

Mucuna sanjappae, a new species from the north-Western Ghats, India

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Summary. A new species of *Mucuna* similar to *M. pruriens* (L.) DC. but differing in its woody perennial habit, considerably larger flowers, flattened pods and black seeds, is described and illustrated.

Key Words. Fabaceae, Leguminosae.

Introduction

The genus *Mucuna* Adans. comprises about 100 species and is distributed throughout tropical and subtropical regions of the world (Lackey 1981; Mabberley 2005). It has been revised by Wilmot-Dear for China and Japan (1984), the Indian subcontinent and Burma (1987), the Pacific (1990), Philippines (1991), Thailand, Indochina and the Malay Peninsula (1992) and has been subdivided into two subgenera, *Mucuna* and *Stizolobium* P. Browne (Wilmot-Dear 1991). Hooker (1879) recorded ten species of *Mucuna* for British India while Sanjappa (1992) has reported eight species and three varieties for the present political boundaries of the country. The genus is represented by five species and four varieties in Western Ghats (Sharma *et al.* 1984; Kothari 2001; Nayar *et al.* 2006). *Mucuna* presents promising future prospects in view of its many uses, for example as a cover crop, green manure, food crop and medicine. The species of *Mucuna* are also characterised by the presence of L-Dopa (L-3, 4-dihydroxyphenylalanine), a well-known non-protein amino acid that acts as a precursor to the neurotransmitter dopamine, used in the treatment of Parkinson's disease.

Taxonomy

***Mucuna sanjappae* Aitawade & S. R. Yadav sp. nov.**
M. pruriens similis sed habitu perenni aliquantum lignoso (nec annuo), floribus maioribus, alis longioribus sed relative multo angustioribus 6.5 – 7 × c. 0.7 cm (nec 2 – 4 × c. 1.2 cm), carina longiore 6.5 – 7 cm (nec 3 – 4 (– 4.5) cm tantum) longa, vexillo 4.2 cm (nec 2.5 cm tantum) longo, leguminis lateraliter complanatis (nec cylindricis) et seminibus uniformiter atris (nec maculatis) differt. Typus: India, Maharashtra, Pune, Junnar Taluk, Durgawadi, 22 Sept. 2010, Makarand 0001 (holotypus CAL!; isotypus K!, BSI!, SUK!).

<http://www.ipni.org/urn:lsid:ipni.org:names:77119401-1>

A woody perennial twiner; stem up to 20 m long, 4 – 5 cm in diam.; sparsely to densely pubescent, branches slender. *Leaves* up to 50 cm long, pinnately trifoliolate; petiole 12 – 30 cm long with longitudinal ridges, pubescence as in stem; rachis 0.8 – 2.5 cm long; stipule 8 – 11 × 0.5 – 1 mm; linear-lanceolate; deciduous; terminal leaflet rhomboid, 17 – 21 × 11.5 – 13 cm, lateral leaflets truncate, oblique at base 17 – 20 × 11 – 12 cm, subacute, mucronate, margin sinuate, indumentum of all leaflets at lower surface with dense 0.6 – 1.5 mm long uniform silky-shiny hairs mostly on veins, upper surface slightly puberulous, lateral veins with 5 – 8 pairs; stipels 8 – 10 mm long, linear-lanceolate, pubescent; all leaflets with 5 – 6 mm long petiolule, sparsely to densely pubescent. *Inflorescence* raceme 40 – 42 cm long, axillary; bracts and bracteoles caducous, sparsely covered with 1 – 1.5 mm long white hairs on both surfaces; bract 15 – 16 × 3 – 4 mm, ovate to lanceolate; bracteole 9 – 10 × 1.5 – 2 mm; hairs as in bract; linear-lanceolate, acute at apex. *Flowers* in bundles of 3 arising on a fleshy pad; 6.5 – 7 cm long; pedicel 1.2 cm long, densely covered by 0.4 – 1 mm long white or whitish brown hairs, small globular glands present on lateral sides near base of calyx. *Calyx* with dense short and long white or light brown hairs on outer surface and with short white or light brown hairs on inner surface; calyx tube campanulate, lobes 4; upper lobe 9 – 10 × 13 mm, narrower at apex with mucronate tip, two lateral lobes subequal, triangular, 5 – 6 × 5 – 6 mm with acute apex; lower lobe 9 – 10 × 10 mm with acute apex. *Corolla* dark purple except keel, greenish white; standard 4.2 × 2 cm; elliptic with acute apex, glabrous or inner surface slightly pubescent at middle portion, basal auricle <1 mm or absent; wings 6 – 6.4 × 0.7 cm, curved upwardly from half of its length with rounded apex, slightly wrinkled at middle region, basal claw 6 mm long, basal auricle 3.5 mm long, pubescent on and above claw region; keel petals fused up to more than half of its length, 6.2 – 6.4 × 1 –



Fig. 1. *Mucuna sanjappae*. A habit; B twig with inflorescence; C portion of inflorescence enlarged; D flower parts dissected open; E mature fruit; F seeds.

