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Note

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Notes on fairy orchids (Magnoliopsida: Asparagales: Orchidaceae: *Oberonia*) of Sri Lanka: revision in regional distribution and documentation on vegetative propagation

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The genus *Oberonia* Lindley was first described by Lindley in 1830 [Lindley 1963 (1830)], after 'Oberon' the mythological king of fairies. At the beginning Lindley described 13 *Oberonia* species and subsequently many species were recognized and are still being described. According to Pridgeon et al. (2006) the genus consists of 150–200 species but based on the latest updates, this genus consists of 343 accepted species (eMonocot 2015).

Sri Lanka harbors 16 *Oberonia* species including the newly recognized *Oberonia meegaskumbura* Priyadarshana, Wijewardana & Kumar (Fernando & Ormerod 2008; MOE 2012; Priyadarshana et al. 2017). According to Fernando & Ormerod (2008) there are eight endemic *Oberonia* species in Sri Lanka, viz.: *O. claviloba* Jayaweera (1963), *O. dolabrata* Jayaweera (1963), *O. longibracteata* Lindley, (1830), *O. quadrilatera* Jayaweera (1963), *O. scyllae* Lindley (1859), *O. truncata* Lindley (1859), *O. walliesilvae* Jayaweera (1963), and *O. weragamaensis* Jayaweera (1963). In 2012 the national red list of Sri Lanka had recognized nine endemic species including *O. forcipata* Lindley (1859) in addition to the eight species listed by Fernando & Ormerod (2008). Though Jayaweera (1981) reported *O. forcipata* as a species endemic to Sri Lanka, Johnsingh (2001) reported the occurrence of *O. forcipata* from Kalakad-Mundanthurai Tiger Reserve in India.

Similarly, *Oberonia longibracteata* is another species that has been recorded as endemic to Sri Lanka by the Handbook to the Flora of Ceylon (Trimen 1893), the Revised Handbook to the Flora of Ceylon (Jayaweera 1981), an annotated check list of Orchids of Sri Lanka (Fernando & Ormerod 2008), and the national red list of threatened flora and fauna of Sri Lanka (MOE 2012). Contradictory to these reports, *O. longibracteata* has been recorded from India (Kerala), Thailand, Cambodia, China and Vietnam (Ansari & Balakrishnan 1990; Pridgeon et al. 2006; eFloras 2008; Averyanov 2013). It is recorded as a well-known folk medicine for scorpion bites in Cambodia (Lewis & Elvin-Lewis 2003; Pridgeon et al. 2006).

This record once again reduces the number of endemic *Oberonia* species in Sri Lanka to eight (including *Oberonia meegaskumbura*) and the total number of endemics in the family Orchidaceae remain at 50 with the addition of the recently recognized endemics, *O. meegaskumbura* and *Podochilus warnagalensis*

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Image 1. *Oberonia longibracteata* Lindl. A - a small population of plants growing as lithophytes cling to the surface of rocks; B - a mother plant with vegetatively propagated plantlets bearing flowers/ dried seeds/ fresh seeds circled in yellow.

Wijewardana, Priyadarshana, Arangala, Attanagoda, Samarakoon & Kumar (Wijewardana et al. 2016). The accurate status of a species is important for the validity of the other documentation such as taxonomic revisions and evaluation of the conservation categories during the red listing and the richness of the biodiversity of the island.

Sexual reproduction is commonly observed in the family Orchidaceae. However, vegetative propagation by the means of producing adventitious buds with roots towards the ends of stems/leaves is also recorded in few genera such as *Podochilus* Blume (1825), *Vanda* Jones ex R. Br. (1820), and *Phalaenopsis* Blume (1825). According to the available literature, the reproduction of species belonging to the genus *Oberonia* was exclusively sexual, via seeds (Jones et al. 2010 who referred to (Clements 1989; Dockrill 1969, 1992; Schlechter 1911, 1982; Seidenfaden 1978)), until an observation was made in 2013 by Averyanov on vegetative propagation by means of producing new plantlets from the axils of floral bracts of old inflorescence in *Oberonia longibracteata*. In the present communication we record a recent observation, on vegetative propagation of the same species, *O. longibracteata*, and this will be the first record of vegetative propagation of an *Oberonia* species in Sri Lanka. This observation was made at Hantane Forest Reserve at an elevation of 1,203m during the dry season in Kandy District, Sri Lanka (Image 1).

These propagules were observed, emerging at a distance of about ½ to ⅔ from the base of the fleshy matured leaves where the drying inflorescence is attached. These newly emerged keikis have the ability to grow into a mature plant while being attached to the mother plant and also produce flowers and fruits. Once this leaf bearing the keiki dries off, the keiki starts growing as an independent plant by gradually attaching

to the nearby surface.

As this observation was made during the dry season in November, this could be an adaptation to survive and reproduce. This mechanism ensures the reproductive success and survival of the species during exhausting environmental conditions by producing fully grown propagules.

