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Tolypanthus (Loranthaceae): a new genus record for Thailand and a new species

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ABSTRACT. The genus *Tolypanthus* (Loranthaceae) is newly recorded for Thailand, comprising *Tolypanthus lageniferus* (Wight) Tieghem and a new species, *T. pustulatus* Barlow, which is described and illustrated.

INTRODUCTION

Field collections subsequent to the treatment of Loranthaceae in *Flora of Thailand* (Barlow in Vol. 7, 4: 665–706. 2002) have revealed the presence of the small South Asian genus *Tolypanthus* in Thailand. The genus comprises six species distributed from India and Sri Lanka to Southern China, and therefore the recent discovery of the genus in Thailand is perhaps not surprising. The two collections represent two species, one the Indian *T. lageniferus*, and the other here described as new, *T. pustulatus*.

The account presented below is set out as an addition to the Flora treatment of Loranthaceae. An amended key to genera is included.

CONSERVATION STATUS

The status of these two species newly recorded for Thailand is difficult to assess, but both should probably be designated rare. The occurrence of loranths as canopy parasites in tropical forests often makes access difficult, so that some of the diversity in local communities might be overlooked, and these species may be more common than the records indicate. Conversely there is also evidence that occasional waif dispersal of loranths occurs over considerable distances, and that some occurrences may be of short duration.

In respect of these two discoveries, however, it may be noted that they both appear to represent local biotypes with their own genetic identities. One is a newly recognised species with its own distinctive suite of characters, and the other shows several differences from the other known populations of its species in India. Because they do not represent simple range extensions of widespread taxa, formal conservation designation may be appropriate.

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AMENDED KEY TO THE GENERA OF LORANTHACEAE

1. Petals fused to the middle or higher (sometimes with the corolla tube deeply split on one side)
  2. Corolla 6-merous
    3. Inflorescence a head with an involucre of enlarged bracts tightlyenclosing the inflorescence, these bracts decussate, broad, strongly imbricate, often keeled, brightly coloured, more than 30 mm long **7. Lepidaria**
    3. Inflorescence not as above
      4. Flowers in simple dichasia (triads), these arranged decussately in a raceme **2. Amylotheca**
      4. Flowers single in the inflorescences (racemes, spikes, few-flowered umbels, heads or solitary flowers)
        5. Inflorescence axis decussately flattened, with the flowers borne in hollows **5. Elytranthe**
        5. Inflorescence axis terete or quadrangular, with the flowers not borne in hollows **9. Macrosolen**
  2. Corolla 5- or 4-merous
    6. Inflorescence a head with an involucre of enlarged bracts in a single whorl, free or (in the Thailand species) fused and bell-like, more than 15 mm long **12. Tolypanthus**
    6. Inflorescence not as above; bracts free and single under each flower
      7. Fruit obovoid, club-like, distinctly stipitate **10. Scurrula**
      7. Fruit ovoid or ellipsoid, not stipitate
        8. Inflorescence racemose (sometimes few-flowered and subumbellate); corolla 5- or rarely 4-merous **4. Dendrophthoe**
        8. Inflorescence a few-flowered umbel; corolla mostly 4-merous **11. Taxillus**
1. Petals free completely or almost to the base (sometimes coherent for sometime after anthesis)
  9. Inflorescence a simple umbel or solitary flower **1. Amyema**
  9. Inflorescence a raceme, spike or contracted to a head
    10. Inflorescence sessile, capitate, a very condensed spike without involucre **3. Barathranthus**
    10. Inflorescence a raceme or spike
      11. Flowers hermaphrodite; anthers linear **6. Helixanthera**
      11. Flowers mostly unisexual (often with organs of the non-functional gender present or vestigial); anthers subglobose to globose **8. Loranthus**

12. TOLYPANTHUS

Tieghem, Bull. Soc. Bot. France 42: 249. 1895; Danser, Verh. Akad. Wet. Amst. Afd. Natuurk. 29: 127. 1933.

