



Tuberolabium camperenik (Orchidaceae), a new Aeridinae species with crystal white flowers from West Java, Indonesia

Mark Arcebal K. NAIVE^{1,2,*}, Yuda Rehata YUDISTIRA³, ROMIYADI⁴, Dadang SUMARDI⁵, Paul ORMEROD⁶

1. Center for Integrative Conservation, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, Yunnan 666303, China.

2. University of Chinese Academy of Sciences, Beijing 100049, China.

3. Ambit village No. 23, RT/RW 003/003, Situraja District, Sumedang Regency, West Java, 45371, Indonesia.

4. Agrotechnology, Winaya Mukti University, Jl. Bandung-Sumedang Km. 29 West Java, 45362, Indonesia.

5. School of Life Sciences and Technology, Intitut Teknologi Bandung, Gedung Labtek XI Jl. Ganesa 10 Bandung, Jawa Barat - Indonesia.

6. P.O. Box 8210, Cairns, Qld., 4870, Australia.

*Corresponding author's E-mail: arciinaive19@gmail.com

(Manuscript received 14 April 2021; Accepted 31 May 2021; Online published 11 June 2021)

ABSTRACT: A new Javan endemic *Tuberolabium* species, *Tuberolabium camperenik* Yudistira, Naive & Romiyadi, is herein described and illustrated. It is unique among the three *Tuberolabium* species found in Indonesia by having crystal white flowers and a long, very narrow spur not thickened on the front wall around the epichile. Detailed description, colour plates, phenology, distribution and a preliminary conservation assessment are provided in this paper.

KEY WORDS: Epidendroideae, Malesian Flora, Orchid, Tropical botany, *T. odoratissimum*, Vandaeae.

INTRODUCTION

Established by Yoshimatsu Yamamoto in 1924, the genus *Tuberolabium* Yamam. belonging to the subtribe Aeridinae, is represented by eight accepted species that are distributed in Taiwan, Thailand, Sumatra, Java, Lombok, Sulawesi, Maluku, and the Philippines (Kocyan and Schuiteman, 2014; Ormerod and Juswara, 2019; POWO, 2020). The genus comprises of monopodial epiphytes that produce pendent, many- and small-flowered inflorescences (Ormerod and Juswara, 2019). *Tuberolabium* has been morphologically confused in particular with its closely related genus *Trachoma*; however, recent molecular phylogenetic analysis showed that they are indeed distinct from one another. *Tuberolabium* was found sister to *Ceratocentron* and both are closely related to *Amesiella*, *Biermannia*, *Cryptopylos*, *Dyakia*, *Hymenorchis*, *Macropodanthus*, *Saccolabium* and *Trachoma* (Pridgeon *et al.*, 2014; Zou *et al.*, 2015).

In October 2019, an unidentified epiphytic orchid was collected in the Mt. Masigit area, West Java, Indonesia and has subsequently been cultivated by the second author. Flowering specimens of the species were examined by the authors in March 2020 at Biology Laboratory of the Faculty of Agriculture, University of Winaya Mukti, West Java, Indonesia. After detailed morphological examination and thorough review of protologues and digitized type specimens, results revealed that this taxon belongs to *Tuberolabium*, however, it doesn't match to any existing member of the genus. Hence, we describe it here as *Tuberolabium*

camperenik, a species new to science. This new addition brings the total number for this genus to nine.

MATERIALS AND METHODS

The measurements and descriptions were based on fresh collected materials, unless otherwise indicated. The general plant descriptive terminology follows Beentje (2016). Herbarium citations follow Index Herbariorum (Thiers, 2020). Original material of *Tuberolabium* spp. from Indonesia and neighbouring countries were examined in different herbaria through high-resolution images from Global Plants on JSTOR accessed at <https://plants.jstor.org/> and Plants of the World Online accessed at <http://www.plantsoftheworldonline.org/>. An assessment of conservation status was carried out following IUCN (2019), based on our current knowledge and using their terminology on categories, criteria and subcriteria.

