

Newmania sessilanthera (Zingiberaceae): a new species from Vietnam

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ABSTRACT. *Newmania sessilanthera* Luru & Škorničk., a new species from Phú Yên province in central Vietnam, is described and illustrated here. Notes on this species, the third described to date, and a new key to the species of *Newmania* N.S.Lý & Škorničk. are provided.

Keywords. Conservation, Phú Yên province, species key

Introduction

Newmania N.S.Lý & Škorničk., containing the two species *N. serpens* N.S.Lý & Škorničk. and *N. orthostachys* N.S.Lý & Škorničk. from Quảng Ngãi province in central Vietnam, was only recently described (Leong-Škorničková et al., 2011). Here we describe and illustrate a third species from Phú Yên province, central Vietnam.

Newmania sessilanthera Luru & Škorničk., **sp. nov.**

Similar to *Newmania orthostachys* N.S.Lý & Škorničk. in general appearance and the upright inflorescence with spikes composed of condensed bracts, but differing in the thin and plicate leaf blades, the deeply bilobed purple labellum with a bright red base and white margins basally (incision $1/2-4/5$ of the total length of the labellum), and the stamen with no filament (vs. smooth non-plicate leaf blades, purple labellum with prominent white lines and incision $1/4-1/3$ of the total length, and the stamen with a well-developed filament). – TYPE: Vietnam, Phú Yên province, Sông Hinh district, Buôn Kít village, Sông Hinh Forest Enterprise, 269 m asl, 12°49'51.87"N 108°53'56.88"E, 25 June 2014, *Luu Hồng Trường, Trần Giới, Đỗ Cao Tri* PY29 (holotype SGN; isotypes SGN, SING, VNMN). (Fig. 1)

Terrestrial herb to 80 cm tall, with 2–3 leafy shoots per rhizome, 3–6 cm apart. **Rhizome** subterranean, branched, 8–12 mm in diam., light brown externally, cream internally, aromatic. **Leafy shoot** slender, leafless for about 30–55 cm above the base, with 6–13 distichously arranged leaves; **leafless sheaths** 3–5, tubular in basal $\frac{3}{4}$ – $\frac{4}{5}$ (lowermost 1–2 sheaths short and almost open), greenish or with reddish brown tinge, glabrous, becoming brown and papery with age; **ligule** 7–10 mm long, obscurely bilobed (sometimes nearly entire at the top of leafy shoot), green, turning brown and papery with age, glabrous; **petiole** thick (pulvinous), c. 2–6 mm long, 3–4 mm broad, light green, glabrous; **lamina** elliptic to weakly obovate, 10–20 × 4–6.5 cm, uppermost two to three leaves smaller, thin, visibly plicate, green and glossy above, lighter beneath, glabrous on both sides, base cuneate to attenuate, apex acute, often ending in a small sharp mucro (c. 1 mm), margin entire. **Inflorescence** arising from the rhizome at the base of the leafy shoot, about 2 inflorescences per rhizome, spikes condensed, erect, narrowly ovate, 7–10 cm long, with 7–10 flowers, opening in succession from base to top; **peduncle** 2–3 cm long, 4–5 mm in diam., sheathing bracts 3–20 mm long, 3–12 mm wide, cream white with dark red-purple reticulate pattern, glabrous, apex obtuse, sometimes ending in a small mucro; **fertile bracts** subtending a single flower, spirally arranged, overlapping each other by $\frac{2}{3}$ – $\frac{3}{4}$ of their length, ovate, 25–47 × 20–27 mm, open to base, cream white to pale ochraceous with dark red-purple reticulate pattern, glabrous, apex obtuse, sometimes ending in a small mucro; **bracteoles** one per flower, 18–24 × 10–13 mm, open to the base, semi-translucent, tinged with dark red-purple reticulate pattern, glabrous. **Flower** 8–9 cm long; **calyx** tubular, c. 12 mm long, 1.8 mm in diam., unilaterally slit 9–10 mm, semi-translucent white with slight red-purple tinge, glabrous, apex obtuse; **floral tube** cylindrical, 6.2–7.3 cm long and c. 1.5 in diam., pure white, glabrous; **dorsal corolla lobe** elliptic, c. 17 × 7 mm, concave, pure white with translucent lines, glabrous, sharply mucronate at apex (c. 1.5 mm); **lateral corolla lobes** narrowly elliptic, 15–16 × 5 mm, pure white with translucent lines, glabrous; **lateral staminodes** petaloid, obovate, 16–17 × 7–7.5 mm, pure white, glabrous; **labellum** broadly ovate, 21–23 × 13–14 mm at broadest point, deeply bilobed, glabrous, slit between lobes about $\frac{1}{2}$ – $\frac{4}{5}$ of the length of the labellum, marginally reflexed, basally white, with bright red patch in the middle, centrally purple, lighter purple towards margins and apex. **Stamen** 6 mm long, entirely glabrous; **filament** absent; **anther** c. 6 × 1.8 mm, connective tissue pure white, glabrous; **anther crest** absent; **thecae** 6 mm long, straw coloured to yellow, dehiscent longitudinally along entire length, glabrous; pollen cream to pale yellow. **Style** white, glabrous; **stigma** narrowly cup-shaped c. 1 mm long, c. 0.4 mm in diam., semi-translucent white; **ostiole** facing more or less upwards, ciliate. **Epigynous glands** absent. **Ovary** c. 2.5 × 2 mm, white, glabrous, trilobular, placentation axile, with ovules along entire axis. **Fruit** an ovoid to ellipsoid capsule, c. 19 × 13 mm (not yet fully ripe) with persistent calyx, semi-translucent cream coloured, glabrous, 7–10 seeds. **Seeds** obovoid, bluntly angular, 8–11 × 3–4 mm, pink-red (not fully ripe), shortly hairy, shiny; **aril** whitish translucent, irregularly lacinate, c. 8 mm long, lobes 2.5–5 mm long. — All measurements based on living flowering material from which the type and additional two collections were made.