Aerial stem-parasitic shrubs, probably with epicortical runners bearing secondary haustoria. *Leaves* opposite, sometimes slightly displaced; venation pinnate. *Inflorescences* axillary, a sessile or shortly pedunculate involucrate few-flowered head; involucral bracts much enlarged, free or (in Thailand) fused and bell-like, often brightly coloured; flowers sessile or subsessile, inserted at the apex of the peduncle or near the base of the involucre, more or less in a single whorl. *Corolla* 5-merous, gamopetalous to above the middle, slender, regular or nearly so. *Anthers* basifixed, immobile, often spurred at the base. *Style* simple, with a knob-like stigma. *Fruit* (where known) ellipsoid.

Six species, distributed from India to China. Two species in Thailand.

See note under *T. pustulatus* on possible affinities of the genus.

KEY TO THE SPECIES

1. Involucre 18–25 mm long, of 4–6 (usually 5) bracts fused for about 2/3 their length, not angular; calyx sparsely brown-hairy at the base, soon glabrescent; leaf lamina broadly oblong to ovate, 4–5 cm long **1. T. lageniferus**

1. Involucre 15–20 mm long, of 6–8 bracts fused for about half their length, angular along the lines of fusion; calyx densely white-tomentose; leaf lamina lanceolate, acuminate, 9–11 cm long
2. T. pustulatus

1. Tolypanthus lageniferus (Wight) Tieghem, Bull. Soc. Bot. France 42: 249. 1895.— *Loranthus lageniferus* Wight, Icon. Pl. 1: t. 306. 1840. Figs. 1, 3A.

Glabrous except for the calyx at the base and the corolla in bud very sparsely and shortly brown hairy, very soon glabrescent. *Stems* smooth, shiny, sparsely lenticellate. *Leaves* opposite; lamina broadly oblong to ovate, 4–5 by 2.5–3 cm, contracted at the base to a winged petiole 3–5(–7) mm long, entire at the margins, broadly acute or shortly rounded at the apex, bifacial but dull on both surfaces; venation pinnate, distinct on both surfaces with the midrib prominent below and raised in the basal half. *Inflorescences* single or few at the nodes; peduncle slender, 2.5–7 mm long, expanded upwards and continuous with the involucre; involucre bell-like, 18–25 mm long, pale green, comprising 4–6 (usually 5) bracts fused for about 2/3 their length with the lobes triangular and acute or weakly acuminate; flowers 5–6, subsessile on the inner surface of the involucre just above the base. *Calyx* soon glabrous, 2–2.5 mm long; limb weakly toothed, ca. 1 mm long. *Corolla* in mature bud 5-merous, ca. 27 mm long, contracted to a short neck and weakly clavate at the apex, with 5 knob-like projections at the point of reflexion just below the neck, white with longitudinal red stripes on the tube and red at the apex; tube in the open flower nearly straight, not inflated at the base, 18–19 mm long, with the lobes reflexed 4–5 mm higher. *Anther* 1.5–2 mm long, about equal to the free part of the filament, with pollen sacs extending very slightly below the point of attachment of the filament. *Style* slender; stigma knob-like, much wider than the style. (Description based only on the Thailand collection).

Thailand.— EASTERN: Ubon Ratchathani [Pha Taem National Park, Dong Na Tham forest, Khong Chiam, 6 July 2004, *S. Suddee et al.* 2038 (BKF)].

Distribution.— India, Thailand.

Ecology.— Recorded in Thailand from dry dipterocarp forest, 240 m; hosts not recorded.

Note.— The Thailand specimen differs from Indian material mostly in dimensions of parts, having shorter leaves, involucres and flowers; it also appears to differ in having pale green involucres, whereas Indian specimens are described as having bright blood-red involucres. However, the general facies of the specimen agrees with *T. lageniferus*, and the species is probably somewhat polymorphic.

2. Tolypanthus pustulatus Barlow, **sp. nov.** Species nova *T. lagenifero* (Wight) Tieghem similis, sed tubo involucri breviore, angulari, lobis acuminatis, calyce tomentoso, lobis corollae pustulatis differt. Typus: Thailand, North-Eastern, Nong Khai, Bung Khla, Phu Wua, ca. 200 m, 21 May 2004, *R. Pooma et al.* 4158 (holotype BKF; isotype CANB). Figs. 2, 3B.

