



## Occurrence Of A “New Caledonian” Species *Tinospora neocaledonica* Forman (Menispermaceae) In India

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### Abstract

*Tinospora neocaledonica* Forman (Menispermaceae), previously considered endemic to “New Caledonia”, is newly reported from the Indian State of Madhya Pradesh (Burhanpur District). The species is very distinct from other species of the Genus by its male inflorescence 1-4 cm long; endocarp bony, 8 × 4-5 mm, subelliptic in outline, 2-5 mm long aperture to condyle. Description, distribution, photographs and on with the respective holotype images accessed on Kew Herbarium © and PI@ntNet- Herbarium of IRD Noumea (Herbier DU Centre O.R.S.T.O.M. DE NOUMEA Flore de Nouvelle-Caledonie) of this newly recorded species are provided to aid easy identification.

### INTRODUCTION

The genus *Tinospora* Miers (Menispermaceae) to include of about 32 species, distributed throughout tropical Africa, Madagascar, Asia to Australia and the Pacific Islands (Forman, 1981; Kubitzki *et al.*, 1993; Mabberley, 2008; Pramanik *et al.*, 1993; Udayan *et al.*, 2009 and Mujaffar *et al.*, 2014). In India, the genus *Tinospora* is represented by seven species. Of these, two species *Tinospora cordifolia* (Willd.) Hook. f. and Thomson and *T. sinensis* (Lour.) Merr. are known to occur in Madhya Pradesh. Two out of the seven species i.e., *Tinospora crispa* (L.) Hook f. and Thomson; *T. glabra* (F. Burm.) Merr. are reported from northeast India and the Andaman Islands respectively. New species of *T. formanii* Udayan and Pradeep from the Western Ghats of Thrissur district, Kerala South India; *T. maqsoodiana* Mujaffar, Moinuddin and Mustakim a new species described from Madhya Pradesh and recently *T. smilacina* Benth. described from Tamil Nadu (Parthipan *et al.*, 2016).

During recent field explorations in the various parts of forests of Central India, we could collect some specimens of *Tinospora* from

Telyababa forest range, Burhanpur district, Madhya Pradesh. This after critical study was identified as *T. neocaledonica* Forman. Identified specimens were matched with the respective holotype images accessed on Kew Herbarium © and PI@ntNet- Herbarium of IRD Noumea (Herbier DU Centre O.R.S.T.O.M. DE NOUMEA Flore de Nouvelle-Caledonie). Perusal of literature revealed that this species has not been reported from Asia. Hence the present species reported as a new distributional record and addition to the flora of Asia. The specimens are preserved in S.N.Govt.P.G. College, Khandwa, research centre of Botany department and living specimen of in the botanical garden of S.N. Govt. P.G. College, Khandwa, Madhya Pradesh (450 001).

### SYSTEMATIC TREATMENT

*Tinospora neocaledonica* Forman sp. nov. *T. glabrae* affinis a qua differt floribus cum foliis non coaetaneis, pedicellis florum brevissimis, inflorescentiis masculis brevioribus, endocarpio angustiore apertura ventrali majore. Typus: New Caledonia, *McKee* 21361 (holotypus; isotypi) (Figures 1 to 8).

**Woody** climber, entirely glabrous with bitter milky sap when cut; stems drying striate when young with scattered lenticels, later developing a smooth coriaceous bark which on old stems becomes detached in flakes. **Leaves** with petioles 2.5-10 cm long; lamina broadly ovate, base broadly cordate to subtruncate, apex acuminate, 6-12.5 × 5-11 cm reticulation raised on both surfaces especially below, thinly papyraceous, finely glandular-papillose patches present in axils of basal. **Inflorescences** not coetaneous with the leaves. **Male inflorescence** axillary to leaf-scars, pseudoracemose, 1-4 cm long, flowers 2-3 in axil of subulate bract 0.8-1 mm long. **Male flowers:** pedicels 2-3 mm long; sepals green, 6, in two whorls, polysepalous, outer 3 ovate 0.8-1 mm long, inner 3 ovate-elliptic to broadly elliptic 3.5-5 mm long. Petals 6, in two whorls, rhomboid-obovate with lateral edges incurved, externally papillose at base 1.5-2 mm long; stamens 6, yellow, clavate, latrorse 3 mm long, opposite with petals, connate at base, filaments clavate. **Female inflorescence** same to male and **Female flowers:** sepals and petals similar to male but slightly smaller; staminodes 6; carpels 3, 1 mm long. Drupes red, borne on carpophore 2 mm long on peduncle 4 mm long arising singly from main axis of infructescence; pericarp drying thin; endocarp bony, 8 × 4.5 mm, subelliptic in outline, pointed at both ends, acutely so at base, dorsal median ridge prominent at ends, surface irregularly tuberculate, flattish ventral face with a broadly elliptic, 2-5 mm long aperture to condyle.

#### HABITAT AND ECOLOGY

This species is growing in loamy soil with hedges of cultivated field at an altitude of 318 m, Telyababa forest range, Burhanpur district, Madhya Pradesh. It is rare and sparsely distributed in the area along with *Tinospora sinensis* (Lour.) Merr. The associations with species in locality are *Clerodendron phlomidis* L.f., *Acacia eburnea* (Linn.f.) Willd., and *Azadirachta indica* Juss., etc.

**Flowering and Fruiting:** November to May

**Specimens Examined:** Known only from Telyababa forest range, Burhanpur district, Madhya Pradesh, India 20 Jan. 2018, SM-1010.

**Vernacular Name:** Gulvel/Gudvel (Korku); Karial/Usnaide Veli/Giloya de Veli (Gond); Gahutakli (Nihal).

**Distribution:** New Caledonia and Telyababa forest range, Burhanpur district, Madhya Pradesh, India.

#### DISCUSSION AND CONCLUSIONS

This species is closely allied to *T. glabra* (Burm.f.) Merrill in Journ. and *T. smilacina* Benth.. *T. neocaledonica* differs from *T. glabra* by flowering when leafless, shorter male inflorescences, having flowers with shorter pedicels and narrower endocarps with a larger ventral aperture. It differs from *T. smilacina* Benth. mainly in leaf-shape: *T. neocaledonica* has ovate leaves, the sides being convexly curved with the basal lobes, when the base is cordate, directed downwards. In *T. smilacina* the leaves are more triangular with rather straight sides, sometimes concavely curved below with the basal lobes then directed outwards; the endocarps of *T. smilacina* are very similar to those of *T. neocaledonica* apart from the larger ventral cavity in the latter.

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A. Kew Herbarium ©

B. Pl@ntNet-Herbarium of IRD Noumea





*Tinospora neocaledonica* Forman 1. A twig showing leaves 2. Glandular – papillose patches in axils of basal nerves 3. Old stem becomes detached in flakes with lenticels 4. Dorsal surface and 5. Ventral surface of leaf 6. Male inflorescence 7. Ventral view and 8. Dorsal view of Endocarp

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