

# A new variety of *Millettia pulchra* (Fabaceae-Papilionoideae), from Western Ghats, India

## Abstract

*Millettia pulchra* (Benth.) Kurz var. *munnaensis*, a new variety of *Millettia* Wight & Arn. is described and illustrated from the Western Ghats of India. This variety differs from all other 7 varieties of *M. pulchra* in having larger flowers and 8-10 seeded pods. A detailed description, illustration and distribution map with a key for the identification of all the varieties of *M. pulchra* are provided.

**Keywords:** *millettia*, *fabaceae*, new variety, western ghats, India

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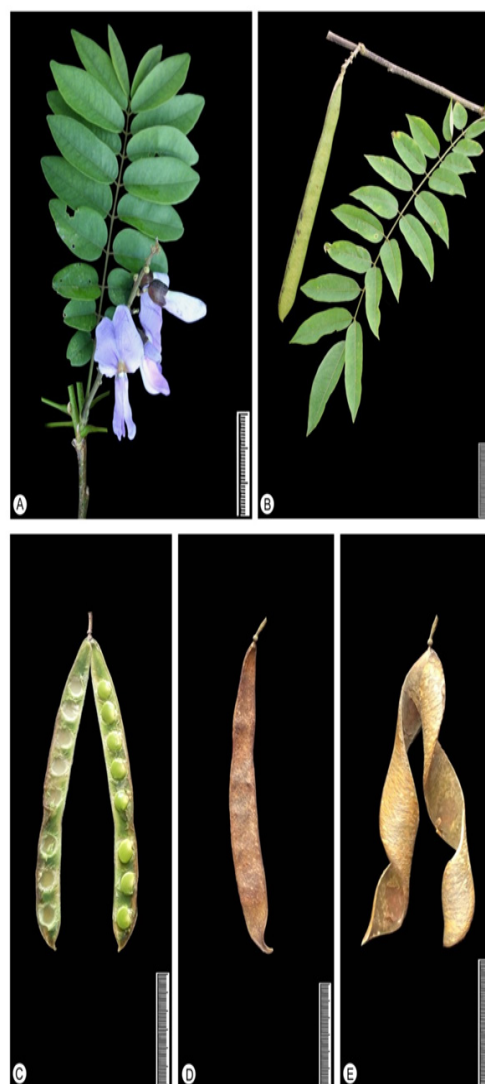
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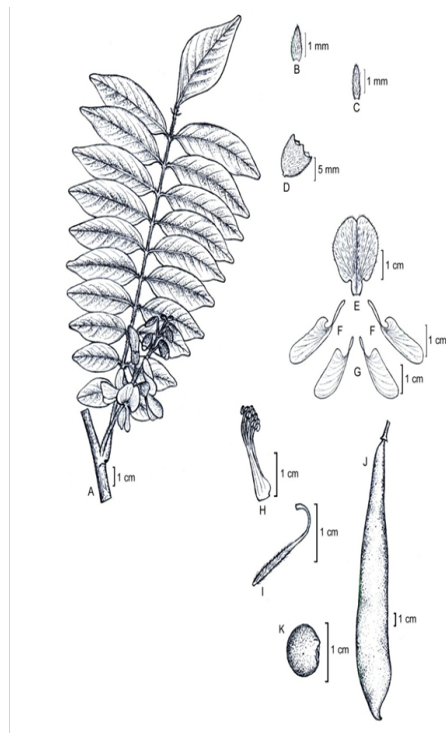
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## Introduction