Glabrous except for the calyx densely white-tomentose and the corolla sparsely hairy with scattered simple hairs to 1 mm long and more numerous short branched or simple appressed white hairs. *Stems* smooth, sparsely lenticellate. *Leaves* opposite or

slightly scattered; lamina lanceolate, 9–11 by 3–4 cm, acuminate to cuneate at the base to a winged petiole 9–12 mm long, entire at the margins, acuminate and acute at the apex, bifacial but dull on both surfaces; venation pinnate, distinct on both surfaces with the midrib prominent below and raised almost to the apex. *Inflorescences* few to several at leafy and leafless nodes; peduncle 2–4 mm long, expanded upwards and continuous with the involucre; involucre bell-like, 15–20 mm long, reddish pink, comprising 6–8 bracts fused for about half their length, angular along the lines of fusion, with the lobes triangular and acuminate; flowers 4–6 (possibly through abortion of some flowers), subsessile on the inner surface of the involucre just above the base. *Calyx* remaining tomentose at maturity, 1.2–2 mm long; limb sparsely hairy only at the rim, weakly lobed, ca. 0.7 mm long. *Corolla* in mature bud 5-merous, ca. 32 mm long, scarcely narrowed to a short neck below the apex, with a blister-like inflation on the outer surface of each petal extending from the apex to just below the point of reflexion, white with longitudinal red stripes on the tube; tube in the open flower straight, not inflated at the base, ca. 19 mm long, with the lobes reflexed ca. 6 mm higher. *Anther* 2–2.5 mm long, about 2/3 as long as the free part of the filament, with pollen sacs extending slightly below the point of attachment of the filament and appearing sagittate. *Style* slender; stigma knob-like, much wider than the style.

Thailand.— NORTH-EASTERN: Nong Khai [Bung Khla, Phu Wua, ca. 200 m, 21 May 2004, *R. Pooma et al*. 4158 (holotype BKF; isotype CANB)].

Distribution.— Possibly endemic to Thailand.

Ecology.— Recorded parasitic on a species of Lauraceae.

Note.— *Tolypanthus pustulatus* is known only through the type specimen, and represents a new record for Thailand, first reported by *R. Pooma et al.* 4158 on 21. May 2004. The affinity of the species is probably with *T. lageniferus*, also newly recorded for Thailand (see above). It differs from *T. lageniferus* in its shorter, more angular involucre, which is fused only for about half its length, with usually 7 or 8 lobes more subacuminate and more acute at the apex; in its more persistent white tomentum on the calyx; and in its anthers shorter than the free part of the filament. It also has distinct blister-like inflations of the epidermis on the outer surface of each petal, extending from the apex to just below the point of reflexion; this adaptation may have a function in reflexion of the petals, and appears not to have been reported in any other species of the genus. The specific epithet alludes to this feature.

The flowers appear to be inserted at slightly different levels on the inner face of the involucre, and appear to be slightly unequal-aged. This suggests that the inflorescence may be a highly modified raceme, and that the genus *Tolypanthus* may be a reproductively specialised morphotype with affinities to the group of genera centred on *Dendrophthoe*.

