



# *Bulbophyllum lanterna*, a new species in Dendrobiinae (Orchidaceae) from Madagascar

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**Summary.** A new species from Madagascar, *Bulbophyllum lanterna* Hermans, is described and illustrated. It is compared with similar species from section *Lichenophylax*. A preliminary conservation assessment is provided.

**Key Words.** IUCN Red List assessments, section *Lichenophylax*, taxonomy.

## Introduction

*Bulbophyllum* Thouars is one of the largest genera in the Orchidaceae (subfamily Epidendroideae: tribe Malaxideae: subtribe Dendrobiinae) (Chase *et al.* 2015), comprising just over 2000 species (Vermeulen *et al.* 2018: 31) and has a pantropical distribution (WCSP 2020). One of the main centres of diversity is in the Madagascan region with a total of 210 species, five subspecies, and 15 varieties currently recognised. Around 10% of these also occur on surrounding archipelagos and just 1.5% have a broader distribution (Hermans 2021, in press).

The new species belongs in section *Lichenophylax*, a section of 17 recognised taxa first established by Schlechter (1924: 175), subsequently reviewed by Perrier de la Bâthie (1937: 45 – 50) and Bosser (1965). Section *Lichenophylax* consists of a group of very small plants, largely endemic to Madagascar with a single species in Réunion, forming dense masses on rocks and trees. The section is more or less homogeneous and the most consistent characteristics for species identification are in the morphology of the lip.

## Materials and Methods

As part of ongoing research and fieldwork on the orchid flora of Madagascar at the Royal Botanic Gardens Kew, the University of Vienna and PBZT Antananarivo, specimens of putative new taxa were compared with descriptions, herbarium material and drawings of all the type specimens of the genus to ascertain their novelty. This has resulted in the recognition of the new species.

The conservation status of the new species given in this paper is a summary of the full IUCN Red List assessment which will be completed and submitted for review and publication by IUCN once the species

name is validly published and therefore available for assessment. The assessment has been compiled based on current knowledge of these taxa, by one of the authors (Landy Rajaovelona), who is an IUCN Red List assessor, using the IUCN Red List Categories and Criteria (2012).

***Bulbophyllum lanterna* Hermans sp. nov.** Type: Madagascar, Toamasina prov., Andasibe area, 1100 m, Jan. 1999, Hermans 8292 (holotype K!).

