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A NEW SPECIES OF *LUISIA* GAUD. (ORCHIDACEAE) FROM ANDAMAN AND NICOBAR ISLANDS, INDIA

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Luisia Gaud. is one of the more difficult orchid genera in mainland Asia. As Seidenfaden (1971: 11) pointed out, this is due mainly to the "scarcity of a number of specific characters with little variation from species to species and considerable variation from specimen to specimen within the species". It is mostly the relative size of the segments and the size and shape of the lip that have been used as distinguishing characters.

While making a reconnaissance survey of orchids in the Andaman Islands during February 2009, I discovered an interesting species of *Luisia* growing as a trunk epiphyte in tropical evergreen forest. The long stems are composed of a rather long, tough leafless proximal part and relatively short leafy apical part bearing medium-sized leaves. A couple of plants are in cultivation at the Regional Plant Resource Centre (RPRC), Bhubaneswar, where they flowered during the last week of August 2009. The flowers have a porrect lip with a rhomboid epichile and short, deeply concave hypochile lacking distinct side lobes. This form of hypochile is unique among the known species of south Asian *Luisia* from the Asiatic countries. It is therefore, described here as a new species.

Luisia balakrishnani S.Misra **sp.nov.**, *labium floris unicom secus ovarium et pedicellum porrectum; labio-hypochilus parvissimus, profunde concavus et lateralio-lobi non distincti; epichilus planus, rhomboidus (in vulgo alium ovatum, cordatum, semilunatum vel oblongum); caulis elongatus; proximo-dimidium caulis longior, lignosum et apicalio-dimidium caulis frondosum.*

Holotypus: India. Andaman and Nicobar Islands: Andaman, near Jarwa on Andaman Trunk Road (ATR), on a roadside tree, *S. Misra* 2498 (CAL). (Fig. 1, Plate 1)

Epiphytic herb. Stems forming small tufts, elongate, slender, rigid; proximal length elongate, tough, 12–42 cm long, 3–4 mm thick, covered with leaf bases and remains of older inflorescences, distal half straight or slightly curved, 6–28 cm long. Roots 2–3 mm thick, vermiform, compressed. Leaves well-spaced, ascending, slightly curved inwards, terete, slender, apex narrowed, 9.5–13 × long, 0.2–0.35 cm. Inflorescence extra-axillary, appearing through the petiolar sheath below the leaf-base, erect, 12–16 mm long; peduncle minute; rachis 2 mm thick, 8–15-flowered, opening 2–3 at a time; floral bracts c. 4 × 2 mm, persistent, amplexicaul, minute, broadly triangular, acute, 3-veined. Flowers c. 10 mm across, pale purplish green, lamina of lip cream-coloured, sometimes with purple flushing, pressed flat against the pedicel-with-ovary, hypochile dark purple within, sometimes with a pair of sickle-shaped cream-coloured markings, column cream, sides deep purple. Pedicel-with-ovary 6–9 mm long, 1 mm thick, uncinate, pale green. Sepals and petals spreading. Sepals subequal 3-veined. Dorsal sepal c. 5 × 2.8 mm, elliptic, acute, slightly hooded. Lateral sepals c. 5.5 × 3 mm, concave, boat-shaped, dorsally keeled beyond the middle. Petals c. 7.5 × 2.8 mm oblong-obovate, obtuse, incurved at apices, 3-veined. Lip fixed immovably at the base of the column, porrect, fleshy, c. 5 × 4 mm; hypochile short, deeply concave, without distinct side lobes; epichile rhomboid, 5-veined, flat, margins slightly recurved, crenulate. Column c. 4 × 3 mm, straight, narrowed to apex; clinandrium cordate, concave; stigma squarish; rostellum short, with a truncate, upturned apex; anther c. 1.75 × 1.4 mm, front edge broad, truncate, indistinctly two-chambered, with a pair of obliquely ovate membranous flaps covering the pollinia; pollinia two, each c. 1.5 x 1.1 mm, yellow, firm, oblong in outline, apices rounded, obliquely, deeply perforate; stipes c. 1.1 × 0.8 mm, broadly spatulate, hyaline; viscidium c. 0.7 × 0.7 mm, squarish, front edge retuse, pale brown.

