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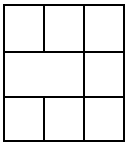

Cover images: *Begonia tjiasmantoi* Ardi & D.C.Thomas. A. Habit. B. Stipule. C. Male. D. Male inflorescence and female flower. E. Male flower. F. Female flower. G. Infructescence. H. Ovary cross-section, axile placentation and bilamellate placentae. A–H from *WI 562*. Photos: W.H. Ardi.

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BULBOPHYLLUM TRINERVOSUM, A NEW SPECIES OF SECTION *MACROCAULIA* (ORCHIDACEAE: BULBOPHYLLINAE) FROM WEST JAVA, INDONESIA

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ABSTRACT
VICTORIANO, M. & YUDISTIRA, Y. R. 2020. *Bulbophyllum trinervosum,* a new species of section *Macrocaulia* (Orchidaceae: Bulbophyllinae) from West Java, Indonesia. *Reinwardtia* 19(1): 67–73. — A new species of *Bulbophyllum* (Orchidaceae: Bulbophyllinae) in section *Macrocaulia* from West Java, Indonesia is described as *Bulbophyllum trinervosum* Victoriano & Y.R.Yudistira *spec. nov.* This miniature orchid is found around Cakrabuana mountain range at an elevation of 1,300–1,550 m. The key characteristic of this species is unique among section *Macrocaulia* in having three nerves on its median sepal instead of five like the other species in this section.

Keywords: *Bulbophyllum,* Indonesia, Java, new species, orchids.

ABSTRAK
VICTORIANO, M. & YUDISTIRA, Y. R. 2020. *Bulbophyllum trinervosum,* anggrek jenis baru dalam seksi *Macrocaulia* (Orchidaceae: Bulbophyllinae) dari Jawa Barat, Indonesia. *Reinwardtia* 19(1): 67–73. — Satu jenis baru *Bulbophyllum* (Orchidaceae: Bulbophyllinae) dalam seksi *Macrocaulia* dari Jawa Barat, Indonesia dipertelakan sebagai *Bulbophyllum trinervosum* Victoriano & Y.R.Yudistira *spec. nov.* Anggrek miniatur ini ditemukan di sekitar pegunungan Cakrabuana pada ketinggian 1.300–1.550 m. Karakter kunci dari jenis ini unik di antara seksi *Macrocaulia* karena memiliki tiga buah urat pada kelopak tengahnya alih-alih lima buah seperti jenis lain dalam seksi ini.

Kata kunci: Anggrek, *Bulbophyllum,* Indonesia, Jawa, jenis baru.

INTRODUCTION

Bulbophyllum Thouars is the second largest genus of flowering plants in the world. With currently 2,058 recognised species (Govaerts *et al*., 2020), *Bulbophyllum* is at present by far the largest genus in the orchid family, Orchidaceae (Schuiteman *et al.*, 2018). Almost every year, many new species of *Bulbophyllum* are described, making this genus grow even larger. Because of the tremendous diversity it is only possible to give a general description. Many attempts have been made to split off segregate genera based on morphology, but recent molecular work has shown that all of these are nested within *Bulbophyllum*. The centre of distribution is Asia and New Guinea, but many species are also known from Africa and a few from South America (Comber, 1990).

Schlechter (1911) in The Orchidaceae of German New Guinea, reported 330 species from the part of New Guinea he worked in, all but 11 of which he named himself, a feat which will be difficult to beat until we find another planet to explore. One hundred and forty-five species have been recorded from Thailand, 200 from Borneo, 130 from Sumatra, 127 from Peninsular Malaysia, 199 from the Philippines and just 82 from Java (Comber, 1990). Asian *Bulbophyllum* is usually characterised by its creeping or pendent rhizomes with uninodal pseudobulbs, apex of pseudobulb with one or two non-sheathing leaves, inflorescences arising from the pseudobulb base or from nodes of the rhizome, lateral sepals and column-foot forming amentum, and waxy pollinia almost always without appendages (Vermeulen, 2014).

