

## NOTES RELATING TO THE FLORA OF BHUTAN: XXIII A new species of *Torenia* (Scrophulariaceae)

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The new species *Torenia burttiana* R. R. Mill (Scrophulariaceae) is described and illustrated, and its affinities discussed. It is presently known only from the type collection, from Bhutan (Deothang district).

While preparing the account of *Torenia* L. for *Flora of Bhutan*, a collection, represented by two specimens, was found which differed from all other species occurring in Bhutan and Sikkim in having calyces rather densely short-hirsute. As it does not exactly match any other Chinese or Indian species, it is described here as the new species *T. burttiana*. Further papers are in preparation which will describe other new taxa of Scrophulariaceae which have been discovered during the preparation of the account of the family for *Flora of Bhutan*.

### *Torenia burttiana* R. R. Mill, sp. nov. Fig. 1.

A *T. diffusa* D. Don pedicellis multo longioribus (plerumque 35–50mm longis, non 10–16mm, quam foliis longioribus), calyce majore (16–18mm longo, non 12–15mm) omnino sparse pubescenti (haud glabro), corolla sesquilingiore (30–41mm longa, non 17–25mm), appendice sterili filamentorum anticorum longiore (2.5mm, non 0.5–1mm) recedit; a *T. violacea* (Azaola ex Blanco) Pennell filamentis anticis appendiculatis, pedicellis multo longioribus, bracteis majoribus (5–6.5mm longis, non 1–4mm), calyce pubescenti majore (tempo florendi 16–18mm longo, non 10–15mm) ad medium tantum (haud basin versus) diviso, corolla longiore bene distincta. Simillima ut videtur *T. asiaticae* L. sed calyce longiuscule densiusculeque hispidulo-pubescenti pilis c.0.5mm (non sparse minutissime puberulenti pilis c.0.1mm), pedicellis multo longioribus, corolla plerumque longiore differt.

Annua(?) vagans interdum e nodis inferioribus radices sparsos emittens. *Caules* 12–35cm vel ultra alti, simplices, anguste quadrangulares, secus angulos breviter hispidulo-pubescentes. *Folia* opposita, secus caulos 3–10-juga; internodia 2.5–5cm longa (ea longissima medium versus caulis). *Petiolus* 2–7mm, anguste alatus, pubescens, alae purpureo-tinctae. *Lamina* ovata usque lanceolata, 16–30 x 9–18mm, acuta, basi obtuso, breviter cuneato truncato-cuneatove, margine tenuiter serrato dentibus breviter mucronatis; lamina supra viridis sparse pubescens, infra praecipue basem marginesque intense purpureo-suffusa, glabra pilis brevibus patentibus secus venas exceptis; venae primariae 5–6-jugae. *Flores* (1–)2 vel 4 ex axillis parvis terminalis foliorum evoluti. *Pedicelli* (25–)35–50mm longi foliis multo longiores, proximaliter quadrangulares, distaliter leviter 10-striati et infra calycem clavati. *Bractee* lineari-lanceolatae usque anguste lineares, 5–8(–12) x 0.1–0.5(–2)mm. *Calyx* 16–18(–20) mm longus fere ad medium fissus, extus sparse pubescens, lobis lanceolatis 7–9mm longis anguste alatis ad apices reflexis, lobo superiore 3-costato quam inferiore bicostato latiore. *Corolla* pallidissime violacea fauce intense violaceo lobis haud atromaculatis, (30–)35–41mm longa; tubus 25–30mm longus basin versus constrictus apicem versus gradatim dilatatus, dorsaliter leniter curvatus, extus sparsissime puberulus; lobi 4, inferior latiuscule rotundatus c.8 x 10–11mm, laterales c.5 x 6.5–7mm, superior 5–6.5 x c.8–9mm. *Filamenta antica* 8–10mm appendiculata appendice lineari-clavata 2.7–3mm longa ad apicem purpureo-tincta; antherae anticae c.3 x 1.2mm (2.5 x 0.8mm in sicco); *Filamenta postica* c.2.5mm exappendiculata; antherae posticae 4.5–5 x 2mm, in sicco vix contractae. *Connectiva antherarum* omnium circum margines distales thecarum canthos lunatos et proximaliter aream magnam latissime triangularem formantia. *Grana pollinis* pallide