Habitat and Ecology : Tropical evergreen forest, growing in the open low down on tree trunks; c. sea-level.

Flowering : Late August to October.

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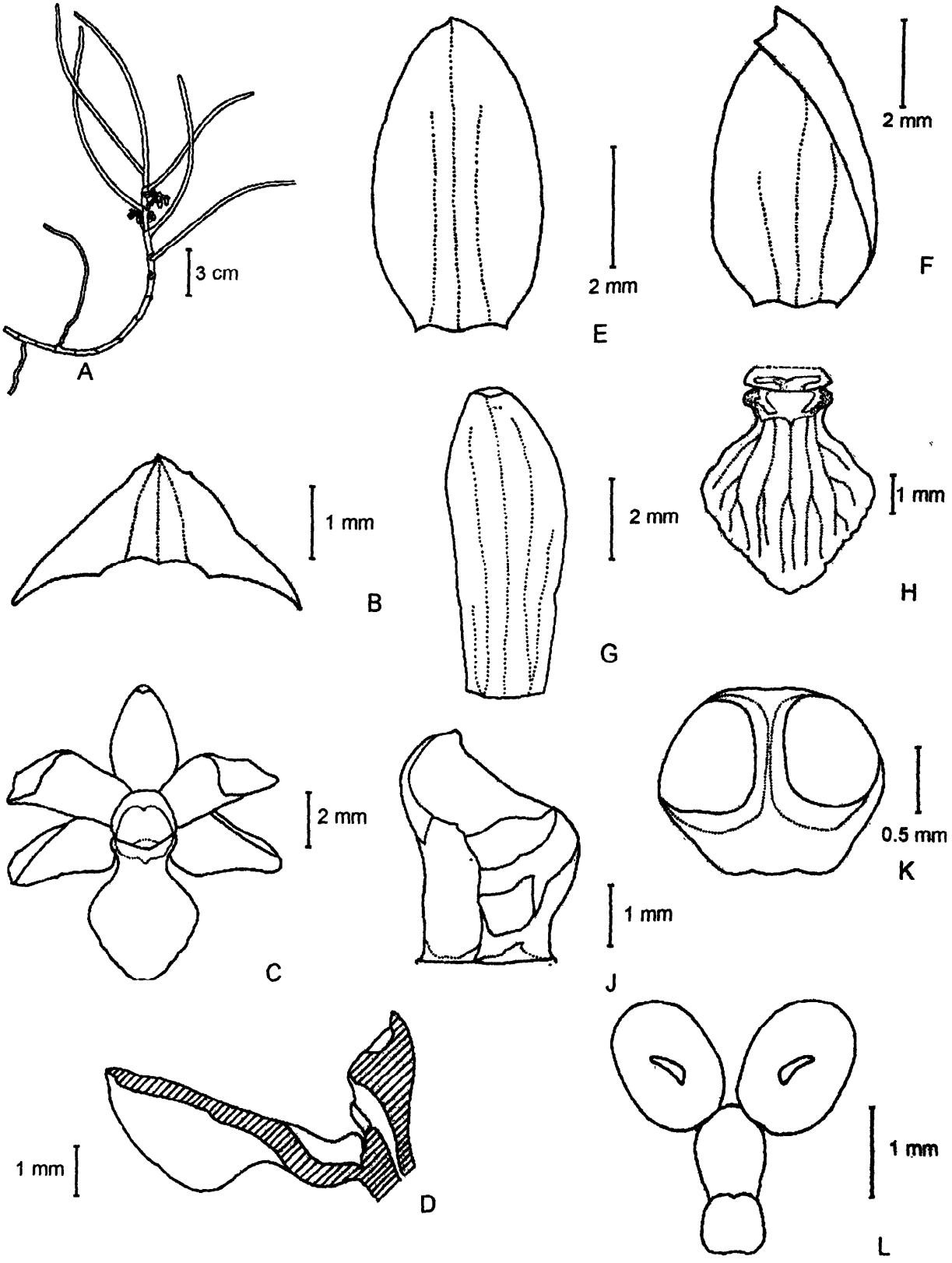