The discovery of this new species began when the second author visited the site in the Cakrabuana mountain range in order to record the diversity of Orchidaceae in West Java. After reaching the elevation of *ca.* 1,300 m, the first specimens of this new species *Bulbophyllum* were sighted. At the peak at an elevation of *ca.* 1,600 m, the forest consist of medium-sized to small trees and the ground is quite steep humus-rich forest floor, overgrown by *Corybaspictus* (Blume) Rchb.f., *C. umbrosus* J.Dransf. & J.B.Comber and *Nephelaphyllum tenuiflorum* Blume. The temperature around this site is warm to cool with some trees covered by moss. On a Myrtaceae tree

that was uprooted by the wind, the second author found a clump of *Bulbophyllum* which at first was considered as *B. cernuum* (Blume) Lindl. a species usually found at higher elevation in the mountain forests of West Java. But after the plants flowered, it turned out that there are some significant differences based on which the authors describe it as a new species.

MATERIALS AND METHODS

The type specimen was collected by both authors during fieldwork in the Cakrabuana mountain range in February 2020. The material is now being cultivated by the second author. The data presented here are based on the type deposited at Herbarium Bogoriense and on living material. Other *Bulbophyllum* species were examined for comparison, namely *B. ovalifolium* (Blume) Lindl. and *B. tenellum* (Blume) Lindl. (*B. tenellum* is listed as synonym of *B. ovalifolium* in Govaerts *et al.* (2020)), based on living material in the private collection of the second author and on literature study.

TAXONOMIC TREATMENT

Bulbophyllum trinervosum Victoriano & Y.R.Yudistira *spec. nov.* (*Bulbophyllum* sect. *Macrocaulia* (Blume) Aver.). — TYPE: INDONESIA, West Java, Sumedang, Cakrabuana mountain range, at an elevation of *ca.* 1,300 m asl. 17 February 2020, *Victori 003* (Holotype BO). Figs. 1–4.

Bulbophyllum trinervosum Victoriano & Y.R.Yudistira is similar to *B. ovalifolium* but differs in having a smaller flower, with three longitudinal veins on the median sepal (*B. ovalifolium*: five), an obovate lip with emarginate apex (*B. ovalifolium*: tongue-shaped, sub-acute apex) and oblong, oblique, folded petals each with one indistinct vein, the colour is identical to the lip (*B. ovalifolium*: oval–oblong and unfolded petals, with one distinctive vein, the colour is identical to the lateral sepals).

Epiphyte herb with 7–20 cm long terete rhizome, branched or not. *Pseudobulbs* elliptic-oblong, horizontal, 10–11 × 4.5–5 mm, unifoliate, slightly narrowed at the leaf attachment, lower half covered by a thin papery scale, internodes very short. *Leaf* elliptic to oblanceolate, 15–21 × 5–6 mm, apex obtuse, margin entire, surface smooth with prominent midrib. *Inflorescence* single-flowered, terete, glabrous, from the base of pseudobulb; peduncle 15 mm long; ovary 10 mm long; bract ovate, apex acute, 1.5 mm long, clasping the ovary base. *Flower* 13 mm wide, with two large lateral sepals. *Median sepal* oblong, 3.5 × 2.5 mm, glabrous, pale orange with 3 longitudinal red veins, apex cuspidate, horizontal, covering the column. *Lateral sepals* obovate, 6 × 3 mm, glabrous, with mucronulate apex, cream-coloured with 5 longitudinal pale reddish veins, facing downwards, surface smooth, with slightly erose and semi-translucent margin. *Petals* oblong, 2 × 0.4 mm, oblique, apex obtuse, dark red with one visible vein, folded and facing upwards. *Lip* obovate, curved, 2.5 × 1.5 mm, coarsely tuberculate on the surface with one big dot in the centre, apex emarginate, basal part with V-shaped concavity in the centre, dark red. *Column* 1 mm long, with 2 wings on the both sides of the stelidia. *Anther cap* cordate, anther with two pollinia. *Seed pod* narrowly obovate, 9 mm long, 4.5 mm in diameter, obtusely triangular in transection.