TAXONOMIC TREATMENT

Tuberolabium camperenik Yudistira, Naive & Romiyadi, *sp. nov.* **Figs. 1–2**

Type: INDONESIA. West Java, Bandung Regency, Mount Masigit, elev. 1000–1500 m, 30th March 2020, Romi 001-002 (holotype BO; isotype BO - spirit collection).

Diagnosis: *Tuberolabium camperenik* differs from the three Indonesian *Tuberolabium* species (*T. odoratissimum*, *T. erosulum* and *T. pendulum*) in having crystal white flowers and a long, very narrow spur which

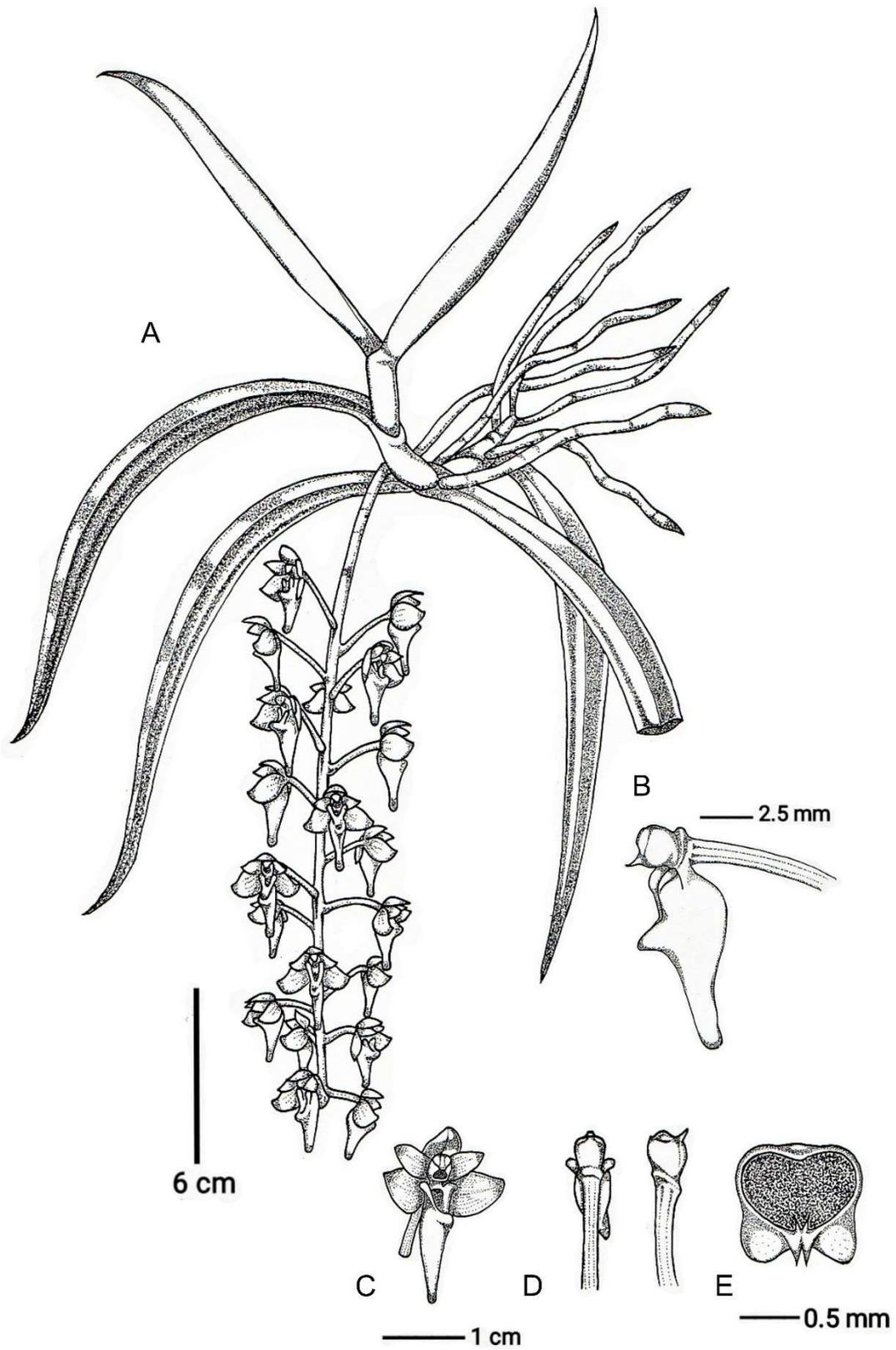


Fig. 1. Illustration of *Tuberolabium camperenik* Yulistira, Naive & Romiyadi, *sp. nov.* **A.** Habit **B.** Ovary, column and labellum, **C.** Flower, **D.** Column and pedicel with ovary (backside and side view), **E.** Column from above, anther cap removed. Drawn by: Romiyadi.