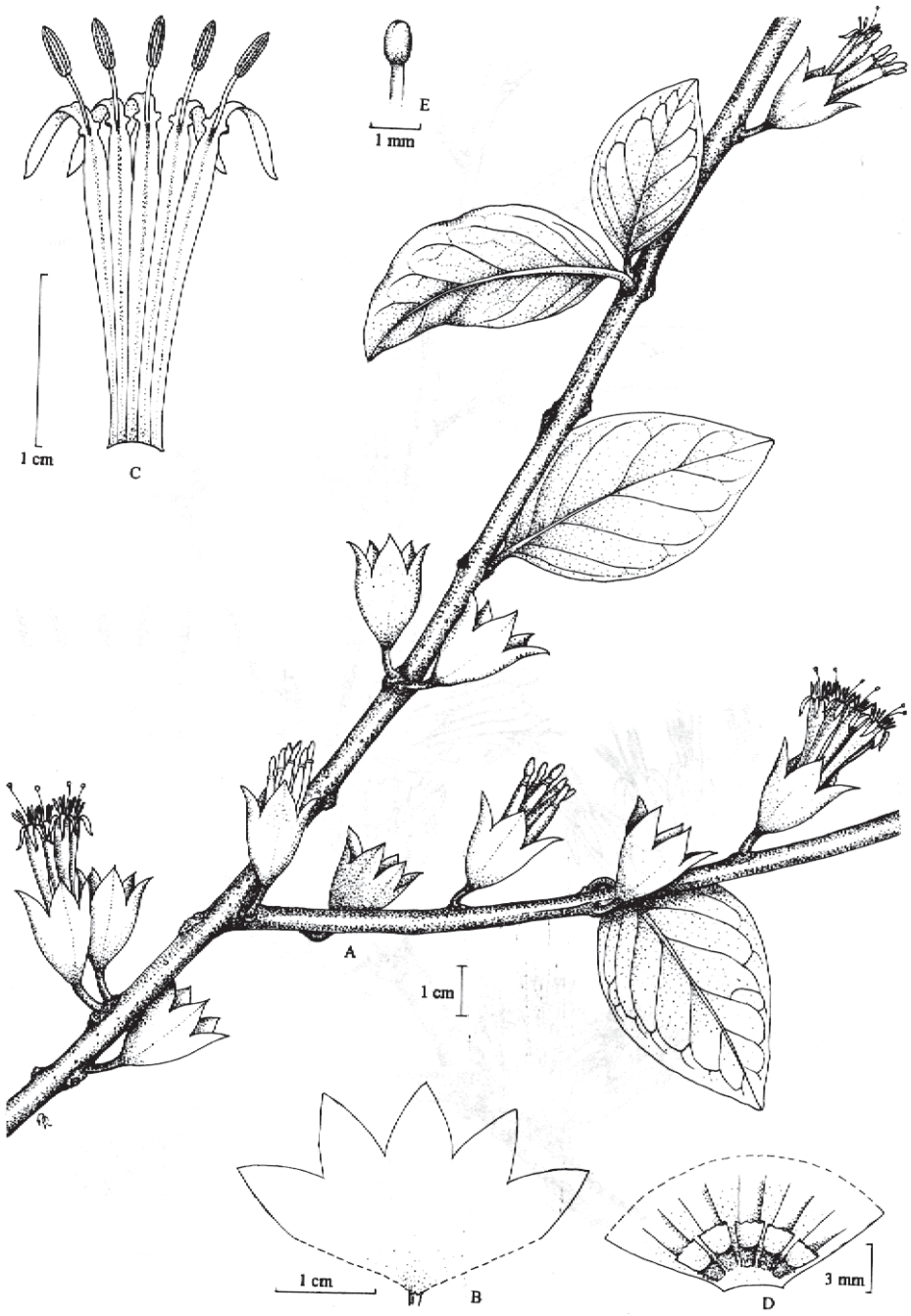

Figure 1. *Tolypanthus lageniferus* (Wight) Tieghem: A. flowering branch; B. opened involucral bract; C. opened flower; D. flower inserted at base of involucre; E. stigma. All from *S. Suddee & S. suwanachat* 2038. Drawn by O. Kirdkaew.