Habitat and Ecology. Growing as an epiphyte on the bark of stunted Myrtaceae, in rain forest with trees 6–25 m tall at an elevation of 1,300–1,550 m asl. The terrain is undulating to steep. The habitat is shady and covered with mist, with sunlight only appearing at noon. This species grows sympatrically with other orchids such as *Dendrobium montanum* J.J.Sm. and *D. triflorum* Blume as well as species of the genera *Appendicula* Blume and *Coelogyne* Lindl. Flowering in February.

Distribution. Only found at the type locality.

Etymology. From Latin *trēs*, the cardinal numeral of three for combination (*tri-*), and *nervosus* means sinewy or nerved. Thus, the epithet means *three-nerved Bulbophyllum,* it refers to the three longitudinal veins on the median sepal of this species.

Note. This new species differs from the similar *B. ovalifolium* and the possibly conspecific *B. tenellum* in its smaller flower with three longitudinal veins on the median sepal, the obovate lip with emarginate apex, and the oblong, oblique, folded petals each with one indistinct vein and identical in their colour to the lip. Based on its morphological characteristics *B. trinervosum* appears to be distinct. More details about the differences between *B. trinervosum* and its similar species *B. ovalifolium* and *B. tenellum* is presented in the table below. However, the possibility cannot be entirely excluded that in future a detailed morphometric study of the group based on more material may show that it falls into the variation of one of the other species.