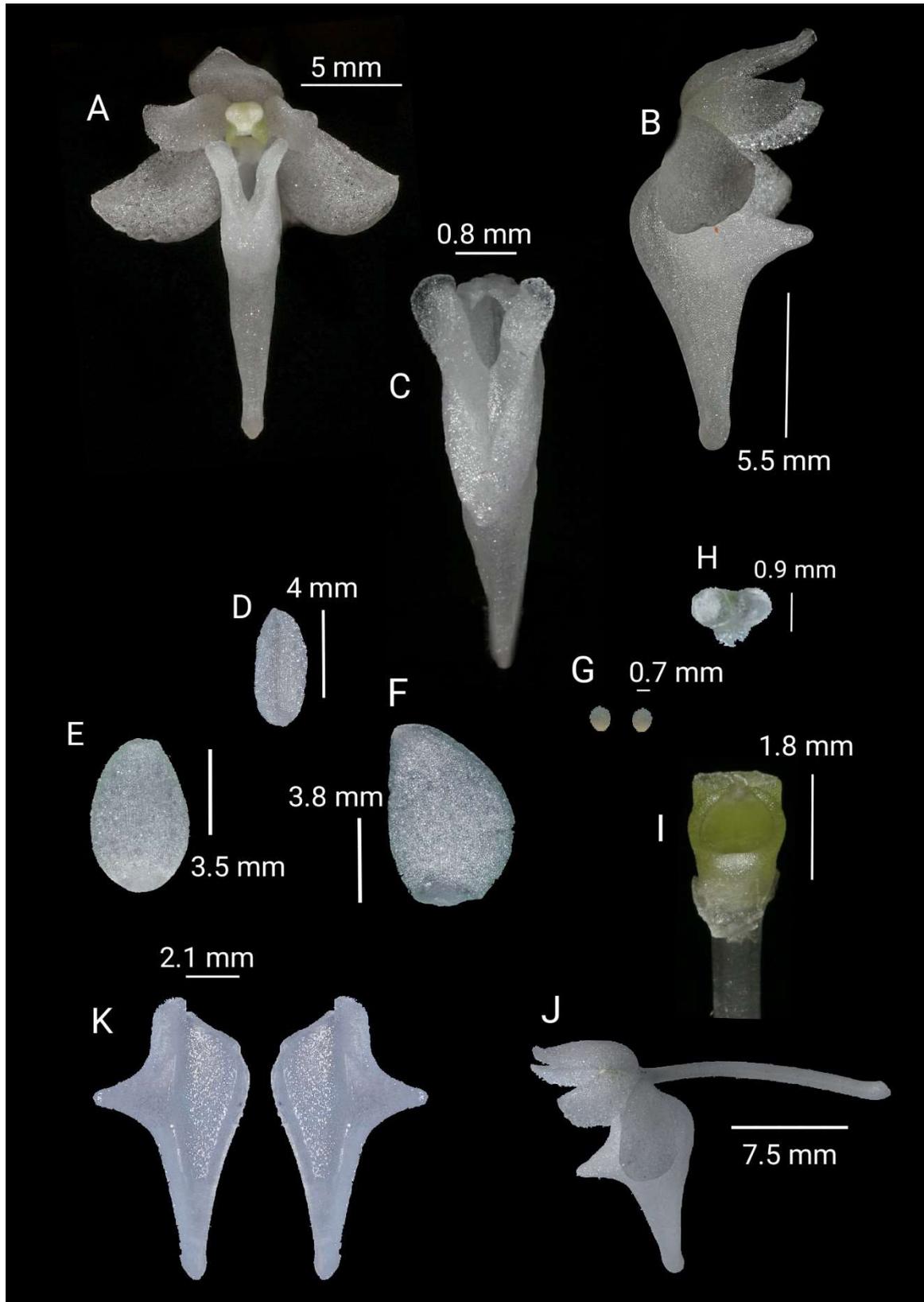


Fig. 2. *Tuberolabium camperenik* Yulistira, Naive & Romiyadi, *sp. nov.* **A.** Flower frontal view, **B.** Flower side view, **C.** Labellum frontal view, **D.** Petal, **E.** Median sepal, **F.** Lateral sepal, **G.** Pollinia, **H.** Anther cap, **I.** Column frontal view without anther cap, **J.** Flower side view with pedicel and ovary; **K.** Labellum split vertically. Photos by: Y.R. Yulistira.



is not thickened on the front wall around the epichile.

Description: Monopodial, epiphytic herbs. **Roots** terete, 10–15 cm long, 4–5 mm in diameter, covered with silver velamen, greenish near apex. **Stems** ascending, 5–6 cm long, 4–5 mm in diam., covered by persistent sheaths. **Leaves** sessile, distichous, linear, conduplicate, 9.5–18.5 × 0.9 cm, coriaceous, articulate to a sheathing base, margin entire, apex acute to acuminate, occasionally unequally bilobed. **Inflorescences** axillary, racemose, 24.5–27.0 cm long, arching to pendent; **peduncle** 4–6 cm long, terete; **rachis** 20–21 cm long, alate, sulcate. **Flowers** resupinate, crystal white, slender, lasting up to 14 days. **Pedicel and ovary** 5.0–7.5 mm long, sulcate, glabrous, transparent