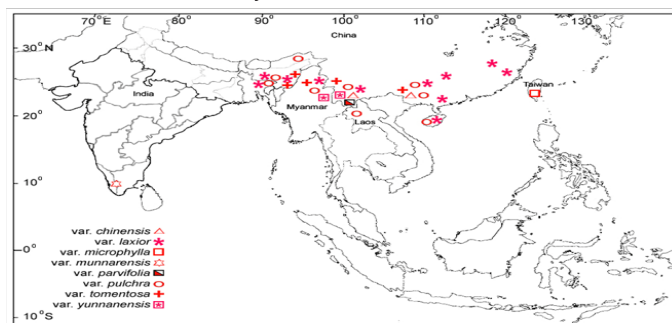
The genus *Millettia* Wight & Arn. (Fabaceae-Papilionoideae) is one of the largest genera of the tribe Millettieae with more than 100 species.<sup>1</sup> The genus is mainly distributed in the tropics of Africa and Asia. Wight & Arnott<sup>2</sup> established the genus upon two climbing shrubs, *M. rubiginosa* and *M. splendens*, both are endemic to the southern Western Ghats of India. As per Sanjappa,<sup>3</sup> the genus in India is represented by 13 species, 1 variety and one forma, and most of them are widely distributed in China, South Asia and Indochina. While exploring the legume flora of Kerala state of south India, the authors collected some interesting specimens of a tree widely planted in the margins of tea plantations in Munnar, a high altitude hill station in central Kerala. The tree resembles *Millettia pulchra* (Benth.) Kurz in general appearance, but differs in having larger flowers and 8-10-seeded pods. *M. pulchra* was originally described by Kurz<sup>4</sup> from northeast India based on Wallich catalogue no. 5630 pp. Later, Prain<sup>5</sup> added a new variety - *tomentosa* to the species from Manipur (northeast India). While revising the genus *Millettia*, Dunn<sup>6</sup> added 3 more varieties from China, namely, *chinensis*, *microphylla* and *yunnanensis* and a forma (*M. pulchra* var. *pulchra* f. *laxior*) from Khasia hills of northeast India. During the revision of Chinese *Millettia*, Wei<sup>7</sup> raised f. *laxior* in to the status of a variety and also recognized another new variety from China, i.e. var. *parvifolia*. Thus, *M. pulchra* presently comprises 7 varieties and are chiefly confined to three countries, viz. China, Myanmar and India<sup>8</sup> (Map 1). In India, the species is represented by three varieties, namely, *pulchra*, *laxior* and *tomentosa* and all are restricted to the northeastern states. The presently collected specimen of *M. pulchra* from Munnar is strikingly different from all other varieties so far recognized due to its larger flowers and 8-10-seeded pod. Subsequent detailed specimen study, consultation of relevant literature<sup>6-9</sup> and herbarium specimens at CAL and MH and virtual herbaria of major herbaria of the world have confirmed that the plant is distinct from all other known varieties of *M. pulchra* and it is described here as a new variety. This taxon might have been introduced as a shade tree in the tea plantations of Munnar during the British rule and is now naturalized around Munnar and adjacent hill stations. A detailed description, illustration, photographs, distribution map and key for identification of all the varieties of *M. pulchra* are provided for the easy identification of the plant in the field. *Millettia pulchra* (Benth.) Kurz var. *munnaensis* A.P. Balan & S.V. Predeep, var. nov. (Figure 1) (Figure 2).



**Figure 1** *Millettia pulchra* (Benth.) Kurz var. *munnaensis* A.P. Balan & S.V. Predeep, var. nov. A. Habit; B. Pod; C. Pod-split opened; D. Mature pod before dehiscence; E. Pod after dehiscence.



**Figure 2** *Millettia pulchra* (Benth.) Kurz var. *munnaensis* A.P. Balan & S.V. Predeep, var. nov. A. Habit; B. Bract; C. Bracteole; D. Calyx; E. Standard; F. Wings; G. Keels; H. Stamens; I. Pistil; J. Pod; K. Seed.



**Map I** Distribution of different varieties of *Millettia pulchra* (Benth.) Kurz.

### Diagnosis

*Millettia pulchra* var. *munnaensis* var. nov. is allied to *M. pulchra* in its general appearance and vegetative characters. But the 2.8cm long flowers and 16-20cm long, 8-10 -seeded pods are strikingly distinct characters from that of all other varieties of *Millettia pulchra* viz., var. *chinensis*, *laxior*, *microphylla*, *parviflora*, *pulchra*, *tomentosa* and *yunnanensis*, having 1-1.2cm long flowers and c. 12cm long, 3-5 -seeded pods.

Type: INDIA, Kerala, Idukki District, Munnar, 10°08' N, 77°05' E, at ±1800m, 24 December 2009, S.V. Predeep and Anoop P. Balan 20986 (Holotype: MH; Isotypes: CALI). Para type: INDIA, Kerala, Idukki District, Silent Valley, 10° 05' N, 77° 10' E, at±1950m, 28 September 2016, Anoop P. Balan 20983 (MH).

Small trees, 3-5m high; bark of young branchlets lenticellate. Stipules 3-4mm long, ovate-lanceolate, sparsely pubescent outside, caducous; stipels 2-3mm long, linear, pubescent, caducous. Leaves