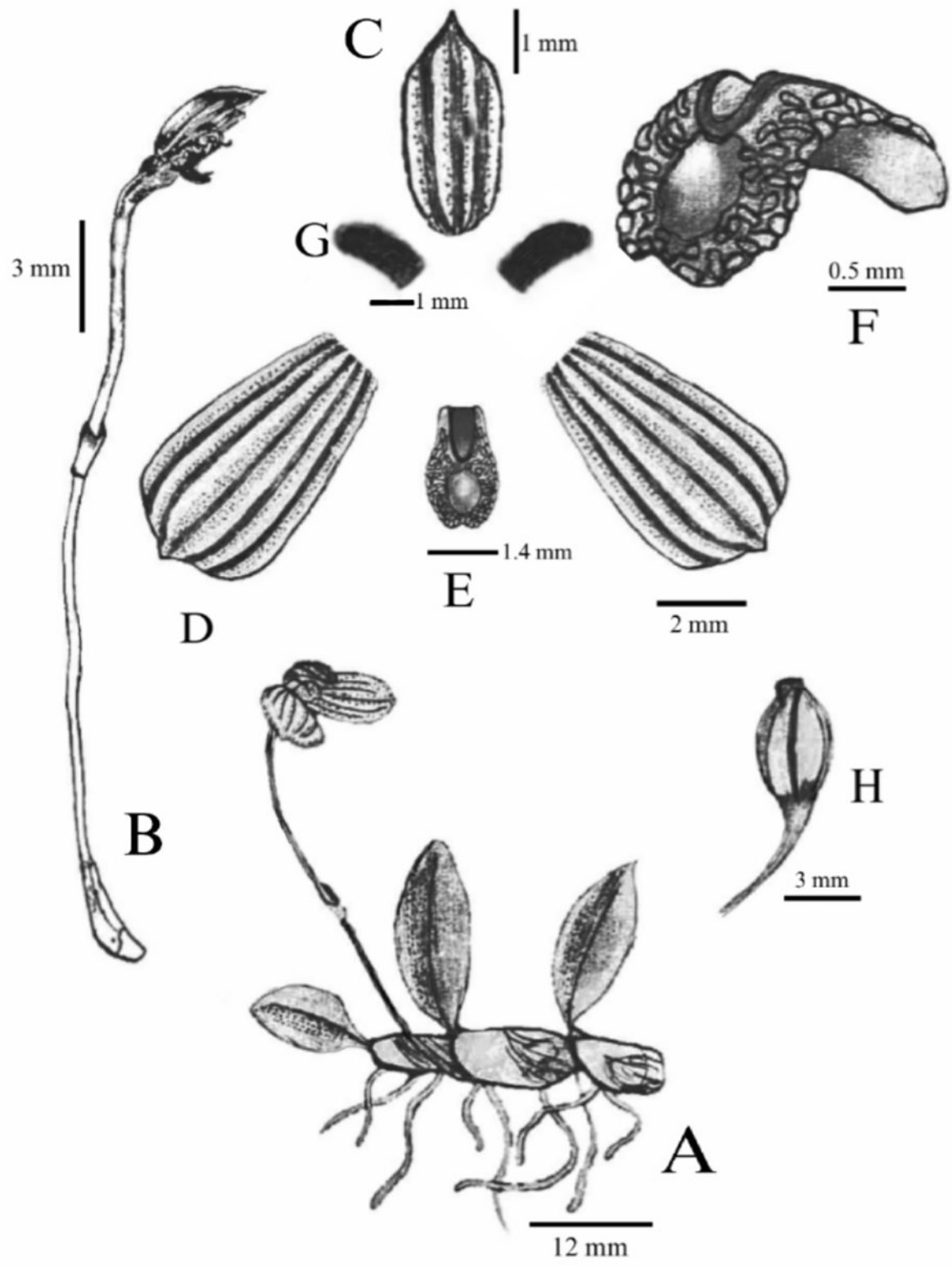

Fig. 1. *Bulbophyllum trinervosum* Victoriano & Y.R.Yudistira *spec. nov*. A. Plant habit. B. Inflorescence with lateral sepals, lip and petals removed; showing the column, median sepal and stelidia. C. Median sepal. D. Lateral sepals. E. Lip, artificially flattened. F. Lip in natural shape. G. Petals. H. Fruit. Drawing by Inayah Nursa'adah.