Fig. 1. *Luisia balakrishnanii* S. Misra. **A**, habit; **B**, floral bract; **C**, flower; **D**, longitudinal section through column and lip; **E**, dorsal sepal; **F**, lateral sepal; **G**, petal; **H**, lip; **J**, column; **K**, anther-cap, **L**, pollinarium (**A–C** and **D–L** from *S. Misra 2498*; **D** from *S. Misra 2499*. Drawn by S. Misra.

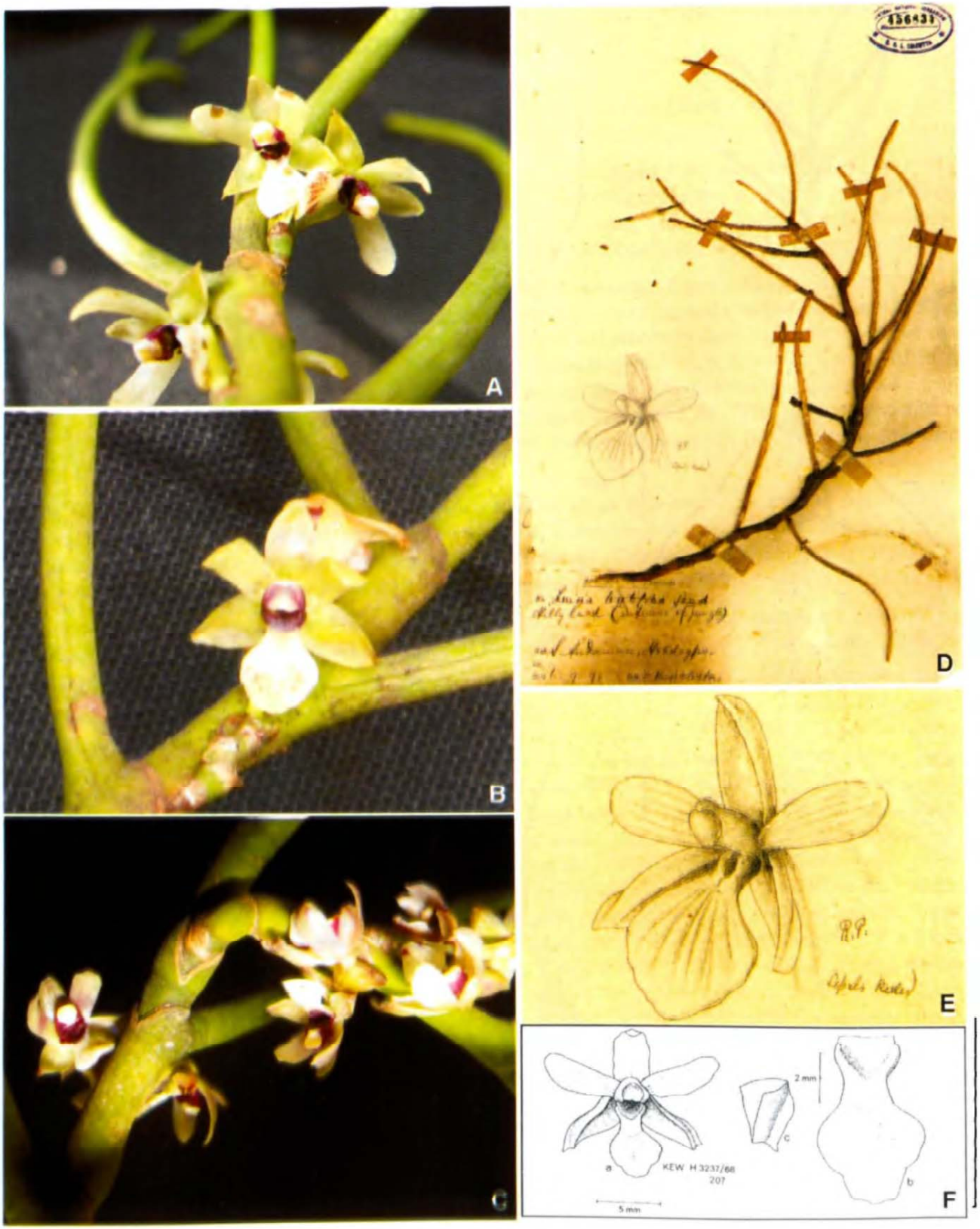

Plate 1. *Luisia balakrishnanii* **A** & **B**. flowers of Jarwa plant; **C**. flowers of Dhanikhari plant; **D**. image of herbarium CAL accession no. 456834; **E**. image of sketch of flower from the above, drawn by Robert Pantling; **F**. copy of fig. 44 a-c, after Seidenfaden (1971).

Occurrence: Dhanikhari arboretum of the Experimental Garden of the Botanical Survey of India, *S. Misra* 2499 (paratype); in cultivation at RPRC. South Andaman, *King's Collector sine no.*, (CAL acc. nos. 456834; 456835 ! paratypi CAL); Andaman Islands, *sine loc., Sanders, sine no.* Kew acc no. K 000364997 (K paratype).

Etymology : This species is named after Dr N.P. Balakrishnan, formerly of the Botanical Survey of India, for his immense contribution to floristic study in India.

Notes : Luisia balakrishnanii has a unique lip that is pressed flat against the pedicel-with-ovary. The hypochile is much smaller, concave and lacks distinct side lobes. The epichile is flat, rhomboid, rather than being ovate, cordate, semi-lunate or oblong as in most other species. The elongate stem has a longer, tough proximal portion and leafy distal portion.