white. **Dorsal sepal** obovate, 5.5–5.6 × 3.0–3.1 mm, glabrous both sides, nodding, margins semi-erose, apex obtusely rounded, upper part slightly recurved. **Lateral sepals** ovate, 6.8–7.0 × 4.0–4.1 mm, canaliculate, glabrous both sides margin sometimes erose-serrulate, base adnate to column foot, apex obtuse to acute. **Petals** elliptic to oblong, 5.2–5.5 × 2.5–2.7 mm, glabrous both sides, margins erose, apex obtuse. **Lip** trilobed, spurred, ca. 13 mm long dorsally; **sidelobes** with an oblique base, raised apically into a short, obtuse, minutely papillose-pubescent margin on the lobule, front margin ca. 2.5 mm tall; **midlobe** narrowly ovate above, triangular in lateral view, obtuse, ca. 2 mm long, 1 mm wide; **spur** narrowly conical, obtuse, 5.5–6.0 mm long, unadorned inside. **Column** 1.5–1.8 mm long, 0.7–0.8 mm across, truncate without anther cap, greenish with an obliquely decurrent foot; **column foot** short, 0.4 mm long; **pollinia** waxy, subglobose to ovoid, entire, solid, yellow greenish, stipe rudimentary, viscidium distinct; **rostellum** bifid, with a median tooth, the two main teeth sometimes strongly retrorse and fitting into two cavities on viscidium. **Capsule** not seen.

