



***Mitracarpus hirtus* VAR. *sessilis* VAR. NOV. (RUBIACEAE) FROM INDIA**

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Abstract

A new variety of *Mitracarpus hirtus* (L.) DC. is described and illustrated. It forms the second new taxon of the genus from the Old World. *Mitracarpus hirtus* (L.) DC. var. *sessilis* Dhruvan, Pandur., and Mohanan var. nov. differs from *Mitracarpus hirtus* (L.) DC. var. *hirtus* by its sessile, broader, denser flowers in larger glomerules, two larger, oblong or oblong-elliptic, calycine calyx lobes with a mucronate apex, two shorter, linear-lanceolate, hyaline calyx lobes, capsules with S-shaped bent calyx lobes that lack aristate tip, and by grayish-brown seeds.

Key words: Introduced plants, invasive species, new variety, Old World, taxonomy, Western Ghats.

Introduction

The genus *Mitracarpus* Zucc. ex Schult. & Schult.f. (Rubiaceae) is composed of some 50 species distributed in tropical and subtropical regions of the New World, with one invasive species, *M. hirtus* (L.) DC., occurring in the Old World (Verdcourt, 1975; Andersson, 1992, Souza *et al.*, 2001, 2010). In India, this introduced taxon was first reported from the forests of Coimbatore District, Madras State, in 1962 (Sebastine & Ramamurthy, 1967). Now, in southern India, it is often a dominant species growing in various types of habitats ranging from coastal plains to the degraded deciduous forests up to 500 m altitude. While exploring the coastal regions of Kerala in 2009, the

authors came across some specimens of *Mitracarpus*, from the waste lands in Alappuzha District and, later on, from various parts of the coastal plains of Kerala State, that closely resembled *M. hirtus* in overall characters, but differed in certain vegetative and floral characters (Table 1). Based on detailed studies both in the field and laboratory, and expert opinion received from Dr. E. B. Souza, Avenida da Universidade, CE, Brazil, it has been confirmed that these specimens represent an undescribed taxon and therefore is here described and illustrated as a new variety of *M. hirtus*.

Mitracarpus hirtus* (L.) DC. var. *sessilis

Dhruvan, Pandur. & Mohanan, var. nov.

(Figs. 1, 2)

Type: India, Kerala State, Alappuzha District: Kayippuram, ±5 m, 06 Aug 2009, *Dhruvan & Pandur 67355* (holotype: TBGT; isotype: MH).

Allied to *Mitracarpus hirtus* (L.) DC. var. *hirtus*, but differs in having glabrous lamina, broader flowers, two larger, oblong or oblong-elliptic, calycine calyx lobes with a mucronate apex, two shorter, linear-lanceolate, hyaline calyx lobes, capsules with S-shaped calyx lobes without aristate tip, and grayish-brown seeds.

Herbs, annuals, erect or decumbent, 8–50 (–70) cm high, nearly suffruticose basally.

Stems greenish, pubescent to hispid-villous, subterete below, obtusely 4-sided above.

Leaves opposite, sessile, oblong, oblong-lanceolate or lanceolate, cuneate to wedge-shaped at base, subacute apically, 1.2–4.3 × 0.5–1.5 cm, chartaceous, shining, glabrous except for a scabrous margin and glabrescent veins beneath; secondary nerves 3–4 pairs, slender, inconspicuous; stipules adnate with the leaf bases to form a pectinate sheath with 5–9 (–15), linear, colletor-tipped setae, 2–5 mm long, ciliate. **Inflorescences** verticillate in axillary and terminal glomerules with densely crowded flowers, 0.8–1.8 (–2) cm in diam., subtended by 2–4 linear-elliptic bracts; bracteoles filiform, white, 1.3–2 mm long.

Flowers sessile. **Calyx** campanulate-turbinate, ciliate, persistent; calyx-tube 1–1.4 mm long, upper half pubescent; lobes 4, two calycine, oblong-elliptic with a mucronate apex, 2.1–2.3 mm long, the other two hyaline, linear-lanceolate with an acuminate apex, 1.2–1.4 mm long, all with ciliate margins. **Corolla** white, funnel-form or rarely campanulate, 1.3–2.5 mm long, membranous, glabrous or slightly hairy without; corolla tube with a ring of moniliform hairs within, 1–2 mm long; lobes ovate, ca. 1 × 0.8 mm, valvate in buds. **Stamens** 4, glabrous, inserted at the mouth of corolla; filaments short; anthers subelliptic, ca. 0.5 × 0.3 mm, dorsifixed, subincluded. **Disc** annular, elevated.