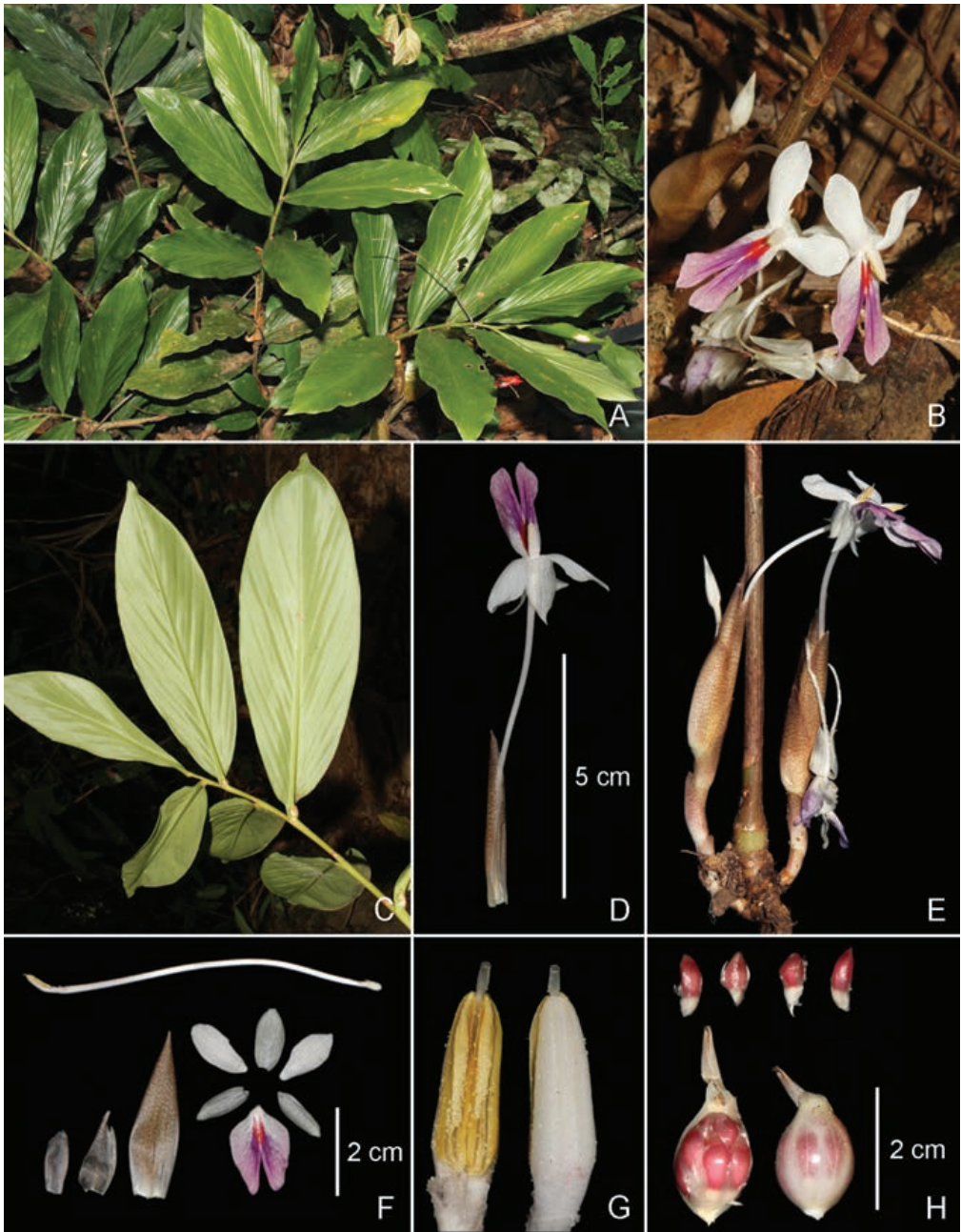


Fig. 1. *Newmania sessilanthera* Luu & Škorničk. **A.** Habit. **B.** Flowers. **C.** Leaves (abaxially). **D.** Flower enclosed in bract. **E.** Base of leafy shoot with inflorescences. **F.** Flower dissection, from left: calyx (slit open); bracteole; bract; corolla lobes, labellum and staminodes; ovary, floral tube and stamen (on top). **G.** Detail of anther from front and back. **H.** Fruit and seeds. From type Luu Hồng Trường, Trần Giới, Đỗ Cao Tri PY29 (Photos: Luu Hồng Trường)

Additional specimens examined. VIETNAM: **Phú Yên:** Tây Hòa district, Hòa Thịnh ward, Mỹ Lâm village, Suối Liệp Forest Enterprise, 151 m asl, 12°52'24"N 109°14'09"E, 6 Aug 2015, Nguyễn Lê Xuân Bách, Hoàng Thanh Trường PY507 (SGN, SING); ibidem, 12°51'09"N 109°13'03"E, 340 m asl, 9 Aug 2015, Nguyễn Lê Xuân Bách, Hoàng Thanh Trường PY636 (SGN, SING).

Distribution. So far the species has been collected from three localities in Sông Hinh and Tây Hòa districts, all in Phú Yên province in central Vietnam.

Habitat and phenology. Understorey of lowland evergreen tropical forests, growing on moist soils on granite and along streams. Flowering occurs from June to August, followed by fruiting which likely extends to September or early October.

Etymology. The specific epithet reflects the lack of the filament in this species.

Provisional IUCN conservation assessment. Endangered (EN B1ab(iii)). So far three localities, each with fewer than 100 scattered individuals, have been observed. The known EOO is currently slightly less than 100 km² but there is enough suitable habitat in the vicinity that it is likely the real EOO is more than 100 km² but certainly less than 5000 km². The type locality is adjacent to agricultural land, recently established from cleared forest. Further deforestation may occur posing a threat to the population. The other two populations are within large forested areas with no obvious threats.