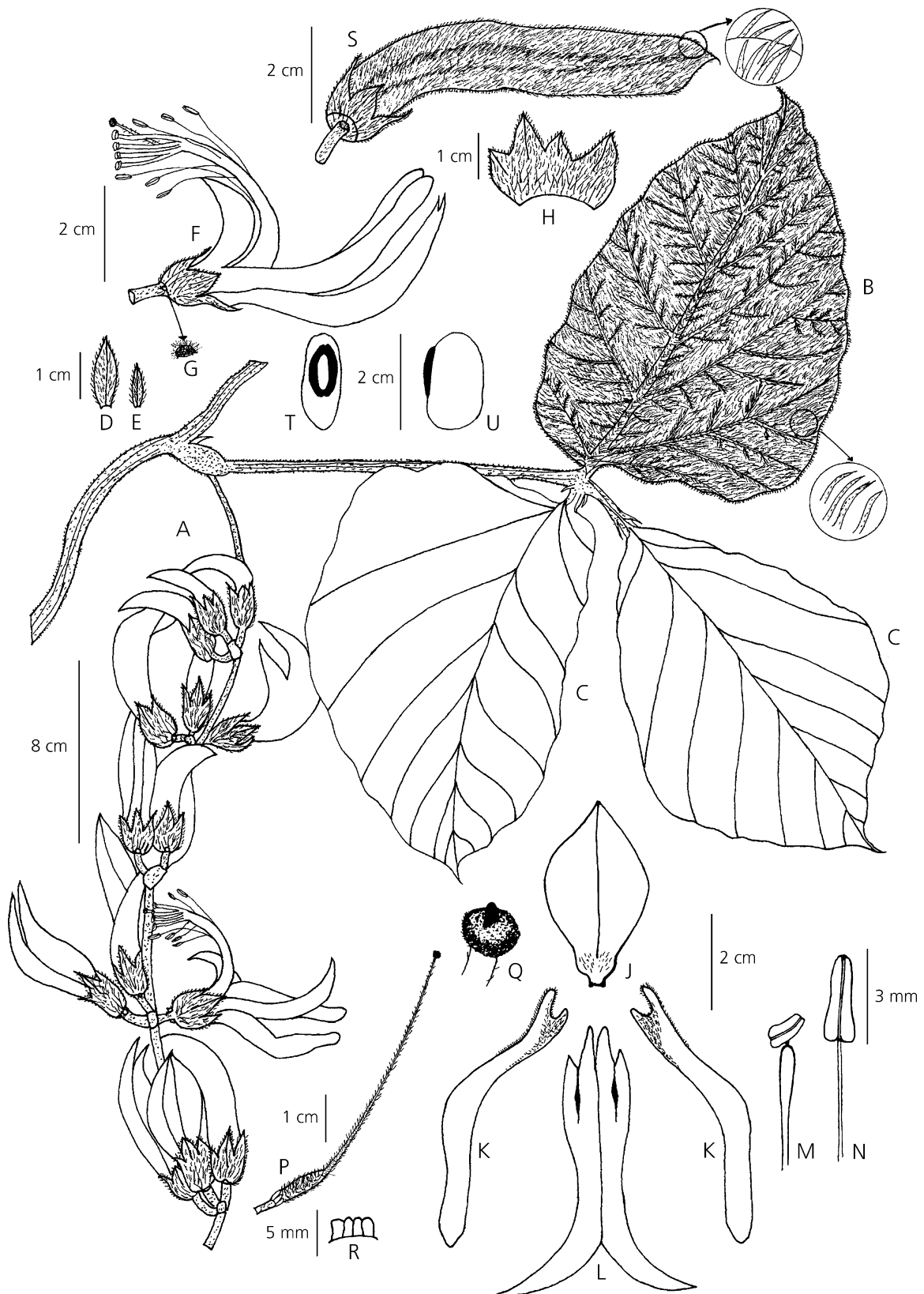


Fig. 2. *Mucuna sanjappae*. A twig with inflorescence; B leaflet showing lower surface; C leaflet showing upper surface; D bract showing outer surface; E bracteole showing outer surface; F flower; G gland near the base of calyx; H calyx showing outer surface; J standard; K wing; L keel; M & N stamen; P gynoeceum; Q enlarged view of stigma; R stipitate gland; S fruit with hairs; T & U seed. All from Makarand 0001. DRAWN BY M. M. AITAWADE.