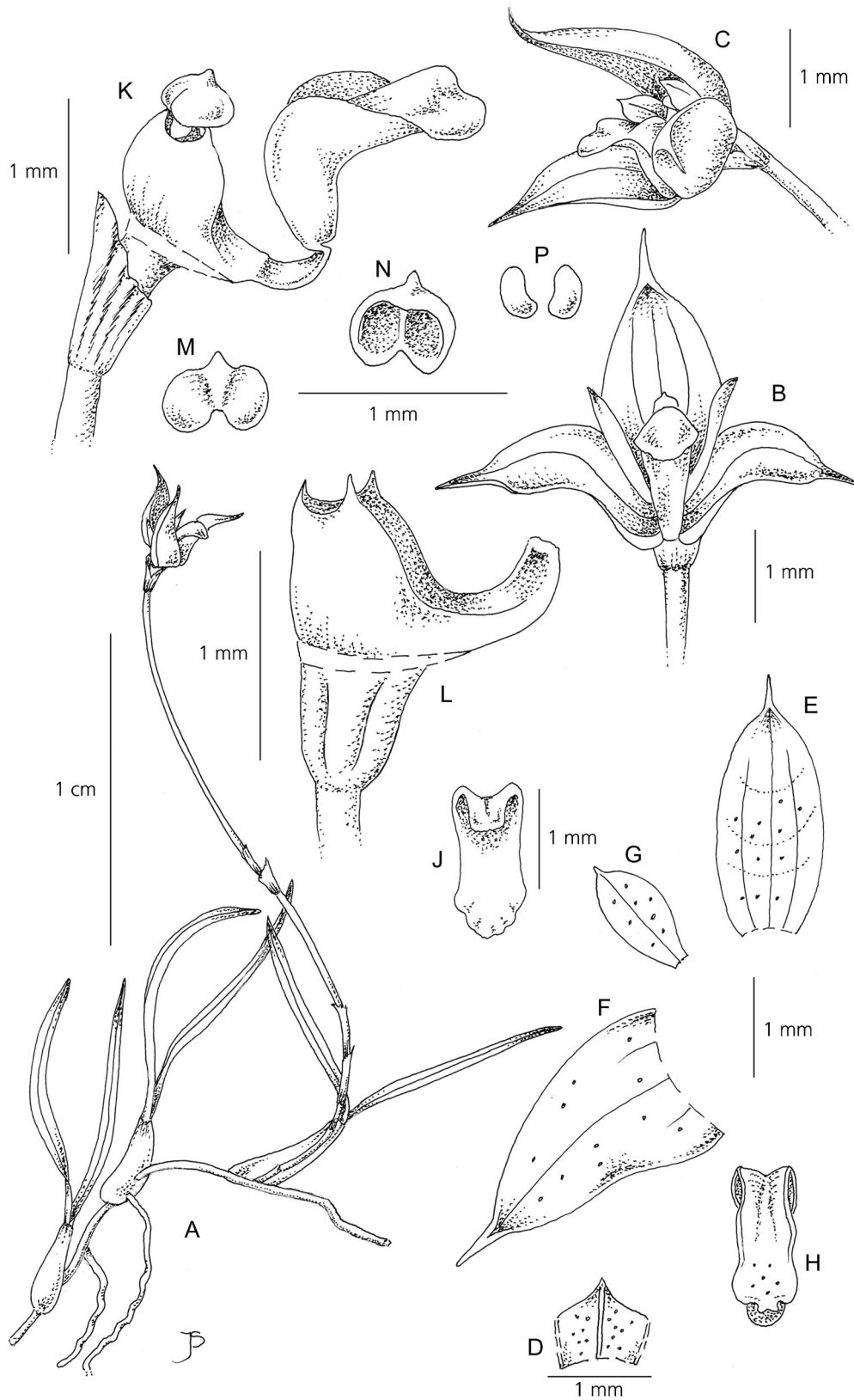
<http://www.ipni.org/urn:lsid:ipni.org:names:77218373-1>

Diminutive mat-forming epiphytic *herb* on a thin, repent, branching rhizome, 0.5 – 0.75 mm in diam., a little thickened at the base of the pseudobulbs; roots glabrous, rounded in cross section, c. 0.3 mm in diam. *Pseudobulbs* 2-leaved, 2 – 6 mm apart, rounded in cross section, narrowly ovoid to ovoid, 2 – 2.5 mm long × 0.9 – 1.2 mm wide, green, somewhat verrucose, the base with a membranous brown sheath. *Leaves* linear, flat, marginate, subsessile, attenuate towards the base, acuminate, green, 5.5 – 8.3 × 0.3 – 0.5 mm. *Inflorescence* from the base of the pseudobulbs, ascending or perrect, single-flowered at the apex, up to 20 mm long. *Peduncle* very thin, rigid, 14 – 18 × 0.2 – 0.3 mm, thickening towards the base of the pedicellate ovary, with one or two membranous, tubular acuminate scales at the apex, 1.5 – 1.9 mm long. *Floral bract* membranous, broadly lanceolate, 0.7 – 0.9 × 0.5 – 0.7 mm, tightly clasping the ovary. *Pedicel* and *ovary* very short, slightly ridged, c. 1 × 0.6 mm. *Flower* almost sessile, the sepals spreading, overall c. 5 × 4 mm diam., the sepals and petals crystalline white, the lip white with the apical half sulphur yellow, the column white with the base and adaxial surface flushed crimson red,

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**Fig. 1.** *Bulbophyllum lanterna*. A plant habit; B flower, front view; C flower, side view; D floral bract; E dorsal sepal; F lateral sepal; G petal; H lip from above; J lip from below; K column and lip, side view; L column, side view; M anther cap, dorsal view; N anther cap, ventral view; P pollinia. From Hermans 8292 & field photographs. DRAWN BY JUDI STONE.



