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Dendrochilum ignisiflorum (Coelogyninae, Arethuseae, Orchidaceae), a new species from Luzon Island, Philippines

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Abstract

Dendrochilum ignisiflorum is hereby described and illustrated as a new species of orchid endemic to Luzon Island, Philippines. The species resembles *D. vanoverberghii* by having petiolate leaves, channelled petioles, labellum of the same size, and the erect to suberect incurved column but distinct by the sub-globose or broadly ellipsoid pseudobulb, 3 distinct leaf veins, barely spreading flowers, lanceolate and revolute dorsal sepal, and the absence of callus in the labellum.

Keywords: Bokod, Malesia, Mt. Komkompol, sect. *Acoridium*, subg. *Platyclinis*

Introduction

The Upper Agno River Basin Resource Reserve (UARBRR) was created by virtue of Proclamation No. 268, s. 2000 pursuant to Republic Act 7586 or the NIPAS Act of 1992, which declared the former Ambuklao-Binga Watershed Forest Reserve situated in the municipalities of Atok, Bokod, Buguias, Itogon, Kabayan, Tublay, Kibungan, and La Trinidad, province of Benguet; municipalities of Hungduan and Kiangan, province of Ifugao, and municipality of Kayapa, province of Nueva Vizcaya as a protected area. The UARBRR is a highly important major water system that drains from north to south supplying major dams in Luzon like Ambuklao, Binga, San Roque, and Magat dam (DENR-CENRO Baguio, 2018).

During a fieldwork led by the first author last 08 March 2020 at the mossy forest of UARBRR in Bokod, Benguet, an unidentified species of orchid with brightly colored and minute flowers caught our attention. The orchid is easily distinguished as a member of the genus *Dendrochilum* Blume (1825: 593) by having a creeping rhizome with pseudobulbs bearing a single leaf with long inflorescence ornated with many alternating and distichously arranged flowers. The Philippines, Borneo, and Sumatra are considered to be the centers of distribution of this genus (Pedersen, 1995; Cootes, 2011). Currently, there are approximately 120 species of *Dendrochilum* found in the Philippines (Pelser *et al*. 2011 onwards; Naive & Gravendeel, 2018) with 94% endemicity (Naive *et al*. 2017).

The orchid species was vouchered, and microscopic details of the labellum and column were examined in order to ascertain identification. Review of literature and comparison to other *Dendrochilum* species in the Philippines proved it to be morphologically distinct. Hence, we take this opportunity to describe it as a new species and name it *Dendrochilum ignisiflorum* M.N.Tamayo & R.Bustam., *sp. nov.*

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Materials and methods

The orchid was brought to the University of the Philippines (UP) Baguio, College of Science Laboratory in order to examine microscopic details of the labellum and column. Further scrutiny and literature review deciphered that the orchid species is a member of *Dendrochilum* subg. *Acoridium* (Nees & Meyen) Pfitzer & Kraenzl by having short rhizomes with clustered pseudobulbs, synanthous inflorescence with the labellum firmly attached to the column, and the absence of foot and stelidia (Pedersen, 1997). However, this subgenus rank was later synonymized under an expanded subg. *Platyclinis* (Benth) Pfitzer (Pedersen *et al*. 2019) as supported by molecular evidence. Protologues of Philippine *Dendrochilum* species were reviewed and it was closely diagnosed to *D. vanoverberghii* Ames (1912: 27) endemic to Mt. Province, Ifugao, and Nueva Vizcaya. Herbarium specimens were prepared using standard procedure and the holotype was deposited at PNH, while the isotypes were deposited at NLUH and PUH.

Taxonomic treatment

Dendrochilum ignisiflorum M.N.Tamayo & R.Bustam., ***sp. nov.*** (Figs. 1 & 2)
subg. *Platyclinis*

***Type*:—**PHILIPPINES. Luzon, Cordillera Administrative Region, Benguet Province, Municipality of Bokod, Mt. Komkompol (UARBRR) mossy forest, at *ca.* 2300 m elevation, 08 March 2020, *M.N. Tamayo 0196* (Holotype: PNH!; Isotypes: NLUH!; PUH!).

Diagnosis*:—Dendrochilum ignisiflorum* is most similar to *D. vanoverberghii* by having petiolate leaves, channelled petioles, labellum of the same size, and the erect to suberect incurved column. However, the new species is distinct by the sub-globose or broadly ellipsoid pseudobulb (vs. fusiform to ellipsoid), 3 distinct leaf veins (vs. 1 distinct), barely spreading flowers (vs. spreading), 1-veined sepal and petal (vs. 3-veined), lanceolate and revolute dorsal sepal (vs. oblong and spreading), yellow to bright orange labellum (vs. red), absence of callus (vs. present), broadly lunate sidelobes (vs. broadly and falcately oblong) and a 3-pronged midlobe (vs. transversely rectangular).

