

- A Calyx broadly winged :
- B Calyx wings usually cordate at base, not decurrent on pedicel ... 1. *indica*
- BB Calyx wings attenuated at base, decurrent on pedicel ... 2. *violacea*
- AA Calyx not broadly winged :
- C Fruiting calyx ribbed :
- D Flowers in axillary clusters ; corolla less than 1 cm long ; fruiting calyx less than 0.8 cm long ... 3. *thouarsii*
- DD Flowers solitary, axillary ; corolla more than 2 cm long ; fruiting calyx more than 1.2 cm long ... 4. *bicolor*
- CC Fruiting calyx not ribbed :
- E Corolla less than 1 cm long ... 5. *lindernioides*
- EE Corolla more than 2.5 cm long :
- F Stem glabrous ; corolla tube yellow or white ... 6. *travancorica*
- FF Stem hirsute ; corolla tube not yellow or white ... 7. *hirsuta*

1. *Torenia indica* sp. nov.

This plant has been taken for *T. cordifolia* Roxb. in most of our Herbaria and floristic works. A careful study of the pertinent literature and of numerous fresh as well as preserved specimens has led us to conclude that the present plant is not the one described by Roxburgh.

*T. cordifolia* Roxb. was clearly described by its author in Pl. Corom. 2:32, 1802 and pictured on t. 161 of the same work. An earlier, independent and authentic painting of this plant exists in Calcutta in the Roxb. Ic. no. 315 (*ined.*).

Roxburgh describes the leaves of this plant as 'opposite, short petioled, hearted, saw'd, a little hairy, one inch long and three quarters broad'. The calyx is 'large, bellied, five-angled, two-lipp'd ; upper lip slightly three-tooth'd ; the under lip simply pointed, permanent'.

The two authentic illustrations of *T. cordifolia* although picturing different plants, agree perfectly among themselves as well as with the above

description in morphological characters. The leaves are short-petioled, clearly cordate or truncate at base. The calyces are not cordately winged in spite of the fact that several flowers have been pictured.

The plant described by Roxburgh does exist. Bonati in Lecomte, Fl. Gen. Indoch. 4:396, 1927 describes a plant with the typical leaves of *T. cordifolia*. Indeed, in his key to the genus *Torenia* (*ibid.*, 389) Bonati separates this species from the rest on the basis of leaf-shape, 'feuilles supérieures sessiles, tronquées ou subcordiformes à la base-*cordifolia*'.

However, most Indian floristic works have applied the name *T. cordifolia* to a plant with distinctly cuneate, decurrent leaf-bases and cordately winged calyx lobes.

The cause of this change may be the plate labeled *T. cordifolia* by Hook. in Bot. Mag. t. 3715, 1839, based on a plant grown in Edinburgh in Oct. 1838 from seeds collected in Saharanpur. This plate represents our plant and not Roxburgh's. The discrepancy has been noted by Hook. f. in Bot. Mag. t. 6797, 1885 where he comments on the inappropriateness of using the epithet '*cordifolia*' to describe a plant with non-cordate leaves.

It might be argued that the plant described here is only a variation of Roxburgh's plant. We have examined several specimens from various parts of India. They constitute a distinct taxon that is easily distinguishable from *T. cordifolia* Roxb. as pictured and described in the original works.

*Descriptio*: Herba annua; caules 4-goni, tum erecti tum nodis infimis radicantes, angulis laeviter ciliatis; folia opposita, decussata, petiolata, ovata, serrata, petiolis usque 1.5 cm longis, pilosis, laminis penninervis, basi cuneatis super petiolos decurrentibus, usque 2 x 3.5 cm. Flores in axillis foliorum superiorum congregati, pedunculis floriferis 1 cm, fructiferis vero 1.5 cm longis, 4-gonis, ciliatis; calyces bilabiati, c. 1 cm longi, labi superiore tridentat, inferiore bidentat alati, alis ciliatis, basi cordatis, non decurrentibus; corollae bilabiatae, albae laeviterve violaceae, 1.5 cm longae, tubo calycem aequante, basi distento, intus inferne piloso, labiis rotundatis, inferiore vero trilobato. Stamina 4, didynama; filamenta inferiora longiora, edentula et ad invicem curvata; antherae perfectae, divaricatae. Ovarium ovoideo-conicum, disco hypogyno insidens; stylus filiformis; stigma bilamellatum. Capsula oblongo-elliptica, inclusa, septicida, seminibus pluribus foveolatisque.

