

Short Communication

New records of Orchidaceae from Cambodia I

André SCHUITEMAN^{1,*}, Christopher RYAN¹ & NUT Menghor²¹ Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB, United Kingdom.² Department of Wildlife & Biodiversity, Forestry Administration, Ministry of Agriculture Forestry and Fisheries, 40 Preah Norodom Blvd, Phnom Penh, Cambodia.

* Corresponding author. Email a.schuiteman@kew.org

Paper submitted 11 February 2015, revised manuscript accepted 7 July 2015.

The orchid flora of Cambodia is still inadequately known. In the most recent enumeration (Seidenfaden, 1992), 164 species were listed for the country. More species have been discovered since, especially by Cedric Jancloes and Marpha Telepova (pers. comm.), but relatively few records have been formally published (Telepova, 2009, 2013; Averyanov, 2013). It is also worth noting that 21 species of Cambodian orchids, some of which represent new records for the country, are described by Leti *et al.* (2013) and illustrated with colour photographs. Considering the high orchid species richness of the neighbouring countries of Thailand, Laos and Vietnam, it is probably a conservative estimate that at least 500 orchid species occur naturally in Cambodia.

Apart from the inaccessibility of some suitable habitats, a major problem facing orchid researchers is the highly seasonal flowering patterns of most orchids in the monsoon regions of tropical Asia. Many species flower either at the beginning or the end of the dry season, and others only during the rainy season, when access to their habitats can be difficult. In addition, because the flowers of several species last only one or a few days, they are rarely seen in flower by short-term visitors, which most researchers tend to be. Consequently, repeated visits to the same area in different times of the year would normally be required to obtain an adequate inventory of a local orchid flora. This can be costly and time-consuming.

An alternative method is to collect living specimens, which are then grown under controlled climate condi-

tions, such as a greenhouse, until they flower. At that time they can be photographed, preserved and identified. While not all orchids are amenable to cultivation (most holomycotrophic species are not), the majority are not difficult to grow at least long enough to induce them to flower. With these considerations in mind, staff from the Royal Botanic Gardens, Kew, UK, and the Forestry Administration, Cambodia, conducted a field survey of orchids in a small part of the Cardamom Mountains in November–December 2013. In addition to herbarium and spirit samples, carefully selected living plants were collected for cultivation at Kew. As these come into flower, new records are turning up, as expected. The first selection of a dozen species is discussed below. In the interests of conservation we do not provide exact localities here. Of these 12 species, only three (*Dendrobium reflexitopalum*, *Podochilus lucescens* and *Thecostele alata*) were seen in flower during our field trip, all the others revealed their identity in cultivation, demonstrating the usefulness of living collections. In the notes below, information on species distribution ranges are generally based on Govaerts *et al.* (2015).

Species recorded

***Coelogyne filipeda* Gagnep. (Kew cult. 2013-1703; Fig. 1)**

This species was found as an epiphyte in rather dry evergreen forest with little undergrowth, at c. 900 m altitude. It is a species of the section *Elatae* that was previously known only from Vietnam (Annam) at c. 1,500 m (George & George, 2011). The original description was based on

CITATION: Schuiteman, A., Ryan, C. & Nut M. (2015) New records of Orchidaceae from Cambodia I. *Cambodian Journal of Natural History*, 2015, 131–138.



Fig. 1 *Coelogyne filipeda* Gagnep. Inflorescence. Kew cult. 2013-1703.



Fig. 3 *Coelogyne pallens* Ridl. Flower. Kew cult. 2013-1666.



Fig. 2 *Coelogyne pallens* Ridl. In situ.



Fig. 4 *Dendrobium reflexitepalum* J.J.Sm. In situ.



Fig. 5 *Dendrobium reflexitepalum* J.J.Sm. Flowering stem. Kew cult. 2013-1580.



Fig. 6 *Micropera thailandica* (Seidenf. & Smitinand) Garay. In situ.



Fig. 7 *Micropera thailandica* (Seidenf. & Smitinand) Garay. Inflorescence. Kew cult. 2013-1763.



Fig. 8 *Pennilabium acuminatum* (Ridl.) Holtum. In situ.



Fig. 9 *Pennilabium acuminatum* (Ridl.) Holtum. Flower. Kew cult. 2013-1737.



Fig. 10 *Podochilus lucescens* Blume. In situ.



Fig. 11 *Podochilus lucescens* Blume. Flowering stem. Kew cult. 2013-1692.



Fig. 12 *Podochilus microphyllus* Lindl. In situ.



Fig. 13 *Podochilus microphyllus* Lindl. Flowering stem. Kew cult. 2013-1642.