Distribution and habitat: Endemic to western Java, Indonesia. The species has so far only been found at its type locality, *i.e.* Mount Masigit, West Java, Indonesia. It is found thriving on steep slopes of upper montane forest with deeply shaded and high-humidity and elevation range of 1000 to 1500 m above sea level. The plants were growing epiphytically on large tree branches along with other orchid species which are *Chelonistele sulphurea* (Blume) Pfitzer, *Tuberolabium odoratissimum* (J.J.Sm.) Garay and *Trachoma rhopalorrhachis* (Rchb.f.) Garay.

Phenology: Observed flowering in the wild from March to April.

Etymology: The specific epithet ‘*camperenik*’ was used as a noun in apposition. It is a Sundanese word which means small, attractive, beautiful, cute, and unique alluring to the flowers of this magnificent species.

Provisional conservation status: The species is so far only known from its type locality and a single population was only found with few individuals. Following IUCN

(2019), we herein propose this species to be provisionally treated as ‘Data Deficient’ (DD) as there is insufficient information to assess the status of the species and further surveys are needed. The assessment shall be updated as more information becomes available.

Taxonomic notes: Among all *Tuberolabium* species present in Indonesia, we found *T. camperenik* as morphologically closely similar to *T. odoratissimum* (J.J.Sm.) Garay, but the new species differs in having longer elliptic-oblong petals (over 5 mm long), and a longer conical labellum with longer triangular midlobe without coloration. By contrast, *T. odoratissimum* has oblong petals, a deeply saccate labellum, the lower part narrowed to a spur which is hairy inside, the side-lobes small and triangular with reddish near the apex.

ACKNOWLEDGMENTS

The authors would like to express their gratitude to Dena Permana Putra for providing us the specimen, Kusnadi Andiwijaya (Sundanese cultural practitioner) for the discussion of the specific epithet ‘*camperenik*’ and to the Faculty of Agriculture, University of Winaya Mukti for facilitating the observation and research. The first author would like to thank Yayasan Konservasi Biota Lahan Basah for the research grant and Wewin Tjiasmanto for the unwavering support.

LITERATURE CITED

- Beentje, H. 2016. The Kew plant glossary: an illustrated dictionary of plant terms. 2nd ed. Royal Botanic Garden, Kew, 184 pp.
- IUCN Standards and Petitions Subcommittee. 2019. Guidelines for using the IUCN Red List categories and criteria. Version 14. Accessed on 7 January 2021. <https://cmsdocs.s3.amazonaws.com/RedListGuidelines.pdf>
- Kocyan A. and A. Schuiteman. 2014. New combinations in Aeridinae (Orchidaceae). *Phytotaxa* **161**(1): 61–85.
- Ormerod, P. and L. Juswara. 2019. New names in Indonesian orchids. *Harv. Pap. Bot.* **24**(1): 27–30.
- POWO. 2020. Plants of the World Online. *Facilitated by the Royal Botanic Gardens, Kew*. Published on the Internet. Accessed on 1 March, 2021. <http://www.plantsoftheworldonline.org/>.
- Pridgeon, A.M., P.J. Cribb, M.W. Chase and F.N. Rasmussen. 2014. *Genera Orchidacearum*. Vol. 6. Oxford University Press.
- Thiers, B.M. 2021. Index Herbariorum: a global directory of public herbaria and associated staff. New York Botanical Garden’s Virtual Herbarium. Accessed on 20 December 2020. <http://sweetgum.nybg.org/science/ih/>.
- Zou, L.-H., J.-X. Huang, G.-H. Zhang, Z.-J. Liu and X.-Y. Zhuang. 2015. A molecular phylogeny of Aeridinae (Orchidaceae: Epidendroideae) inferred from multiple nuclear and chloroplast regions. *Mol. Phylogenetics Evol.* **85**: 247–254.