*Holotypus*: Saldanha 6733 lectus prope Waghai die 26 Aug. 1961 et in Blatter Herbario (BLAT.), Collegii Sti Francisci Xaverii, Bombay, positus.

*Isotypi*: Saldanha 6730, 6732, 6735.

*Description*: Annual herbs. Stem 4-sided, erect or sometimes rooting at the lower nodes, moderately ciliate on the angles. Leaves opposite, decussate, petiolate, ovate or ovate-lanceolate, penninerved, pubescent especially on the nerves, cuneate at the base, decurrent on the petiole; petioles hairy, up to 1.5 cm long; lamina up to 2 x 3.5 cm. Flowers crowded together in the axils of the upper leaves; flowering pedicels 1 cm long; fruiting 1.5 cm, 4-sided, ciliate. Calyx bilipped, c. 1 cm long; upper lip 3-toothed; lower lip 2-toothed; wings ciliate, cordate at base, non decurrent. Corolla white or light violet, bilipped, 1.5 cm long; tube equaling the calyx, distended at the base, interiorly hairy on lobed below. Stamens 4, didynamous; lower filaments longer, edentulate, curved towards each other; anthers perfect, divaricate. Ovary ovoid-conical, placed on a hypogynous disc; style filiform; stigma bilamellate. Capsule oblong-elliptic, included, septicidal; seeds numerous, pitted.

*Holotype*: Saldanha 6733 collected near Waghai on 26 Aug. 1961 and kept in the Blatter Herbarium, St. Xavier's College, Bombay.

*Isotypes*: Saldanha 6730, 6732, 6735.

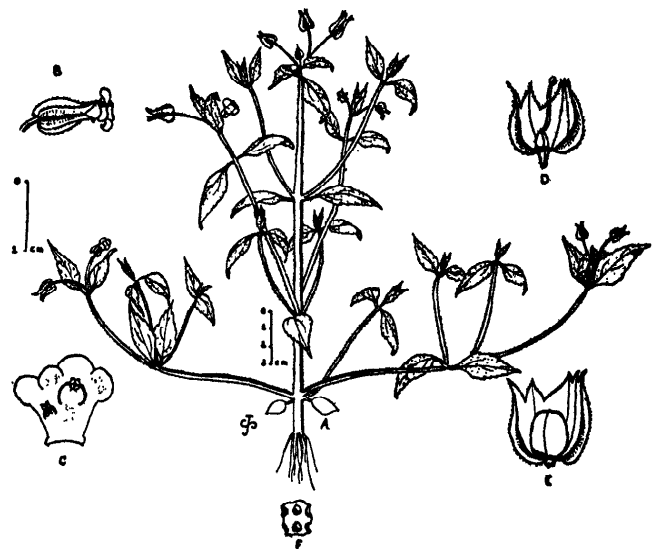


Fig. 1. *Torenia indica* sp. nov.

A. Entire plant. B. Flower. C. Dissected corolla with stamens. D. Gynoecium with dissected calyx. E. Capsule with dissected calyx. F. Seed (highly magnified).

*Occurrence*: BOMBAY: Borivli, Herbert 2386! 2831! Randeria 568! Santapau 2349! DANGS: Pimpri, Asrana 2806! Santapau 19332! 20276!; Susarda, Saldanha 1927!; Waghai, Asrana 2987! Saldanha 1890! Santapau 19071-73! 19083-84! 19166! 19679! 19993! 20024! 20096-98! KOLABA: Karjat, Santapau 15958! 23241!; Neral, Irani 4401!