIFIC	67
AUSTRALIA & NEW ZEALAND	80
EUROPE	81
GENERAL	86