Fig. 14 *Thecostele alata* (Roxb.) Parish & Rchb.f. In situ.

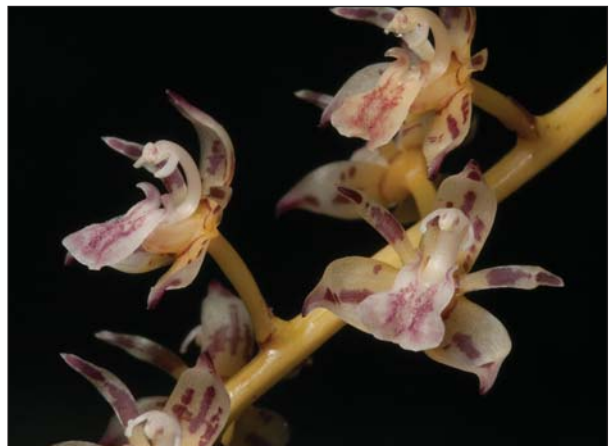


Fig. 15 *Thecostele alata* (Roxb.) Parish & Rchb.f. Flowers. Kew cult. 2013-1577.



Fig. 16 *Thelasis perpusilla* (Parish & Rchb.f.) Schuit. In situ.



Fig. 18 *Thrixspermum filiforme* (Hook.f.) Kuntze. In situ.



Fig. 19 *Thrixspermum filiforme* (Hook.f.) Kuntze. Flower. Kew cult. 2013-1637.



Fig. 17 *Thelasis perpusilla* (Parish & Rchb.f.) Schuit. Flowering plant. Kew cult. 2013-1711.



Fig. 20 *Trichotosia dasyphylla* (Parish & Rchb.f.) Kraenzl. Flowering plant. Kew cult. 2013-1710.

a watercolour painting by Eberhard, not an actual specimen, and it would seem that some of the details, such as the spreading sidelobes of the lip shown in the painting, are perhaps not accurate. This makes our identification slightly uncertain, and a comparison with specimens from the type locality would be desirable. Our specimen definitely belongs to the same species as the plant labelled *C. filipeda* in George & George (2011: 102). Interestingly, a plant of uncertain provenance cultivated by Malcolm Perry in England has flowers indistinguishable from our specimen from Cambodia, but it produces an inflorescence that continues to grow in superposed stages in the manner of species of the section *Proliferae*.

***Coelogyne pallens* Ridl. (Kew cult. 2013-1666; Figs 2 & 3)**

In contrast to the previous species, this is a widespread and common orchid whose occurrence in Cambodia was to be expected. It was found as an epiphyte on tree trunks in disturbed evergreen forest on a ridge at c. 430 m. This species also occurs in Myanmar, Thailand, Laos, Vietnam, Peninsular Malaysia, and Borneo.

***Dendrobium reflexitepalum* J.J.Sm. (Kew cult. 2013-1580; Figs 4 & 5)**

Peter O'Byrne (pers. comm.) found this small-flowered species of the section *Aporum* in Thailand, and observed that specimens from Thailand and ours from Cambodia lack the purple margins on the basal part of the lip that characterise specimens from Java and Sumatra, from where the species was previously recorded (Comber, 2001). It is very similar to the common *D. aloifolium*, and may well have been misidentified as such in Thailand and Indochina. *Dendrobium aloifolium* has still smaller flowers with narrower lobules to the mid-lobe of the lip and a labellar callus that when viewed from above extends well beyond the apex of the column. We found *D. reflexitepalum* to be a common species in the Cardamom Mountains in secondary forest and open woodland at c. 420–470 m altitude.

***Micropera thailandica* (Seidenf. & Smitinand) Garay (Kew cult. 2013-1763; Figs 6 & 7)**

This monopodial species was found as an epiphyte on small trees in open savannah on white sand at c. 420 m altitude. It was previously recorded from Thailand, Myanmar and Vietnam (Kurzweil & Saw Lwin, 2015) and probably occurs in Laos as well.

***Pennilabium acuminatum* (Ridl.) Holttum (Kew cult. 2013-1737; Figs 8 & 9)**

This is one of the more surprising new records and one of several species that may be considered a southern element in the flora of the Cardamom Mountains (see



Fig. 21 *Vrydagzynea albida* (Blume) Blume. Flowering stem. Kew cult. 2013-1723.

note under *Thrixspermum filiforme* below). The genus *Pennilabium* has its centre of diversity in Malesia, with only few species extending into continental Asia, as far north as Northeast India and China (Yunnan). Until now, *Pennilabium acuminatum* was known only from the Cameron Highlands in Peninsular Malaysia (Seidenfaden & Wood, 1992). Its flowers arise in succession at intervals of a few weeks over a period of about five months, each flower lasting a single day only. In the Cardamom Mountains it was found in humid evergreen montane forest as an epiphyte on thin tree trunks at 700 m altitude.