Description*:—**Small, glabrous, epiphytic herbs. ***Roots emerging from the rhizome (and pseudobulbs), thin, unbranched. ***Pseudobulbs*** clustered on a short rhizome, occasionally brownish or reddish near tips, sub-globose or broadly ellipsoid, 5–8 mm × 4–5 mm, 1-leaved, initially covered with 1 tubular, acute to acuminate, glabrous cataphylls which soon disintegrate into persistent fibers. ***Leaf*** conduplicate, petiolate; petiole distinctly channelled, 5–6 mm long; blade dorsiventrally complanate, pale green both the adaxial and abaxial, sometimes leathery, linear lanceolate, acute or obtuse, 18–35 mm × 1.5–2.5 mm, crenulate with 3 distinct veins (6 indistinct veins), each of the outer ones *ca*. 0.5 mm from margin. ***Inflorescence*** exceeding the subtending leaf at anthesis; synanthous, racemose; peduncle reddish to brownish, erect, slender, terete, 5–6.5 cm long, devoid of pubescence; rachis erect or semi-arching with distichously alternating flowers, dense, 12–18 flowered with internodes of 2–3 mm, terete, faintly quadrangular, furrowed, 25–35 mm long, glabrous, basally with 2 non-floriferous bracts. ***Floral bracts*** light brown, persistent, glumaceous, broadly ovate when spread, acute to acuminate, 1.8–2.8 mm × 1–2 mm, hyaline on margin, entire, scarious, many-veined. ***Flowers*** barely spreading, yellow to bright orange. ***Sepals and petals*** glabrous, 1-veined; dorsal sepal lanceolate, acuminate, revolute, 2–3 mm × 1–2 mm, entire; lateral sepals lanceolate, acuminate, 2.5–3 mm × 1.5–2 mm, entire, barely spreading; petals lanceolate, acuminate, 2–3 mm × 1–1.5 mm, barely spreading. ***Labellum*** porrect, minute, sessile, 3-lobed, devoid of disc ornamentations such as calli and ridges, yellow to bright orange, dark orange near the middle; side-lobes broadly lunate with round apices, mid-lobe three-pronged, not projecting beyond the side lobes, lateral prongs auriculate and rounded, the middle one acuminate, 0.7–1 mm × *ca.* 1 mm, indistinct vein. ***Column*** suberect to erect, short, incurved, terete, *ca*. 1 mm long, hooded at apex, column foot absent, attached directly to base of labellum. ***Anther*** oblong to lanceolate in upper view, lobed posteriorly, broadly oblong in front, furrowed in the middle. ***Pollinia*** not observed. ***Ovary*** (including pedicel) terete, slightly curved, *ca*. 1 mm, glabrous. ***Capsule*** not observed.

***Etymology*:—**The epithet *'ignisiflorum'* is a combination of the Latin words *ignis* (fire); *flores* (flowers). Hence, the name directly translates to *'fire flowers'* as depicted by its barely spreading yellow to bright orange flowers.

***Distribution and Habitat*:—**Exposed ridges and mossy forest summit within the bounds of Mt. Komkompol (UARBRR), Municipality of Bokod, Benguet *ca*. 2300 m elevation.

***Phenology*:—**Flowering from March to April. Fruiting from April to May.

***Proposed Conservation Status*:—**Flowering individuals were present only on exposed ridges especially on the mountain summit of the type locality at *ca.* 2300 m elevation. The plant is no longer present at 500 meters away from the summit. The occurrence of the species is thus perceived rare within the locality and threats like land conversion and tourism activities may pose a risk to the population. It is thus proposed to be Vulnerable (VU) B2 (IUCN Standards and Petitions Committee, 2019).

