

A NEW SPECIES OF *RHINACANTHUS* (ACANTHACEAE) FROM SRI LANKA

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A new species, *Rhinacanthus flavovirens* Amarasinghe & Wijesundara (Acanthaceae), from Sri Lanka, is described and illustrated. It is compared with the closely allied *Rhinacanthus nasutus* and *R. polonnaruwensis*. A key to *Rhinacanthus* species in Sri Lanka is also presented.

Keywords. Acanthaceae, *Rhinacanthus*, Sri Lanka.

INTRODUCTION

The genus *Rhinacanthus* Nees belongs to subtribe Justiciinae of the Acanthaceae (Scotland & Vollesen, 2000). It comprises about 30 species, distributed mostly in the Old World tropics and subtropics (Clarke, 1897, 1900; Henry, 1923; Backer & Bakhuizen, 1965; Darbyshire & Harris, 2005). It is distinguished by small linear-lanceolate bracts and bracteoles, a slender cylindrical corolla tube which is longer than the bilabiate limb, a two-locular ovary with two ovules in each locus, and a stipitiform capsule (Backer & Bakhuizen, 1965; Cramer, 1998).

Only two species in the genus *Rhinacanthus* had previously been recorded in Sri Lanka, *Rhinacanthus nasutus* (L.) Kurz and *R. polonnaruwensis* Cramer (Cramer, 1998). Recent collections have revealed the existence of a new species, which is described below.

SPECIES DESCRIPTION

***Rhinacanthus flavovirens* Amarasinghe & Wijesundara, sp. nov. Figs 1, 2.**

Species nova a ceteris speciebus *Rhinacanthi zeylanicis* foliis ovoideo-ellipticis ad oblongo-ellipticis, inflorescentia terminali, floribus flavovirentibus, tubo corollae cum curva unica valida instructo 34–37 mm longo, 0.6–1 mm diametro distincta.

– Type: Sri Lanka, North Central Province, Anuradapura District, Ritigala, 22 viii 2008, *Bandaranaike Memorial Ayurveda Research Institute* RU106 (holo PDA).

Perennial herb, 20–80 cm tall. *Stems* erect, subangular, faintly striate, pubescent. *Leaves* oval-elliptic to oblong-elliptic, 4.5–11 × 1.5–2.9 cm, base and apex attenuate,

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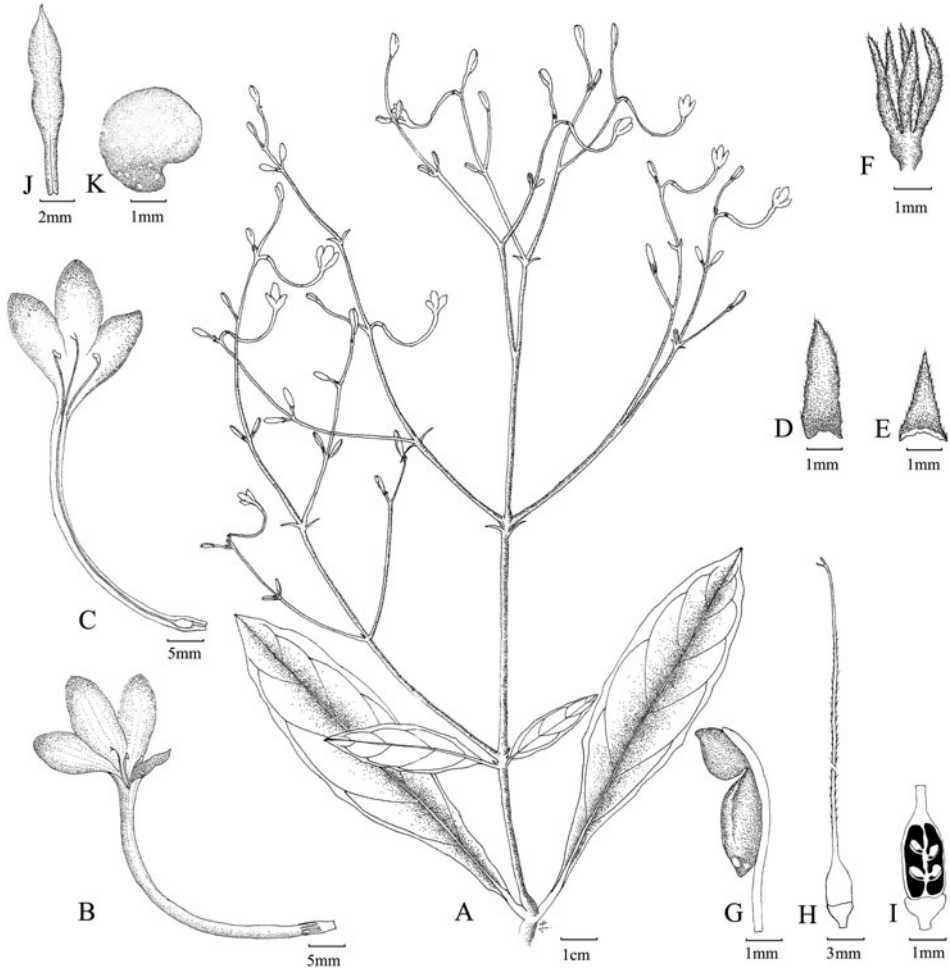