***Podochilus lucescens* Blume (Kew cult. 2013-1692; Figs 10 & 11)**

Along with *Appendicula hexandra* (J.Koenig) J.J.Sm. and *Podochilus microphyllus* (see below) this is one of the most frequently seen orchids in the dense evergreen forests of the Cardamom Mountains. This is not only because they are common species locally, but also because they usually grow in the shady understory of the forest rather than high up in the trees like most light-loving epiphytic orchids. This makes them easier to spot. At lower elevations, around 400 m, *P. lucescens* nearly always grows on trees along small streams, evidently requiring the higher humidity of such places for survival, while on mountain

ridges above 700 m this almost fern-like plant can be seen throughout the forest, not only near streams. This species is especially common in tropical rainforests in the Malay Archipelago, but is also found in parts of Southeast Asia with a similar climate. *Podochilus lucescens* has been recorded from Myanmar, Thailand, Peninsular Malaysia, Sumatra, Java, Borneo, Sulawesi, and the Philippines.

***Podochilus microphyllus* Lindl. (Kew cult. 2013-1642; Figs 12 & 13)**

Like the related *P. lucescens*, this is a small and locally common orchid from shaded places in evergreen forest, where it grows on tree trunks and rocks at around 430 m altitude. Unlike the previous species, which has tufted and patent stems, *P. microphyllus* has a more creeping habit and can be almost moss-like in appearance. It was previously known from Myanmar, Thailand, Vietnam, Peninsular Malaysia, Sumatra, Java, and Borneo.

***Thecostele alata* (Roxb.) Parish & Rchb.f. (Kew cult. 2013-1577; Figs 14 & 15)**

Like *Coelogyne pallens*, this is a widespread species whose occurrence in Cambodia was to be expected. The long, pendulous, gradually elongating inflorescence of this taxonomically isolated species may produce flowers over more than a single growing season. It has been recorded from northeast India, Bangladesh, Myanmar, Thailand, Laos, Vietnam, Peninsular Malaysia, Sumatra, Java, Borneo, and the Philippines. In the Cardamom Mountains this distinctive, small-flowered species, which is noteworthy for being the only known tropical orchid with poly-embryonic seeds, is found sporadically in dense evergreen forest at c. 500 m altitude.

***Thelasis perpusilla* (Parish & Rchb.f.) Schuit. (Kew cult. 2013-1711; Figs 16 & 17)**

This easily recognised species with its minute, 3 mm long, white flowers has until recently been included in *Eria*, as *E. perpusilla*, until the first author transferred it to *Thelasis* (Schuiteman, 2014). An examination of fresh material, made possible by our field work, showed that the structure of the pollinia and other details of plant and flowers are unlike *Eria* (or *Porpax* and *Conchidium*, which are more similar in habit), but consistent with the genus *Thelasis*. This species flowers in the middle of the dry season (February–March), when the plant is leafless. As a result, specimens in herbaria are always without leaves. It has previously been recorded from Myanmar, Thailand, Laos, and Vietnam. In the Cardamom Mountains it grows on tree trunks in evergreen forest between 430 and 900 m altitude.

***Thrixspermum filiforme* (Hook.f.) Kuntze (Kew cult. 2013-1637; Figs 18 & 19)**

Better known as *Cordiglottis filiformis* until recently, this is another species with a southern distribution, being recorded from South Thailand, Peninsular Malaysia, Borneo, and the Philippines. Of the 12 new records recorded in this paper, five could be called ‘southern’ (Malesian) taxa: *Dendrobium reflexitepalum*, *Pennilabium acuminatum*, *Podochilus lucescens*, *P. microphyllus*, and *T. filiforme*. These all seem to reach the northern limit of their distribution area in the Cardamom Mountains. Like *Pennilabium acuminatum*, *T. filiforme* is an orchid with short-lived flowers, which are produced even less frequently than the former species. Because the likelihood of finding this species in flower in the wild is quite low, the extent of its occurrence based on herbarium records is almost certainly grossly underestimated. Our specimens were found on the branches of a fallen tree in evergreen forest at 470 m altitude.