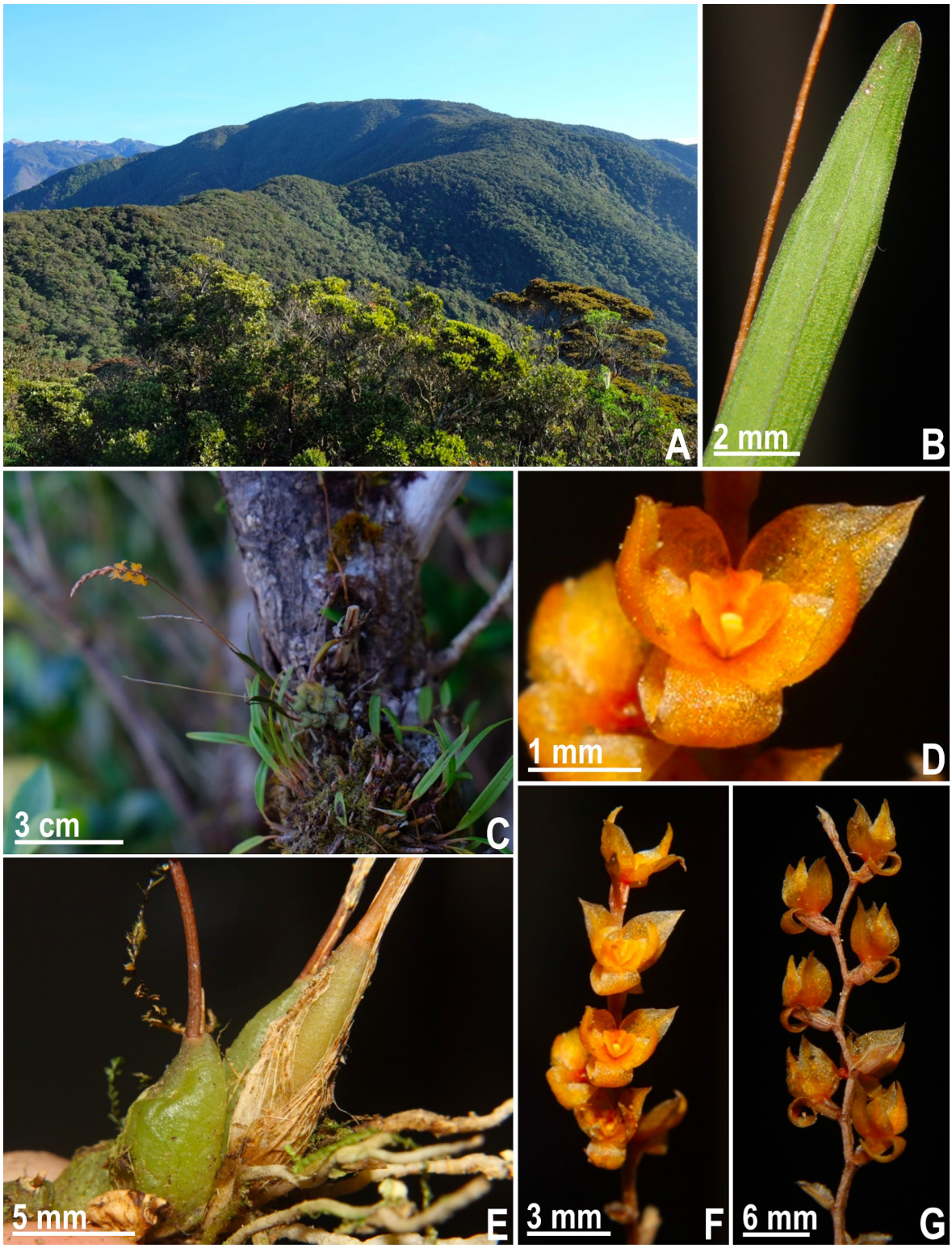

FIGURE 1. *Dendrochilum ignisiflorum* M.N.Tamayo & R.Bustam., *sp. nov.* A. Habitat on the mossy forest summit of Mt. Komkompol, Bokod, Benguet (UARBRR); B. Leaf abaxial surface; C. Plant habit in situ; D. Closer view of the flower including the labellum and column; E. Pseudobulbs; F. Anterior view of the inflorescence; G. Lateral view of the inflorescence. *Photos: A, C, by M.N. Tamayo; B, D-G by M.A.K. Pranada*. (All from *M.N. Tamayo 0196*).