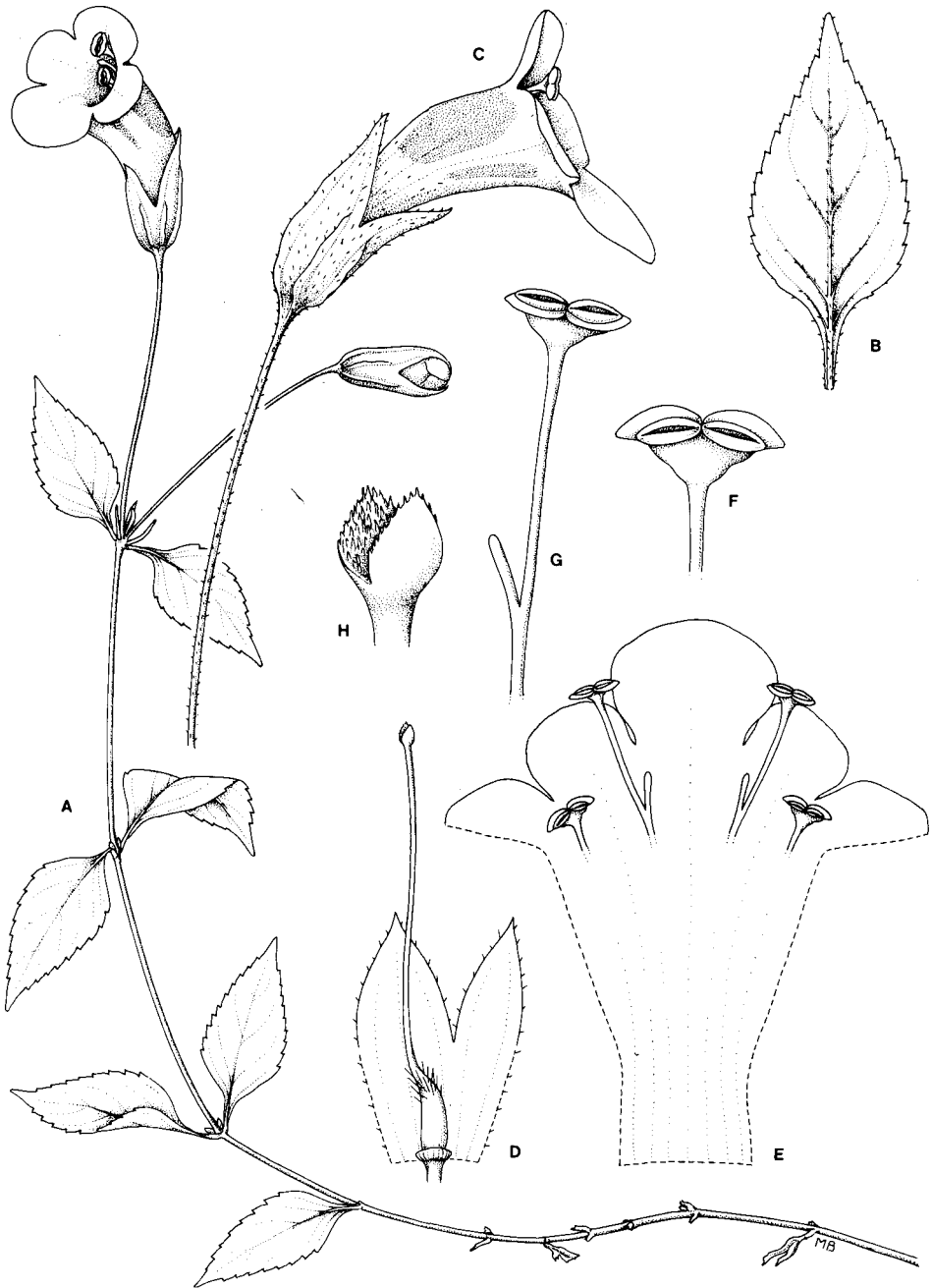


FIG. 1. *Torenia burtiana* R. R. Mill. A, habit x 1; B, leaf (lower surface), x 1.5; C, flower and pedicel x 1.5; D, dissected calyx with ovary and style x 2; E, corolla cut open dorsally x 2; F, posterior stamen x 5; G, anterior stamen x 5 (note filament appendage); H, stigma x 5. All from Ludlow & Sherriff 549; A-D from dry material, E-H from boiled material.

sucinacia. *Stylus* c.24mm longus, luteus usque aurantiaco-luteus; lobi stigmatici c.3 x 2mm (in sicco multo contracti) rhombeo-spathulati erecto-patentes, paginis interioribus papillatis margine breviter fimbriato. *Ovarium* anguste ovoideum, c.5.5 x 1.5mm, apicem versus pilosum. *Capsula* brunnea c.7 x 2mm ad apicem dense albopilosa. *Semina* pallide rubescenti-brunnea, c.0.4 x 0.3mm, late ellipsoidea, tenuiter reticulata.

Prostrate, straggling annual(?), occasionally sparsely rooting at some lower nodes. *Stems* 12–35cm or more, unbranched, 0.7–1.5mm thick, straw-coloured when dry (except angles), sharply but narrowly 4-angled, the angles shortly hispidulous-pubescent (hairs c.0.2mm, white), tinged purple on their outer face and green on their inner. *Leaves* opposite, 3–10 pairs per stem; internodes 2.5–5cm, longest ones towards middle of stem. *Petioles* 2–7mm, narrowly winged, pubescent, the wings tinged purple. *Lamina* ovate to lanceolate, 16–30 x 9–18mm, acute, base obtuse, shortly cuneate or truncate-cuneate, margin finely serrate with c.9–12 serrations per side (teeth 0.5–0.7mm deep, shortly mucronate); upper surface green, sparsely pubescent; lower surface heavily tinged purple especially distally and near margins but not on veins or near base, glabrous except for short, spreading hairs on veins; primary veins 5–6 pairs, alternate (but lowest 2 pairs very close together and appearing as though palmate). *Flowers* (1–)2 or 4 in axils of terminal pair of leaves. *Pedicels* (25–)35–50mm, much