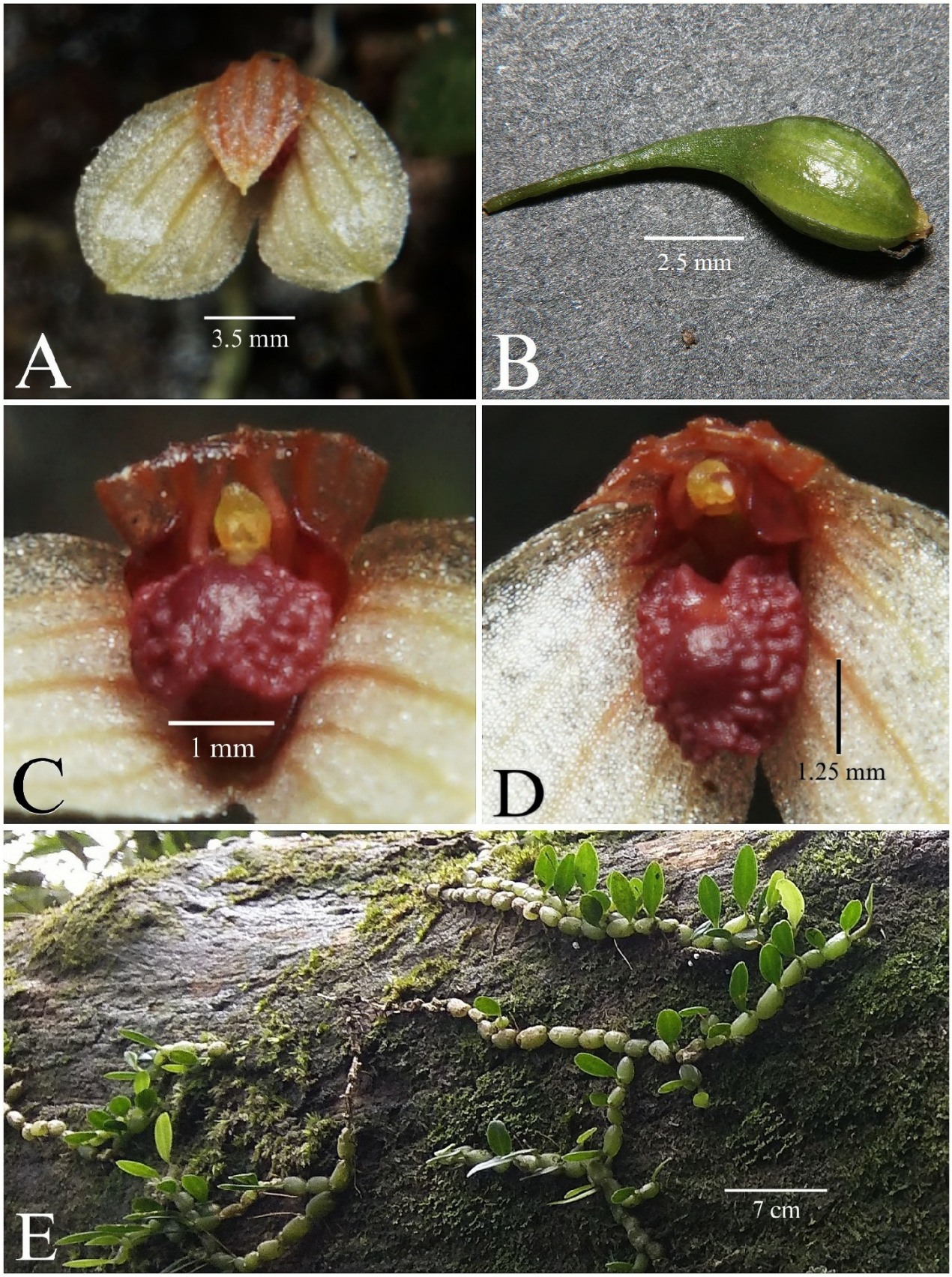

Fig. 2. *Bulbophyllum trinervosum* Victoriano & Y.R.Yudistira *spec. nov.* A. Flower, with the median sepal covering the petals, lip and column. B. Mature seed pod. C. Flower with median sepal partly removed showing the lip apex. D. Flower with median sepal partly removed showing the lip. E. Plants in the natural habitat. Photos: Y. R. Yudistira & M. Victoriano.