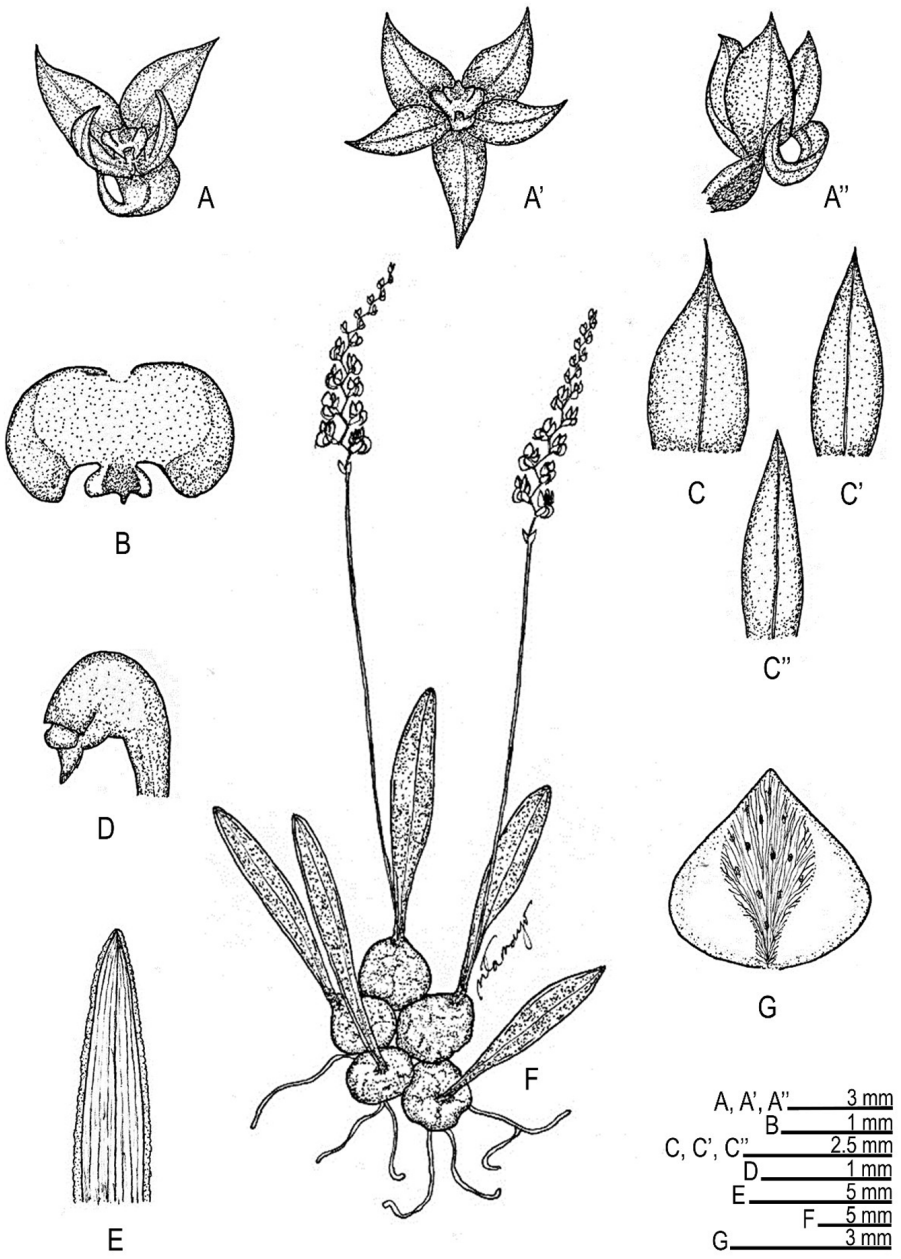

FIGURE 2. *Dendrochilum ignisiflorum* M.N.Tamayo & R.Bustam., *sp. nov.* Flowers (A. Anterior view; A'. Anterior view (spread); A". Lateral view); B. Flattened labellum; C. Lateral sepal; C'. Petal; C". Dorsal sepal; D. Lateral view of column; E. Leaf; F. Plant habit; G. Bract. (All from *M.N. Tamayo 0196*). *Illustration by M.N. Tamayo.*

Other specimens examined:

Dendrochilum graminifolium (Ames) Pfitzer. PHILIPPINES. Luzon: Benguet Province, Between Suyoc and Pauai, 6500 ft. (*ca.* 2000 m elevation), October–November 1905, *E.D. Merrill 4764* (Isotype: K!) Barcode: K000943650

Dendrochilum ignisiflorum M.N.Tamayo & R.Bustam. PHILIPPINES. Luzon: Benguet Province, Municipality of Bokod, Mt. Komkompol (UARBRR) *ca.* 2300 m elevation, 08 March 2020, *M.N. Tamayo 0196* (Holotype: PNH!; Isotype: NLUH!; PUH!)

Dendrochilum serratoi (Ames) Cootes. PHILIPPINES. September 1912 (Isotype: AMES!) Barcode: 00039622

Dendrochilum vanoverberghii Ames. PHILIPPINES. Luzon: Mt. Province, Municipality of Bontoc, November to December 1910, *Vanoverbergh 1046* (Isotype: AMES!) Accession No.: 12172

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