Notes. *Newmania*, now with three species, remains endemic to central Vietnam, although preliminary studies from various researchers suggest further species extending throughout the Annamite mountain range to southern Vietnam. *Newmania* species seem to be steno-endemic and, therefore, susceptible to any rapid habitat changes. This has implications for any conservation effort.

The lack of a filament in *Newmania sessilanthera* differentiates it readily from the other two currently known species. Additional differences from *Newmania orthostachys* are outlined above in the diagnosis. It is somewhat similar to *Newmania serpens* by the presence of a striking red patch on the purple and white labellum, but differs by its erect inflorescences composed of compact spikes (vs. inflorescence prostrate on the ground with more or less lax spikes).

Key to *Newmania*

- 1a. Inflorescence prostrate on the ground; with more or less lax spikes *N. serpens*
- 1b. Inflorescence more or less erect; spikes condensed 2
- 2a. Lamina thick and smooth; labellum purple with prominent white lines, bilobed with incision $\frac{1}{4}$ – $\frac{1}{3}$ of the total labellum length; filament well-developed, 7–11 mm long *N. orthostachys*

- 2b. Lamina thin, visibly plicate; labellum purple with bright red base and white margins basally, bilobed with incision $\frac{1}{2}$ – $\frac{4}{5}$ of the total labellum length; filament absent *N. sessilanthera*

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