longer than leaves, 4-angled proximally, weakly 10-ribbed distally and clavate just below calyx. *Bracts* linear-lanceolate to narrowly linear, 5–8(–12) x 0.1–0.5(–2)mm. *Calyx* 16–18(–20)mm in flower, split nearly to middle, sparsely pubescent all over externally (hairs c.0.5mm); tube 7.8–9 x 4–5(–6)mm; lobes 7–9mm, lanceolate, flared outwards at tips, upper one 3-ribbed, broader than 2-ribbed lower (widths c.6mm and c.4mm respectively); wings c.1mm broad on upper lobe but only c.0.5mm wide on lower. *Corolla* very pale violet with deep violet throat but without dark blotches on lobes, (30–)35–41mm; tube 25–30mm, constricted at about  $\frac{1}{3}$  way up from base then gradually broadening towards throat, dorsally gently curved, very sparsely puberulent outside; lobes 4, lower lobe c.8 x 10–11mm, broadly rounded, laterals c.5 x 6.5–7mm and somewhat truncate, upper 5–6.5 x c.8–9mm, rounded. *Anterior filaments* c.8–10 x 0.3mm, with linear-clavate appendage 2.7–3mm, purple-tinged at its apex; *anterior anthers* c.3 x 1.2mm (boiled) shrinking to 2.5 x 0.8mm (dry), thecae divergent, c.1.3 x 0.6mm (dry). *Posterior filaments* c.2.5 x 0.2mm, unappendaged; *posterior anthers* c.4.5–5 x 2mm, shrinking only slightly on drying, thecae horizontally divergent, c.2 x 0.6mm. *Connectives* of all anthers (but especially posterior pair) forming crescent-shaped flanges around distal margin of thecae, and a very broadly triangular area (on posterior pair c.1 x 2mm) proximally. *Pollen* pale amber coloured. *Style* c.24mm, orange-yellow; stigmatic lobes c.3 x 2mm (boiled), shrinking markedly on drying to 1.5–2 x 1.3–1.8mm, rhombic-spathulate, their inner surfaces papillate and margin shortly fimbriate; ovary narrowly ovoid, c.5.5 x 1.5mm, hairy at apex. *Capsule* c.7 x 2mm, brown, densely white-pilose at apex. *Seeds* pale reddish-brown, c.0.4 x 0.3mm, broadly ellipsoid, finely reticulate.