Ovary 2-celled, with solitary axile ovule per cell; style slender, bifid, ca. 1.3 mm long; stigmas ca. 0.4 mm long. **Capsules** subglobose, ca. 1.3 × 1.5 mm, hairy on upper half, sessile, circumscissile in dehiscence, with persistent, S-

shaped calyx lobes. **Seeds** compressed, subellipsoid, ca. 0.8 × 0.6 mm, dorsally resembling a rectangle with a square portion removed from each corner, ventral face with an X-shaped depression, reticulate-foveolate, grayish-brown.

Etymology: The epithet of the new variety denotes the sessile flowers, which is characteristic and distinct.

Specimens examined (paratypes): Kerala State, Thrissur District: Nattika, ±5 m, 12 Oct 2010, *Dhruvan & Mohanan 68474* (TBGT); Malappuram District: Periyambalam, ±7 m, 25 Sep 2012, *Dhruvan & Mohanan 69085* (TBGT).

Flowering & Fruiting: August–October.

Habitat & Ecology: Fairly common in sandy soils of waste lands near coastal regions in Kerala State, India, at an altitude of 3–8 m. Populations were observed both along with *Mitracarpus hirtus* var. *hirtus* and separately.

Distribution: From our observations, we suspect the possible occurrence of the new taxon in other places of coastal plains of peninsular India where *Mitracarpus hirtus* var. *hirtus* is already distributed.

Table 1: Morphological differences between *M. hirtus* var. *hirtus* and *M. hirtus* var. *sessilis*.

Character	<i>M. hirtus</i> var. <i>hirtus</i>	<i>M. hirtus</i> var. <i>sessilis</i>
Leaves	pale green, densely scabrid-pubescent on both surfaces	dark green, glabrous on both surfaces
Flower heads	0.5–1.5 cm in diameter	0.8–2 cm in diameter
Flowers	not broad and denser	broader and denser
Pedicels	0.5–1.3 mm long	sessile
2 larger, calycine calyx lobes	oblong-lanceolate, aristate	oblong-elliptic, mucronate
2 shorter, hyaline calyx lobes	triangular-lanceolate with caudate apex	linear-lanceolate with acuminate apex
Corolla	1.5–2 mm across	2.5–3 mm across,
Capsules	with 1–1.5mm long pedicels; calyx lobes erect with an aristate tip	sessile; calyx lobes bent like a S with a mucronate tip.
Seeds	yellowish-brown	grayish-brown

Remarks: Interestingly, 10–20% of the flowers of the new variety possess three larger calycine calyx lobes as opposed to the two lobes in all the other taxa of the genus *Mitracarpus*.

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Literature cited

Andersson, L., 1992. A provisional checklist of Neotropical Rubiaceae. *Scripta Botanica Belgica*, 1: 1–230.

Sebastine, K. M. and K, Ramamurthy, 1967. *Mitracarpus verticillatus* (Schum. & Thonn.) Vatke, a new record for India. *Bulletin of Botanical Survey of India*, 9 (1–4): 291–292.

Souza, E. B. and M. F. Sales, 2001. *Mitracarpus longicalyx* (Rubiaceae, Spermacoceae), a new species from northeastern Brazil. *Brittonia*, 53: 482–486.

Souza, E. B., E. L. Cabral, and D. C. Zappi, 2010. Revisao de *Mitracarpus* (Rubiaceae – Spermacoceae) para o Brasil. *Rodriguesia*, 61: 319–352.

Verdcourt, B., 1975. Studies on the Rubiaceae – Rubioideae for the “Flora of Tropical Africa”. *Kew Bulletin*, 30: 247–326.



Figure 1: *Mitracarpus hirtus* (L.) DC. var. *sessilis* Dhruvan, Pandur. & Mohanan: **A**, habit; **B**, flowering twig of *M. hirtus* var. *sessilis* (left) and *M. hirtus* var. *hirtus* (right).