FIG. 1. *Rhinacanthus flavovirens* Amarasinghe & Wijesundara. A, flowering stem; B, flower; C, flower, longitudinal section, upper lip removed; D, bract; E, bracteole; F, calyx; G, anther; H, gynoecium, style length reduced; I, ovary, longitudinal section; J, capsule; K, seed (illustration: I. Peabotuwage).

leaf blade glabrous, marked with copious cystoliths, secondary veins 4–5 pairs, short hairs on veins, leaf margin broadly sinuate; petiole 3–10 mm long, pubescent. *Inflorescence* a laxly paniculate terminal thyrses, to 18 cm long; peduncle with gland-tipped hairs. *Flowers* subsessile, solitary at ends of secondary axes; bracts lanceolate, 2.5–3 mm long, with gland-tipped hairs; bracteoles bristly with pointed hairs. *Calyx* lobes 5, lanceolate, 3–4 mm long, with gland-tipped hairs. *Corolla* yellowish green, 44–48 mm long; tube yellowish green, 34–37 mm long, 0.6–1 mm in diameter, strongly curved from the middle upwards, pubescent with downward-pointing hairs with purple base; limb yellowish green; upper lip lanceolate, 6–7.5 mm long, apex



FIG. 2. Floral morphology of A, *Rhinacanthus nasutus*; B, *R. polonnaruwensis*; C, *R. flavovirens*.

acute; lower lip oblong-ovate, 13–15 mm long, lobes 3, apex obtuse, gland-tipped hairs scattered. *Stamens* 2, inserted near the corolla tube apex, with filaments 6–7 mm long; anther thecae oblique, 2-celled, upper cell 1–1.2 mm long, lower cell 1.7–2 mm long, basally acute. *Ovary* oblong, 2 mm long, glabrous; style filiform, 36–39 mm long; stigma bifid, 1 mm long. *Capsule* 11–13 mm long, with a long solid base, loculicidally dehiscent, pubescent with gland-tipped hairs. *Seeds* orbicular, 2.5–3 mm in diameter, held up on retinacula, black, papillose. Flowering July–December.

Distribution. North Central, Central and Southern provinces of Sri Lanka.

Ecology. Under shade of trees, close to watercourses in secondary forests of dry lowlands.

Etymology. The specific epithet *flavovirens* alludes to the yellowish-green flowers.

Additional specimens examined. SRI LANKA. **North Central Province:** Anuradapura district, Habarana, 15 v 2006, *Bandaranaike Memorial Ayurveda Research Institute (BMARI)* RU097 (PDA); Kekirawa, roadside, 26 vi 2006, *BMARI* RU112 (PDA); Polonnaruwa district, Polonnaruwa, shade of small trees not far from the statue of King Parakrama, 14 iii 1973, *Townsend* 73/224 (PDA); Polonnaruwa, archaeological ruins, 30 v 1971, *Kostermans* 24319 (PDA). **Central Province:** Matale district, Kumarakanda, 30 ix 2007, *BMARI* RU118 (PDA); Haragama, Milapalya, *Amaratunga* 885 (PDA). **Western Province:** Gampaha district, Yakkala, Wichramaarachchi Ayurveda Institute, medicinal garden, 20 xii 2008, *Amarasinghe* RU098 (PDA). **Southern Province:** Hambantota district, Kataragama, mouth of Manik river, secondary forest, 8 i 2009, *Manchanayake* RU010 (PDA); Yala Road, Palatupana, Ruhuna National Park, 25 iii 1970, *Cooray* 70032515R (PDA); Matale district, Menikdena Arboretum and Archaeological Reserve, 4 i 1995, *Jayasuriya* 9006 (PDA).