***Trichotosia dasyphylla* (Parish & Rchb.f.) Kraenzl. (Kew cult. 2013-1710; Fig. 20)**

This charming little epiphyte, with its pilose leaves and long creeping rhizomes, is not uncommon in the countries neighbouring Cambodia. It has been recorded from Nepal, Myanmar, China (Yunnan), Thailand, Laos, and Vietnam. We found it creeping in the crown of a recently fallen tree in evergreen ridge-crest forest at c. 900 m altitude. Like *Eria pannea* Lindl. and *Microsaccus griffithii* (Parish & Rchb.f.) Seidenf., with which it grows together in the Cardamom Mountains, this is evidently a species that prefers a bright, breezy position.

***Vrydagzynea albida* (Blume) Blume (Kew cult. 2013-1723; Fig. 21)**

This inconspicuous terrestrial orchid is quite similar in habit to certain *Zeuxine* species related to *Z. affinis*, which also occur in the Cardamom Mountains. Like them, it has ovate, green leaves with a silvery grey streak along the mid-vein. The small flowers of *V. albida* hardly open, probably providing just enough access for the proboscis of the (unknown) pollinating insect to probe the spur. Although not common, it is an extremely widespread orchid, being recorded from India (Northeast India & Andaman Islands), Bangladesh, Thailand, Vietnam, Peninsular Malaysia, Sumatra, Java, Borneo, Sulawesi, the Philippines, and New Guinea. Species of the genus *Vrydagzynea* usually grow in moist spots, sometimes even in shallow running water, and *V. albida* is no exception. We observed it growing on damp rocks along a small stream in humid montane forest with tree ferns and much herbaceous undergrowth at c. 800 m altitude.

Conclusions

There is perhaps no better evidence that the orchid flora of Cambodia is very incompletely known than the fact that, as shown in this paper, even common species may turn out to be new records. It will be worthwhile to continue exploring the remaining habitats because many new records may be expected. As yet we know very little about regional differences in the orchid floras of different parts of Cambodia, which is another reason to perform systematic inventory work throughout the country.

Acknowledgements

We thank Dr Omaliss Keo of the Cambodian Forestry Administration, for his invaluable help before and during our visit, as well as Cedric Jancloes for sharing much useful information. Christopher Ryan was supported by a Scott Marshall Travel Award, while André Schuiteman received a grant from the American Society Board of the Kew Foundation. We thank CITES Cambodia and CITES UK for providing the necessary permits. The living specimens were imported into the UK under Defra Plant Health Licence Number 2149/194627-1.

References

- Averyanov, L.V. (2013) New and rare orchids (Orchidaceae) in the flora of Cambodia and Laos. *Turczaninowia*, **16**, 26–46.
- Comber, J.B. (2001) *Orchids of Sumatra*. Natural History Publications (Borneo) in association with The Royal Botanic Gardens, Kew and Singapore Botanic Gardens, Singapore.
- George, E. & George, J.C. (2011) *Les Coelogynes*. Belin, Paris, France.
- Govaerts, R., Bernet, P., Kratochvil, K., Gerlach, G., Carr, G., Alrich, P., Pridgeon, A.M., Pfahl, J., Campacci, M.A., Holland Baptista, D., Tigges, H., Shaw, J., Cribb, P., George, A., Kreuz, K. & Wood, J.J. (2015) *World Checklist of Orchidaceae*. Royal Botanic Gardens, Kew. [Http://apps.kew.org/wcsp/](http://apps.kew.org/wcsp/) [accessed 11 February 2015].
- Kurzweil, H. & Saw Lwin (2015) New orchid records for Myanmar, including the first record of the genus *Stereosandra*. *Gardens' Bulletin Singapore*, **67**, 107–122.
- Leti, M., Hul S., Fouché, J.-G., Chéng S.K. & David, B. (2013) *Flore Photographique du Cambodge*. Editions Privat, France.
- Schuiteman, A. (2014) *Thelasis perpusilla*: a new name for *Eria perpusilla*. *Orchideen Journal*, **21**, 52–57.
- Seidenfaden, G. (1992) The orchids of Indochina. *Opera Botanica*, **114**, 1–502.
- Seidenfaden, G. & Wood, J.J. (1992) *The Orchids of Peninsular Malaysia and Singapore*. Olsen & Olsen, Fredensborg, Denmark.
- Telepova, M. (2009) *Acampe hulae* Telepova (Orchidaceae), une nouvelle espèce du Cambodge et du Laos. *Adansonia*, sér. 3, **31**, 267–272.
- Telepova, M. (2013) *Doritis boubetii* Telepova sp. nov. et *Doritis pulcherrima* f. *cinnabarina* Telepova f. nov., deux nouveaux taxons lithophytes du Cambodge. *Rhône-Alpes Orchidées*, **50**, 6–15.