**Fig. 2.** *Bulbophyllum lanterna*. A plant habit, from the Andasibe area, Madagascar; B inflorescence and flower. PHOTOS: J. HERMANS.

and the anther cap burgundy red. *Dorsal sepal* ovate, cuspidate, a little recurved at the apex, 2.8 – 3.1 × 1 – 1.1 mm. *Lateral sepals* obliquely ovate, subcaudate, recurved at the apex, 2.3 – 2.6 mm × 1.7 – 1.8 mm. *Petals* obovate, cuspidate at the apex, 1.2 – 1.4 × 0.7 – 0.8 mm. *Lip* recurved, glabrous, lingulate, roundly winged at the base, thickened and rounded towards the apex, the apical margin revolute, mobile on the column foot, 1.5 – 1.7 × 0.5 – 0.6 mm. *Column* subglobose, c. 1.5 × 1.2 mm, short with 2 mm tapering foot, wings rounded, stelidia shortly dentate, triangular. *Anther cap* bilobed, shortly apiculate at the base, c. 0.3 × 0.4 mm. *Pollinia* ovoid c. 0.2 × 0.2 mm. (Figs 1, 2).

**RECOGNITION.** *Bulbophyllum lanterna* is typical in section *Lichenophylax*, being a tiny plant with a branching rhizome, small ovoid bifoliate pseudobulbs, a setiform single-flowered inflorescence, and flowers with a fleshy lip and short stelidia. It differs from allied species in its linear leaves, long needle-like peduncle, and small 5 × 4 mm flowers, with the dorsal sepal and petals shortly cuspidate at the apex, and a narrow lingulate lip which is narrowly winged in the basal half and roundly thickened at the apical half. The colour of the flower is also distinct.

**DISTRIBUTION.** Endemic to Toamasina province, E Madagascar. Known from the type only and subsequent sight records in the same locality (Hermans 2019).

**HABITAT.** Epiphyte amongst bryophytes in medium elevation moist evergreen forest, at 1000 – 1150 m.

**CONSERVATION STATUS.** *Bulbophyllum lanterna* is endemic to Madagascar, restricted to Alaotra- Mangoro (Toamasina) and Sava (Antsiranana) regions. One subpopulation is protected in the Ankeniheny Zahamena Corridor (CAZ). The type specimen and the two observations represent a total of 03 ‘locations’ (*sensu* IUCN 2012) with respect to the main threats, which are shifting agriculture and small-scale logging and wood harvesting. With the one observation and the type specimen outside protected areas, we infer that habitat destruction will induce a strong continuous decline in the Area of Occupancy (AOO), habitat extent and quality, the number of subpopulations and mature individuals in the next ten years. *B. lanterna* is therefore assessed as Endangered (EN) under criterion B2ab (ii, iii, iv, v).

**PHENOLOGY.** December to January.

**ETYMOLOGY.** In reference to the lantern-like flowers, papery white on the outside and glowing yellow-red on the inside.

**NOTES.** *Bulbophyllum lanterna* is similar to a few species with short caudate sepals and a more or less glabrous lip in section *Lichenophylax*, including the equally diminutive *B. afzelii* Schltr. and *B. afzelii* var. *microdoron* (Schltr.) Bosser; but both have flowers almost twice the size with a lip that is broadly and long-winged with a bicarinate longitudinal ridge (vs narrow, short-winged with an entire ridge). *Bulbophyllum percorniculatum* H.Perrier has only slightly larger flowers but its pseudobulbs are discoid (vs ovoid) the leaves narrowly elliptic (vs linear), the sepals longer caudate and the lip more broadly winged at the base. *Bulbophyllum neglectum* Bosser from the same area is similar in shape but the flowers are twice the size with a much broader, triangular lip. In *B. debile* Bosser the overall flower size and shape are similar but the pseudobulbs are contiguous (vs distant), the leaves much shorter and the flower has a verrucose (vs glabrous) lip. *Bulbophyllum rudolphus* Hermans, also from the same area, has shorter and broader leaves and a larger flower with a similar lip, red anther cap and elliptic petals, roundly retuse at the apex (vs obovate, cuspidate). The flower colour of the new species is also very different from all the above species.

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