Type: BHUTAN: Deothang district, Chungkar, Diwangiri–Trashigong road, 3500ft [1067m], 24 vi 1934, deep violet throat, remainder [of corolla] very pale violet, clearings in jungle, *F. Ludlow & G. Sherriff* 549 (holo. E, iso. BM).

Previously confused with *T. vagans* Roxb. and *T. violacea* Azaola ex Blanco (*T. diffusa* auct. non D. Don). The exact identity of *T. vagans*, originally described from Chittagong (Bangladesh) by Roxburgh (1832), is still a matter requiring clarification; Dutta (1965) and other authors have considered it to be the same as *T. diffusa* D. Don, whereas Yamazaki (1985) treated it as a synonym of *T. glabra* Osbeck (within which he also included *T. diffusa*); Burtt (1991) proved conclusively that *T. glabra* Osbeck was a synonym of the Chinese species, *T. asiatica* L. However, it would appear from Roxburgh's brief and rather inadequate description (Roxburgh 1832, 3: 96) that *T. vagans* is not the same as the new species, as its corollas were described as "blue" and the habit as "smooth" (the new species is pubescent). From *T. violacea* it is readily distinguished by its appendiculate anterior filaments which place it in Sect. *Torenia* rather than Sect. *Anidous* Fournier (Sect. *Elegantes* Yamazaki), to which *T. violacea* belongs, and also by its much longer pedicels, larger bracts, calyx divided only to the middle, and longer corolla. The pubescent calyx is very distinctive and separates it from all other species of *Torenia* occurring in Bhutan and Sikkim. In some respects *T. burttiana* resembles a taxon which is common in N Myanmar [formerly Burma] and SW China (mainly Yunnan), which has similarly large flowers. The latter taxon, however, differs from *T. burttiana* by its glabrous calyces and by the corollas with large violet blotches on the lateral lobes. The status of this latter taxon is currently being investigated; it may turn out to represent true *T. vagans* Roxb., or else another undescribed species. *T. burttiana* is also similar in many respects to *T. asiatica* L. but has much longer pedicels; also, in *T. asiatica* the calyx pubescence, if any, is extremely minute and the corollas usually shorter. The only species I have seen which has a calyx approaching the degree of hairiness found in *T. burttiana* is *T. benthamiana* Hance from northern Vietnam and SE China. This is easily distinguished, however, by its leaves densely hirsute on both surfaces, calyx half as long (8–10mm at anthesis), small purple corollas only 12–15mm, and the spur of the anterior anthers only 1.5mm.

It gives me very great pleasure to name this new species in honour of Mr B. L. Burtt, who, with the late Prof. Peter Davis, was one of the first to stimulate my professional interest in plant taxonomy during the University of Edinburgh/RBG Edinburgh Diploma Course in Plant Taxonomy in 1972/73; he also, as is typical of him, went to considerable trouble some years ago to kindly collect material of *Afrotysonia* Rauschert for me from Transkei when I was revising that genus (Mill 1986). It is particularly appropriate to dedicate this species to Mr Burtt since he recently elucidated some problems in the Asian members of the genus *Torenia* (Burtt 1991) and I had several helpful conversations with him concerning the genus while I was preparing the account of *Torenia* for *Flora of Bhutan*.

#### ACKNOWLEDGMENT

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