References

Ansari, R. & N.P. Balakrishnan (1990). A revision of the Indian species of Oberonia (Orchidaceae). Rijksherbarium/Hortus Botanicus, 39pp.

Averyanov, L.V. (2013). The orchids of Vietnam illustrated survey. Part 4. Subfamily Epidendroideae (tribes Arethuseae and Malaxideae). *Turczaninowia* 16(1): 5–163.

Blume, C.L. (1825). *Bijdragen tot de Flora van Nederlandsch Indie - Vol. 7*. Batavia: Ter Lands Drukkerij, 286–354pp.

Brown, R. (1820). Vanda roxburghii, chequer-flowered Vanda. *Botanical Register* 6: 506.

Clements, M.A. (1989). Catalogue of Australian Orchidaceae. *Australian Orchid Research* 1: 1–160.

Dockrill, A.W. (1969). *Australian Indigenous Orchids - Volume 1*. The Society for Growing Australian Plants, Halstead Press, Sydney.

Dockrill, A.W. (1992). *Australian Indigenous Orchids - Volume 1 & 2*. Surrey Beatty & Sons in association with The Society for Growing Australian Plants, Chipping Norton, NSW.

eFloras (2008). *eFloras.org*, http://www.efloras.org Electronic version accessed 28th May 2017.

eMonocot (2015). *eMonocot* version 1.0.5., http://e-monocot.org/ Electronic version accessed 28 May 2017.

Fernando, S.S. & P. Ormerod (2008). An annotated checklist of the Orchids of Sri Lanka. *Rheedea* 18(1): 1–28; http://doi.org/10.11646/phytotaxa.266.2.10

Jayaweera, D.M. (1963). New orchids from Ceylon. *Botanical Museum Leaflets*, Harvard University 20(4): 93–116.

Jayaweera, D.M.A. (1981). Orchidaceae. In: Dassanayake, M.D. & F.R. Fosberg (eds.). *A Revised Hand Book to the Flora of Ceylon (Vol. 2).* Amerind Publication Co. Pvt. Ltd., New Delhi, 387pp.

Johnsingh, A.J.T. (2001). The Kalakad-Mundanthurai Tiger Reserve: A global heritage of biological diversity. *Current Science* 80(3): 378–388.

Jones, D.L., T. Hopley & S.M. Duffy (2010). Lucid Key Server: Australian tropical rain forest Orchids (version 1.1) - *Oberonia,* Center for Australian National Biodiversity Research, Commonwealth Science and Industrial Research Organisation, Lusidcentral.org and Australian Biological Resources Study; http://keys.trin.org.au/key-server/data/08090a09-0d0e-410b-860c-020705070e0e/media/Html/genera/Oberonia.htm. Accessed 28 May 2017.

Lewis, W.H. & M.P. Elvin-Lewis (2003). *Medical Botany: Plants Affecting Human Health*. John Wiley & Sons, 556pp.

Lindley, J. (1859). *Folia orchidacea, An Enumeration of the Known Species of Orchids*. At 5, Charles Street, Covent Garden, London, 8pp.

Lindley, J. (1963). *The Genera and Species of Orchidaceous Plants*. Ridgways, London, 15pp.

MOE (2012). *The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora*. Ministry of Environment, Colombo, Sri Lanka, 293–300pp.

Pridgeon A.M., P. Cribb, M.W. Chase & F.N. Rasmussen (2006). *Genera Orchidacearum* Vol. 4: Epidendroideae (part 1), 475-478pp. Oxford University Press.

Priyadarshana, T.S., I.H. Wijewardhane, A.G. Atthanagoda, N.S. Arangala, A. Jayasooriya & P. Kumar (2017). *Oberonia meegaskumburae* (Orchidaceae: Epidendroideae: Malaxideae), a new species from Sri Lanka. *Phytotaxa* 302(3): 59–265.

Schlechter, R. (1911). Beitrage zur Kenntniss der Orchideen-Flora von Sumatra. *Botanische Jahrbücher für Systematik* 104: 13.

Schlechter, R. (1982). The Orchidaceae of German New Guinea (incorporating the figure atlas to the above). Essendon: Victoria, The Australian Orchid Foundation, 1,180pp.-illus., maps, keys. *En Many new taxa. Translation by RS Rogers and others of" Die Orchidaceen von Deutsch-New-Guinea". Icones, Maps. Geog, 6.*

Seidenfaden, G. (1978). Orchid genera in Thailand. VII. *Oberonia* Lindl. & *Malaxis* Sol. ex Sw. *Dansk Botanisk Arkiv* 34(1): 1–94.

Trimen, H. (1893). *A Handbook to the Flora of Ceylon (Vol. 4).* Dulau, London, 138pp.

Wijewardana, I.H., T.S. Priyadarshana, N.S. Arangala, A.G. Atthanagoda, R.T. Samarakoon & P. Kumar (2016). *Podochilus warnagalensis* (Orchidaceae), a new species from Sri Lanka. *Phytotaxa* 266(2): 151–156.

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