PLATE 3

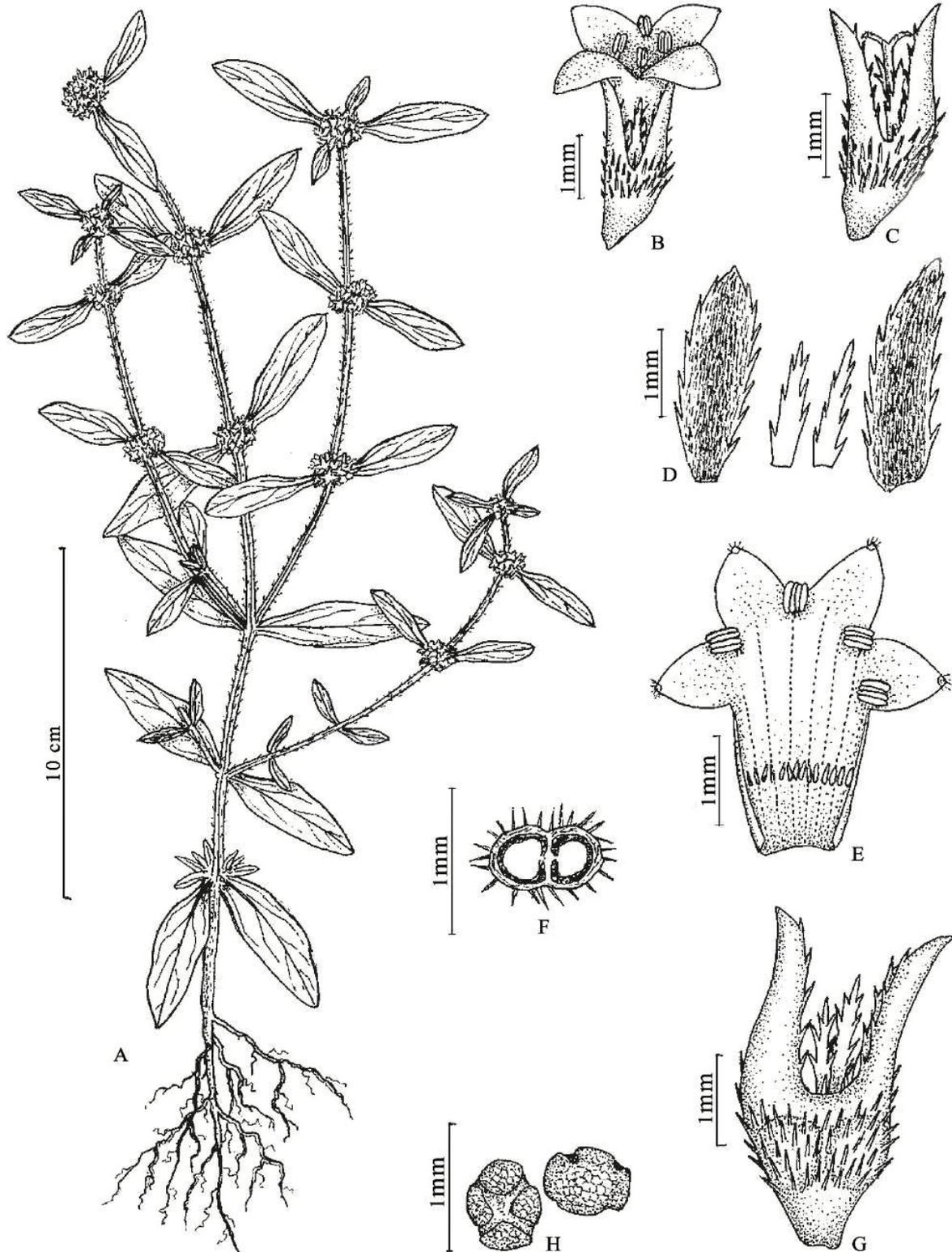


Figure 2: *Mitracarpus hirtus* (L.) DC. var. *sessilis* Dhruvan, Pandur. & Mohanan: **A**, habit; **B**, flower; **C**, flower without corolla; **D**, calyx lobes; **E**, corolla split open; **F**, CS. of ovary; **G**, immature capsule; **H**, seeds.