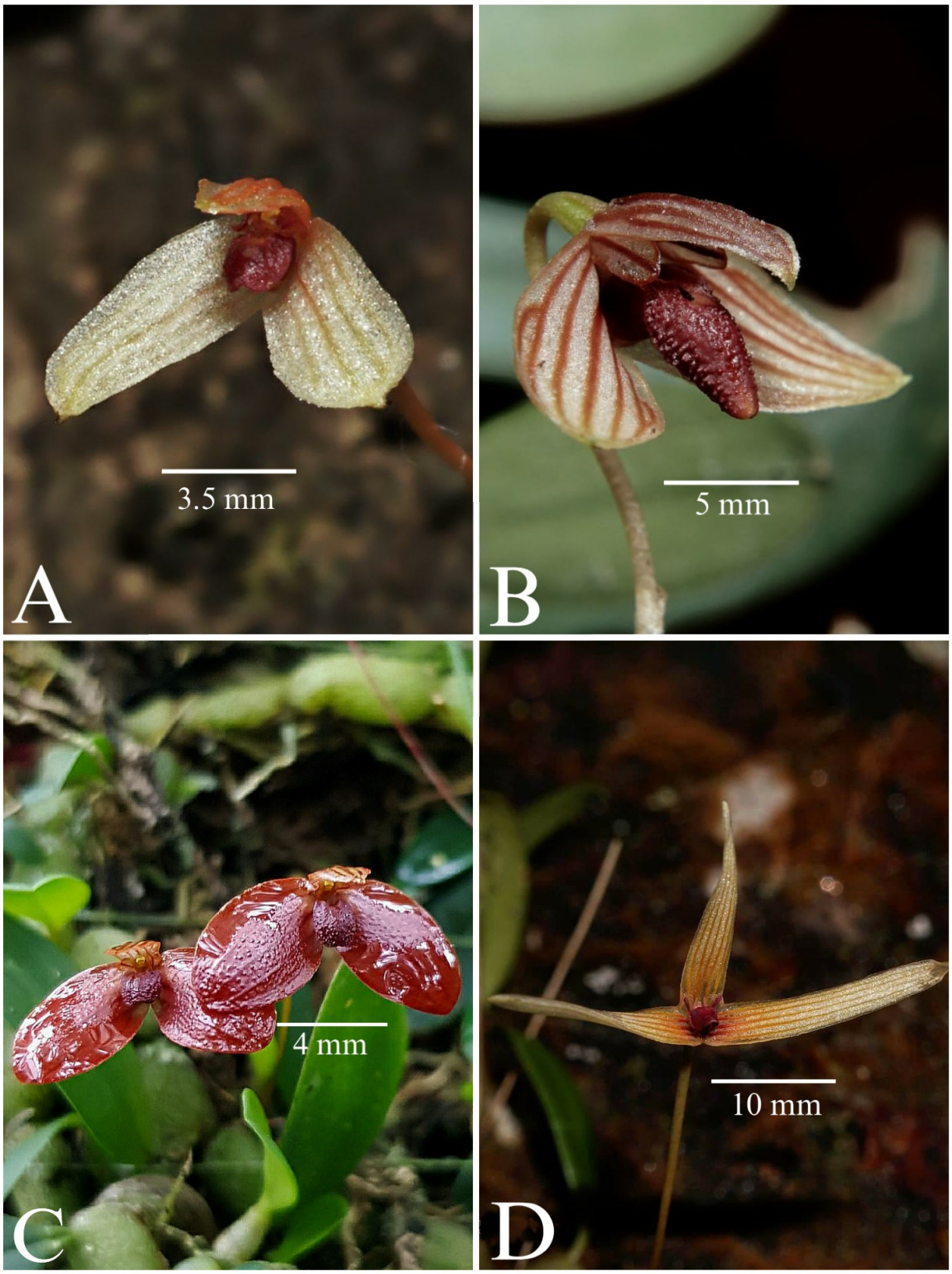

Fig. 3. *Bulbophyllum trinervosum* Victoriano & Y.R.Yudistira *spec. nov.* and similar taxa occuring in West Java. A. *B. trinervosum*. B. *B. ovalifolium* from West Java but not occurring in the Cakrabuana mountain range. C. *B. tenellum*, the most similar taxon to *B. trinervosum* but considered a synonym of *B. ovalifolium*. D. *B. cernuum*, the only species of section *Macrocaulia* that grows sympatrically with *B. trinervosum*. Photos A, B & D: Y. R. Yudistira and C: Gus Benk.

Fig. 4. *Bulbophyllum trinervosum* Victoriano & Y.R.Yudistira *spec. nov.* Plant in cultivation. Photo: Y. R. Yudistira.

Table 1. The morphological characters used to distinguish *Bulbophyllum trinervosum* from *B. ovalifolium* and *B. tenellum*.

Character	*B. trinervosum*	*B. ovalifolium*	*B. tenellum*
Lip shape	Obovate with coarsely tuberculate surface and one big dot in the centre.	Tongue-shaped with coarsely tuberculate surface.	Widely pandurate with coarsely tuberculate surface.
Lip apex	Emarginate.	Subacute.	Rounded or obtuse.
Median sepal	Oblong–ovoid, whitish yellow with three longitudinal red to orange veins.	Oblong, colour variable from red to yellow, with five longitudinal red veins.	Lanceolate, pale golden coloured, with five longitudinal darker veins.
Lateral sepal	Obovate, cream with five pale reddish veins.	Oval or oblong, colour variable from red to orange to yellow or whitish, with five dark red veins.	Oval, dark red, with no visible veins due to same colouration.
Petal	Oblong, oblique, dark red coloured with one invisible vein, folded and facing upwards.	Oval–oblong, straight, same colouration as lateral sepals with one red vein, flat and facing outwards.	Oval–oblong, yellow or whitish, paler than the lateral sepals, with one dark red vein and folded.
Distribution	Restricted to a small area in West Java in rain forest at an elevation of 1,300–1,550 m asl. Only known from the type locality.	Widely distributed from Himalayas to Thailand, Malaysia, Sumatra, Java, Borneo, Sulawesi and Lesser Sunda Islands in montane forests at an elevation of 900–2,500 m asl.	Java, Sumatra, Peninsular Malaysia and Philippines at an elevation of 1,000–1,700 m asl.

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