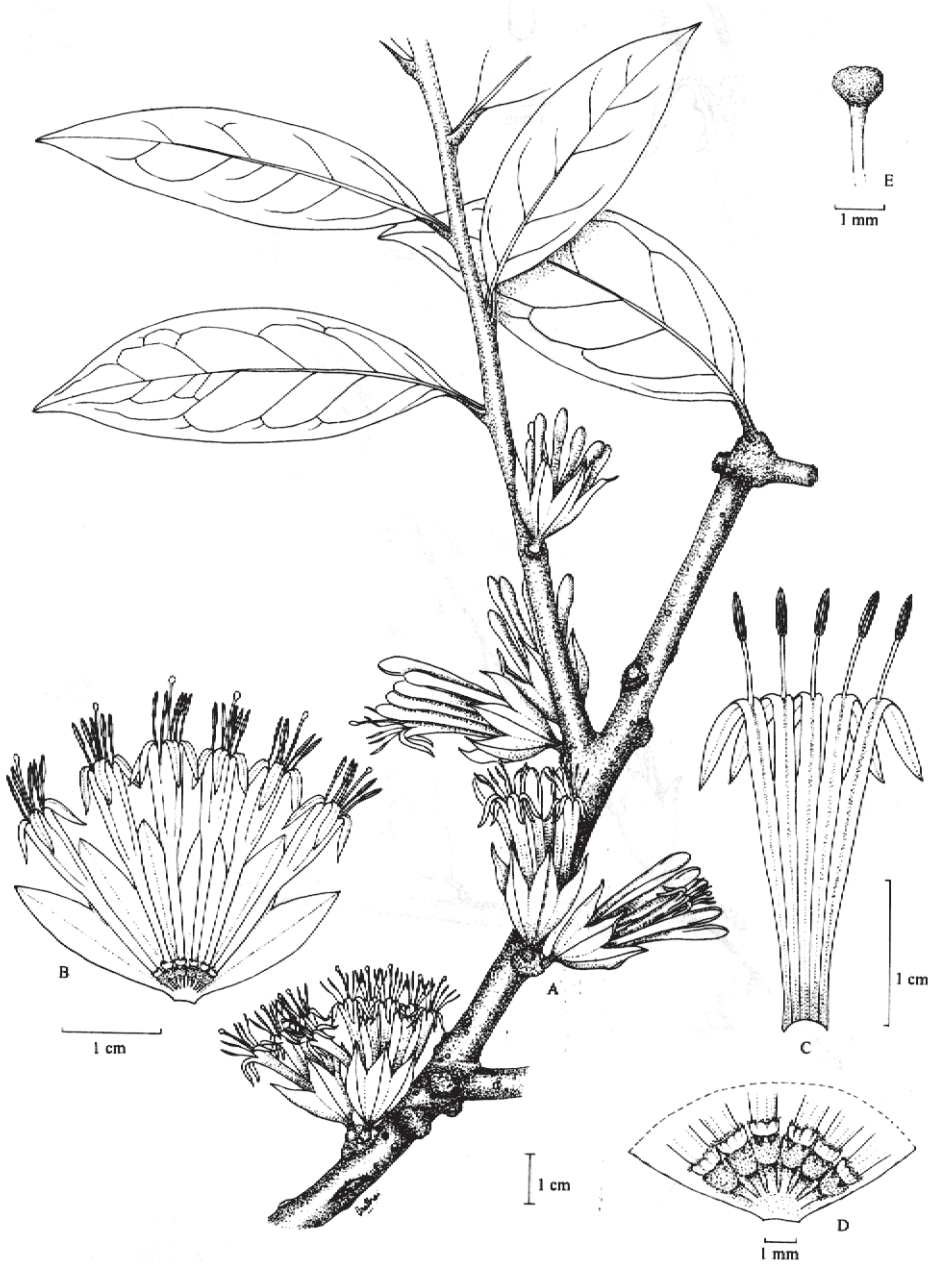

Figure 2. *Tolypanthus pustulatus* Barlow: A. flowering branch; B. opened involucral bract and flowers; C. opened flower; D. flowers inserted at base of involucre; E. stigma. All from *R. Pooma et al.* 4158. Drawn by O. Kirdkaew.

Figure 3. A. *Tolypanthus lageniferus* (Wight) Tieghem: (Ubon Ratchathani, Khong Chiam) Photographed by S. Suddee; B. *Tolypanthus pustulatus* Barlow: (Nong Khai, Phu Wua WS). Photographed by R. Pooma.