

## A new species of *Tirpitzia* (LINACEAE) from Thailand

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ABSTRACT. A third species of *Tirpitzia*, *T. bilocularis* Suksathan & K.Larsen from N Thailand is described and illustrated with a short note on the genus. *T. bilocularis* is characterized by pink, fused corolla lobes forming a tube of 2.8–3.3 cm long, two styles, and a bilocular ovary. A key to all species in the genus and a distribution map are provided.

### INTRODUCTION

*Tirpitzia* Hallier f. is a small genus distributed from northern Thailand eastward to southern China and northern Vietnam. The genus was established by Hallier (1921) to accommodate an exceptional Chinese species originally described as *Reinwardtia sinensis* Hemsl. Six decades later, the second species, which closely resembles *T. sinensis* (Hemsl.) Hallier f. was described by Sha (1982) as *T. ovoidea* Chun et How ex W.L.Sha from the mountains of Guangxi, S. China. It has five styles and a 5-locular ovary instead of four as in the first species. Xu et al. (1998) also noted that *Tirpitzia sinensis* strongly resembles *T. ovoidea*, and that the only distinct characters separating these two species are the numbers of styles and ovary locules (4 in *T. sinensis* vs 5 in *T. ovoidea*). However, these seem to vary within the same plant (*N.T. Hiep et al. 1240*, N Vietnam-AAU). In this paper we prefer to recognize *T. sinensis* and *T. ovoidea* as two separate species until more information is obtained. In case they are conspecific then the older epithet is *sinensis*.

A third distinct *Tirpitzia* species was discovered in 2000 during botanical exploration in Northern Thailand. The new species has a bilocular ovary and a long corolla tube formed by fusion of the claws (sutures are visible), both characters that are rare in Linaceae (Heywood 1993). It also shares some characters with two related genera, i.e. *Reinwardtia* Dumort. in its habit (subshrub), and *Anisadenia* Wall. ex C.F. Meisner in having glandular bristles on both sepals and stipules. Nevertheless, the combination of having salver-shaped flowers, a bifurcate apex of each locule in mature fruits, and winged seeds, leaves no doubt about its placement in the genus *Tirpitzia*. A more intensive study of morphology and a molecular analysis are needed to clarify the relationships among these genera. It was found growing scattered in open scrub vegetation along limestone mountain ridges (see Fig.1 for distribution of all species). This new discovery changed the revision of the Thai native Linaceae by Larsen (1997) from two genera and two species (*Anisadenia saxatilis* Wall. ex

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C.F. Meisner and *Reinwardtia indica* Dumort.) to three genera and three species. A key to all three species of *Tirpitzia* and a description of the new species, *T. bilocularis* Suksathan & K.Larsen, is provided below.



Figure 1. Distribution map of three *Tirpitzia* species in E Asia based on Xu et al. (1998) and specimens kept at AAU.

#### KEY TO THE SPECIES

1. Corolla pink, lobes fused at the base forming a tube of 2.8–3.3 cm long, styles 2, ovary 2-locular **T. bilocularis**
1. Corolla white, lobes free, styles 4 or 5, ovary 4- or 5-locular
  2. Styles 4, ovary 4-locular, leaves obovate, chartaceous to subcoriaceous **T. sinensis**
  2. Styles 5, ovary 5-locular, leaves elliptic, chartaceous **T. ovoidea**

***Tirpitzia bilocularis*** Suksathan & K.Larsen, sp. nov. *A speciebus ceteris generis, T. sinensi et T. ovoidea differt stipulis anguste reniformibus ad marginem glandulisetosis, floribus roseis, lobis corollae in tubum c. 3 cm longum coalitis, stylis 2, ovario biloculari.* Typus: Thailand, Doi Nang Non, Mae Fha Luang subdistrict, Chiang Rai province, alt. 1300 m, 27 August 2000, S. Watthana et al. 843 (holotypus **QBG**; isotypi **AAU, BKF, K**). Figs. 2–3.

Subshrub up to 50 cm high. Twigs few, 1–4 mm diameter, pilose when young, later glabrous. Leaves chartaceous; stipules depressed-reniform, 0.8–1.5 by 1–4 mm, pilose when young, margins with 0.5–1.0 mm long pink glandular bristles; petiole 0.8–1.6 cm long; lamina elliptic to narrowly ovate, 2.9–6.5 by 1.4–3.5 cm, pilose when young, entire, base attenuate, rarely cuneate, each side with or without a row of 0.5–1.0 mm long white to pink glandular bristles, apex acute. Flowers pink, heterostylous, solitary or in 3–5-flowered