Diagnostic features and affinities. In the account of *Rhinacanthus* for Sri Lanka by Cramer (1998) many of the specimens now included in this species were included in *R. nasutus*, without any note on the variation. However, morphometric analysis of the genus *Rhinacanthus* in Sri Lanka resulted in four distinct morphological variations, belonging to *R. nasutus*, *R. flavovirens* and two groups for *R. polonnaruwensis*, corresponding to material from the wet and dry zones. *Rhinacanthus polonnaruwensis* from the wet zone has a less hairy stem, shorter leaves, longer internodes, smaller panicles and larger capsules than the dry-zone specimens and

they are perhaps ecological subspecies. These morphological differences, which may simply be ecological adaptations, are not significant enough to place them in separate taxa. The morphological characters of the three species of *Rhinacanthus* in Sri Lanka are shown in Fig. 2A–C and compared in Table 1.

Rhinacanthus flavovirens is morphologically most similar to *Rhinacanthus dichotomus* (Lindau) I. Darbysh. var. *emaculatus* I. Darbysh. from coastal Kenya and Tanzania (Darbyshire & Harris, 2005). However, *Rhinacanthus flavovirens* differs from that species in being more slender with a yellowish-green corolla (vs. pink to red) and a single upcurved corolla tube (vs. sinuous curvature). Further, *Rhinacanthus flavovirens* appears close to *R. rottlerianus* Nees (*Justicia rottleriana* Wallich Cat. no. 2477, K-W) which was placed in synonymy of *R. nasutus* by Clarke (1897). They differ, however, in that *Rhinacanthus rottlerianus* has smaller, sessile leaves with obtuse or narrowly acute apices, three secondary vein pairs, subentire leaf margins, fewer-branched, dichotomous panicles, and shorter calyx lobes.

TABLE 1. The principal differences between the three *Rhinacanthus* species in Sri Lanka

Character	<i>R. nasutus</i>	<i>R. polonnaruwensis</i>	<i>R. flavovirens</i>
Plant habit	Woody shrub	Herb	Herb
Stem height (cm)	140–150	16–20	20–80
Branches	Erect	Semi-erect	Semi-erect
No. of secondary vein pairs	6–8	6–7	4–5
Leaf shape	Ovate-lanceolate	Linear	Oval-elliptic to oblong-elliptic
Leaf margin	Entire	Broadly sinuate	Broadly sinuate
Leaf lamina surface	Pubescent	Glabrous	Glabrous
Inflorescence form	Axillary, cyme	Laxly paniculate terminal thyrses	Laxly paniculate terminal thyrses
Type of hairs on peduncle	Pointed	Gland-tipped	Gland-tipped
Corolla tube length (mm)	13–17	20–28	34–37
Corolla tube shape	Straight	Shallowly downwardly curved to the centre, strongly upwardly curved towards the mouth	Strong upwardly curved continuously towards the mouth
Type of hairs on corolla tube	Gland-tipped	Pointed with purple bases	Pointed with purple bases
Purple marks on lower lip	Present	Absent	Absent
Type of hairs on lower lip	Pointed	Gland-tipped	Gland-tipped
Nature of upper lip	With two teeth	Entire	Entire
Nature of ovary	Pubescent	Glabrous	Glabrous

Key to the Sri Lankan species of Rhinacanthus

- 1a. Herb; leaves glabrous, margin broadly sinuate; inflorescence terminal; corolla tube curved, upper corolla lip entire, lower lip without purple marks _____ 2
- 1b. Woody shrub; leaves pubescent, margin entire; inflorescence axillary; corolla tube straight, upper corolla lip of two teeth, lower lip with purple marks _____ *R. nasutus*
- 2a. Leaves linear; corolla tube sinuous _____ *R. polonnaruwensis*
- 2b. Leaves oval-elliptic to oblong-elliptic; corolla tube curved but not sinuous _____ *R. flavovirens*

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