There are a couple of specimens in CAL from the south Andamans collected by George King on 6 September 1890, labelled as *Luisia teretifolia* (the specific epithet having later been crossed out). On one sheet (CAL acc no. 456834) Robert Pantling has drawn an excellent sketch of the flower, the lip exactly matching *L. balakrishnanii.*

Seidenfaden (1971), in his revision of mainland Asian *Luisia* Gaud., excluded some plants which he was not able to identify, remarking "further finds may prove that they are new species, but for the time being I hesitate in establishing as such". One of the above, originating from the Andaman Islands and located in the Kew herbarium, was labelled *Luisia andamanensis* but never published. It was cultivated at Glasnevin Botanic Gardens, Eire, who received it via Messrs. Sanders & Son. Seidenfaden (1971: 89–90) provided a sketch of the flower of this plant (Fig. 44 a–c) and observed that "the lip has a peculiar hypochile with deep nearly triangular fovea at its base, surrounded by fat ridges". The lip of *L. balakrishnanii* matches this sketch. I have seen an image of these specimens, very kindly sent to me by staff at Kew herbarium. This is a single herbarium sheet bearing the accession number K000364997 and containing two specimens, each with one loose leaf and an inflorescence. Each inflorescence consists of four flowers, about 10 mm across. On the sheet Seidenfaden has written a note dated November 1970 "I believe this to be a *nomen nudum*. But also I believe it to be a new species, I cannot place it".

From study of living material and the herbarium specimens at CAL and K cited above, I support the views of Seidenfaden in treating this entity as a new species.

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REFERENCE

SEIDENFADEN, G. S. 1971. Notes on the Genus *Luisia*. *Dansk Bot. Ark.* 27 (4) : 1–101.