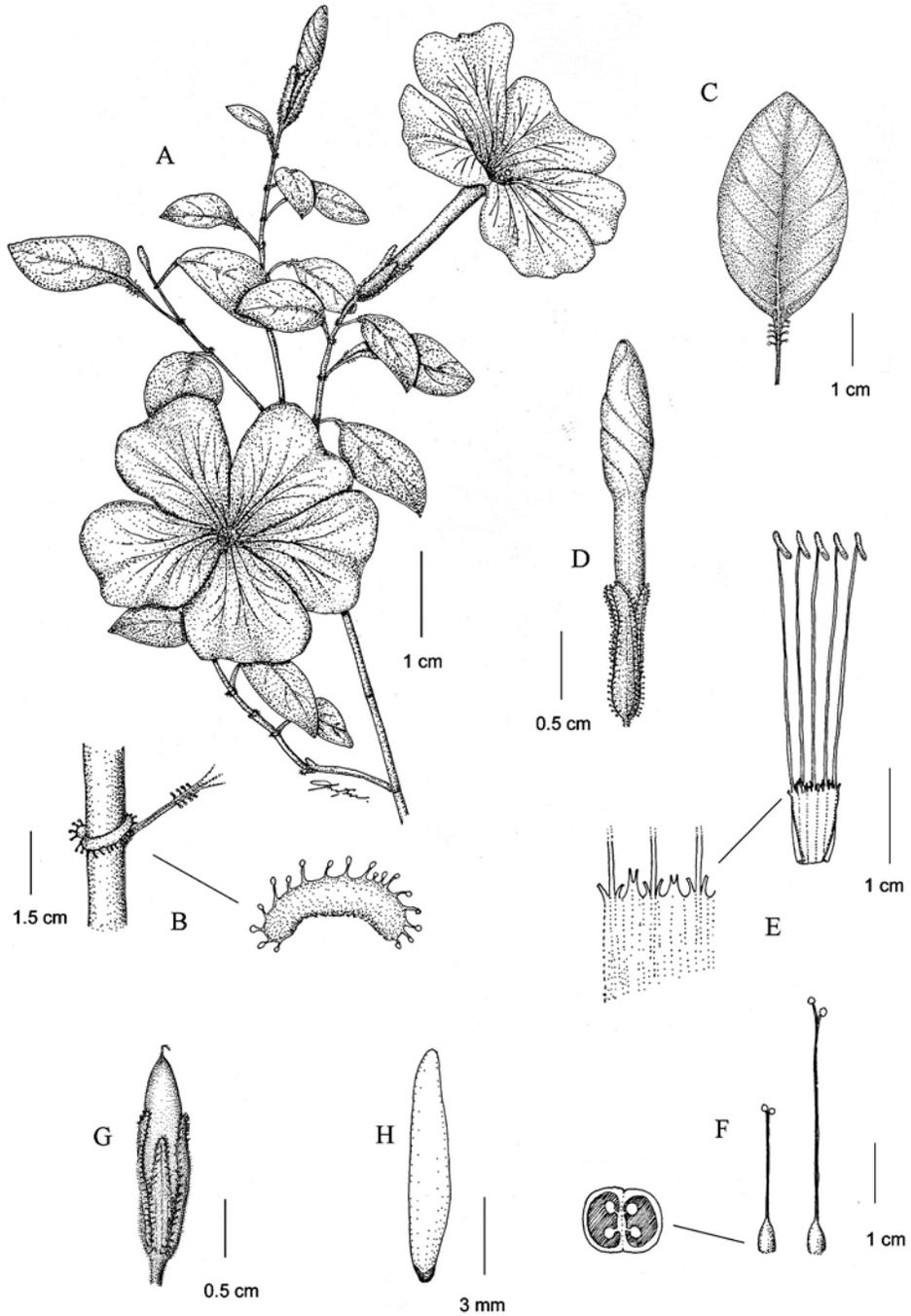


Figure 2. *Tirpitzia bilocularis* Suksathan & Larsen: A. habit; B. young twig, showing stipules; C. leaf; D. flower bud; E. stamen; F. pistils and ovary-cross section; G. fruit; H. seed.

terminal cymes 2.5–7.0 cm long; bracts leaf-like, pilose on lower surface, 4–6 per inflorescence, narrowly elliptic to oblanceolate, 3–14 by 1–3 mm, margins with 0.5–1.0 mm long glandular bristles, apex acute. Sepals 5, light green, quincuncial, partly fused at the base, pilose on outer surface, lanceolate, 10–12 by 2.0–2.5 mm, margin with two rows of 0.5–1.0 mm long, white to pink glandular bristles, apex rounded. Corolla salver-shaped; tube white, 2.8–3.3 cm long, c. 2.5 mm diameter; lobes 5, pink with darker veins, broadly obovate, 1.5–1.6 by 1.4–1.5 cm, apex slightly emarginate. Stamens 5, glabrous; filaments shortly exerted in short-styled flowers, 2.2–2.7 cm long, enclosed in long-styled flowers, 1.0–1.1 cm long, base connate forming a tube 6–7 mm long, alternating with 2–4 teeth-like staminodes c. 0.5 mm long, free part filiform; anther white, cylindric, 3–3.5 mm long. Ovary ovoid, 2-locular, c. 2 mm long, glabrous, each locule with 2 ovules; styles 2, white, filiform, exerted in long-styled flowers, 3.3–3.5 cm long, and enclosed in short-styled flowers, 2.0–2.3 cm long, the basal part fused at least 5/6 of the length with a visible suture; stigma white, capitate, c. 0.5 mm diameter. Capsule ellipsoid, 15.0–17.5 by ca 3.5 mm, glabrous, surrounded by the persistent calyx, septicidally dehiscent, 2-valved; seeds 3 or 4, winged, ca 9 by 1.5 mm.

Thailand.—NORTHERN: Chiang Rai [Doi Nang Non, Mae Fa Luang subdistrict, 27 Aug. 2000, *Wathana et al.* 843 (holotype **QBG**; isotypes **AAU**, **BKF**, **K**); same locality as the type, 22 Jan. 2000, *Suksathan et al.* 2243 (**AAU**, **QBG**)].

Distribution.—Known only from the type locality.

Ecology.—Open scrub vegetation along limestone mountain ridges, ca. 1200–1300 m.

Vernacular.—Nang On (นางอน) (The name is given by the authors).

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Figure 3. *Tirpitzia bilocularis* Suksathan & Larsen. Photographed by Somkuan Suk-eam.