Table 1. Comparison of *Mucuna pruriens* and *M. sanjappae*.

Characters	<i>Mucuna pruriens</i>	<i>Mucuna sanjappae</i> sp. nov.
Habit	annual climber, herbaceous or semi-woody, stem often to 4 m long, 1 – 1.5 cm in diam.	perennial woody liana; stem to 20 m long, 4 – 5 cm in diam.
Leaves	stipule 3 – 4 × 1 mm, terminal leaflet (8.5 –) 14 – 16 × (4.5 –) 8 – 10 cm	stipule 8 – 11 × 0.5 – 1 mm, terminal leaflet, 17 – 21 × 11.5 – 13 cm
Flower	4.5 cm long, bract and bracteole 5 – 9 × 1 – 3 mm	6.5 – 7 cm long, bract 15 – 16 × 3 – 4 mm, bracteole 9 – 10 × 1.5 – 2 mm
Standard	1.6 – 2.5 × 1.1 cm	4.2 × 2 cm
Wing	2.4 × 1.2 cm	6 – 6.4 × 0.7 cm
Keel	2.8 – 4.2 × 0.8 cm	6.2 – 6.4 × 1 – 1.1 cm
Androecium	staminal tube 3.2 – 3.8 × 0.2 – 0.3 cm	staminal tube 5.8 – 6.5 × 0.5 – 0.6 cm
Pod	cylindrical	flattened
Seed	mottled	black

1.1 cm, basal claw 9 mm long, basal auricle 3 mm long, slightly cleft, glabrous. *Stamens* 10, diadelphous (9 + 1), dimorphic; staminal tube 5.8 – 6.5 × 0.5 – 0.6 cm, glabrous; lower 6 stamens (including free stamen) with basifixed 2 – 3 mm long anthers, remaining 4 with dorsifixed c. 1 mm long anthers, filaments of united stamens 16 – 17 mm long, that of free stamen 55 – 58 mm long. *Ovary* 10 × 2 mm, densely covered with 0.8 – 1 mm long, white or whitish brown strigose hairs and with stipitate gland at base; style 5.3 – 5.5 cm long, densely hairy at base, sparsely hairy at apices, hairs similar to ovary, stigma 0.6 mm broad; penicillate. *Fruit* a pod, 8 – 9 × 1 – 1.5 cm, slightly curved laterally, flattened, mucronate at apex, densely covered with golden brown uniform, irritant bristles, which are easily detached. *Seeds* 5 to 6, brownish or black, shiny, ellipsoid; 1 × 0.6 × 0.3 cm, hilum with 5 mm long raised rim of whitish yellow aril forming border. Figs 1 and 2.

DISTRIBUTION. INDIA.

SPECIMENS EXAMINED. INDIA. Maharashtra: Pune, Taluk Junnar, Durgawadi, 22 Sept. 2010, *Makarand* 0001 (holotype CAL; isotypes K, BSI, SUK).

HABITAT. Open moist to dry deciduous forests on hill slopes in association with *Terminalia chebula* Retz., *Lantana camara* L., *Bridelia retusa* (L.) A. Juss., *Grewia nervosa* (Lour.) Panigrahi, *Sphenostylis bracteata* (Baker) J. B. Gillett etc.

CONSERVATION STATUS. Known only from Junnar Taluk of Pune District on hilly slopes. Following IUCN (2001) criteria this taxon should therefore be treated as Data Deficient.

PHENOLOGY. Flowering Aug. – Oct.; fruiting Nov. – March.

ETYMOLOGY. The specific epithet *sanjappae* is to honour Dr M. Sanjappa, the former Director of Botanical Survey of India, for his research contributions to the Leguminosae in India.

NOTE. *Mucuna sanjappae* is similar to *M. pruriens* but differing in its woody perennial habit (vs annual),

fairly large flowers up to 7 cm long (vs small, up to 4.5 cm long), flattened pods (vs cylindrical) and black seeds (vs mottled) (Table 1).

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