26-30cm long, imparipinnate; petioles 3-4.5cm long, tawny villous; rachis 12-21cm long, sparsely tawny villous; leaflets 13-21, opposite; petiolules 3-4mm long, tawny villous; lamina 5-8×2-3.5cm, stiff chartaceous; lateral leaflets elliptic-oblong, sub truncate-rounded and slightly asymmetric at base, shortly acuminate and obtuse-retuse at apex, glabrous above, sparsely sericeous below along the midvein, glaucous beneath; terminal leaflet elliptic, attenuate and symmetric at base; secondary veins 8-10pairs. Pseudoracemes 5-8 (-10)cm long, shorter than leaves, axillary, lax; rachis velvety-pubescent; peduncle 1.5-5cm long, pubescent. Flowers 2.8cm long, purple, 2-3 fascicled on each node of the rachis; pedicels 0.4-0.5cm long, pubescent. Bracts and bracteoles ca 3×1mm, linear-lanceolate, pubescent outside. Calyx velvety-pubescent; tube 6-7mm long, campanulate; lobes 1.5×1.5mm, deltoid. Corolla much exserted; standard 21×21mm, suborbicular, retuse at apex, silky pubescent outside, claw ca 7mm long; wings 18×8mm, obovate-oblong, shortly auricled at base, claw 10mm long; keels 18 x 9 mm, oblong, glabrous, claw 8mm long. Stamens 10, monadelphous; sheath 12-14mm long; filaments 5-6mm long, equal; anthers 1.25×1mm, ovoid, uniform. Ovary sessile, 12×1mm, linear, densely pubescent, 6-10 -ovuled; style 8mm long, incurved, glabrous; stigma capitate. Pods 16-20×2-2.5cm, strap-shaped with a curved beak, sessile, glabrous when matured, valves subleathary, coiled after dehiscence. Seeds 8-10, 1×0.8cm, ellipsoid, dark brown, funicle fleshy.

- I. Phenology: Flowering from December to February; fruiting from March to September.
- II. Habitat: Shade tree in the margins of tea plantations at 1700–2000 m elevation.
- III. Distribution: Widely planted as shade tree in roadsides and tea plantations in Devikulam Taluk of Idukki district, Kerala state.
- IV. Etymology: The variety is named after the type locality, Munnar, Idukki district of Kerala state, southern India.

### Key to the varieties of *M. pulchra*

- 1a. Flowers c. 1.2 cm long; Pods 6-12 cm long, 1-5 -seeded ..... 2
- 1b. Flowers 2.8 cm long; Pods 16-20 cm long, 8-10 -seeded ..... var. *munnaensis*
- 2a. Calyx lobes deltoid ..... 3
- 2b. Calyx lobes acuminate ..... 7
- 3a. Leaflets 2-10 cm long, abaxially hairy throughout ..... 4
- 3b. Leaflets c. 1.8 cm long, abaxially pilose along midvein and margin ..... var. *parviflora*
- 4a. Leaflets and branchlets pubescent or sparsely pilose or villous ..... 5
- 4b. Leaflets and branchlets tomentose ..... var. *tomentosa*
- 5a. Leaflets acute-acuminate at apex, adaxially hairy ..... 6
- 5b. Leaflets obtuse at apex, adaxially glabrous ..... var. *microphylla*

- 6a. Leaflets c. 6 cm long, acuminate at apex; Pods 1–3 –seeded  
..... var. *pulchra*
- 6b. Leaflets 6.5–10 cm long, acute at apex; Pods 3–5 –seeded  
..... var. *laxior*
- 7a. Leaflets <6 cm long, elliptic, symmetric at base  
..... var. *chinensis*
- 7b. Leaflets 6–10 cm long, oblong, conspicuously asymmetric at base  
..... var. *yunnanensis*

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### Conflict of interest

Authors declare there is no conflict of interest.

### References

1. Polhill RM, Raven PH. *Advances in Legume Systematics*. Part 2, Royal Botanic Gardens, Kew, India; 1981. p. 257.
2. Wight R, Arnott GAW. *Prodromus Florae Peninsulae Indiae Orientalis*. Neill & Co, London, UK; 1834. p. 263.
3. Sanjappa M. Legumes of India. Bishen Singh Mahendra Pal Singh, Dehradun, India; 1992. p. 212–215.
4. Kurz WS. New Burmese Plants. *J Asiat Soc Bengal*. 1873;42(2):69.
5. Prain D. *Noviciae Indicae* XV. Some additional Leguminosae. *J Asiat Soc Bengal*. 1897;66(2):358.
6. Dunn ST. A Revision of the genus *Millettia* Wight et Arn. *J Linn Soc Bot*. 1912;41(280):150–152.
7. Wei Z. A Revision of the Chinese *Millettia* (Papilionoideae) (Cont.). *Acta Phytotaxa Sin*. 1985;23(4):275–292.
8. Wei Z, Pedley L. *Millettia*. In: Wu ZY, PH Raven, editors. *Flora of China*. Science Press, Beijing, Chian, Vol. 10 (Fabaceae). 2010. p. 176–181.
9. Baker JG. *Millettia*. In: Hooker JD, editor. *The Flora of British India*. Lovell Reeve & Co, London, UK; 1876;2:104–110.