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The genus *Pitardella* (Rubiaceae) in Thailand with a description of *Pitardella poilanei*

KHANIT WANGWASIT[1] & KAMOLHATHAI WANGWASIT[1,*]

ABSTRACT

A taxonomic account of the genus *Pitardella* in Thailand, with *P. poilanei*. the sole species, is presented. Description, photographs and taxonomic notes are provided based on newly collected materials; in addition, a lectotype for *P. poilanei* is designated.

KEYWORDS: *Fosbergia*, Gardenieae, *Porterandia*, Tarennoidea, lectotypification, Gentianales.

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INTRODUCTION

Pitardella Tirveng., with three named species, is a small genus in the Rubiaceae distributed in East Himalaya, Nepal, Cambodia and Thailand (Tirvengadum, 2003; POWO, 2025). It is closely related to *Fosbergia* Tirveng. & Sastre (Tirvengadum & Sastre, 1997), *Porterandia* Ridl. (Ridley, 1940) and *Tarennoidea* Tirveng. & Sastre (Tirvengadum & Sastre, 1979). These genera have usually five or rarely four corolla lobes which are contorted in bud, a 2(–3)-locular ovary, and numerous ovules per locule. *Pitardella* and *Tarennoidea* are distinct from *Fosbergia* and *Porterandia* by having halfway to completely exserted anthers from the corolla tube and a caducous calyx (in contrast to anthers included in the corolla tube or only partially exserted, and a persistent or tardily caducous calyx; see Li *et al.*, 2006; Chen & Taylor, 2011a & 2011b). *Pitardella* differs from *Tarennoidea* in its deciduous habit (vs. evergreen) and distinctly triangular calyx lobes (vs. obscure or linear to narrowly triangular), longer corolla 22–28 mm long (vs. 6–8 mm), and anthers half exserted from corolla (vs. completely exserted) (Ridley, 1934; Chen & Taylor, 2011c). The type species of the genus, *Pitardella caudatifolia* (Pierre) Tirveng., and another species, *P. sikkimensis* (Hook.f.) Tirveng., were segregated from *Randia* sect. *Anisophyllea* Hook.f., and *P. poilanei* Tirveng. was named at the same time (Tirvengadum, 2003). After Tirvengadum (2003) established this genus, it has been relatively poorly studied, and available information about it is limited due to a low number of collections.

In Thailand, this genus was reported through the record of only one species, *Pitardella poilanei*, and only from the type locality in Cambodia close to the border with Thailand. In this study, we describe the detailed morphological characters including emended corolla characteristics, additional fruit information, and distribution of *P. poilanei*.

MATERIAL AND METHODS

Morphological and distributional studies are based on herbarium collections from the following herbaria: BK, BKF, BM, K, KKU, L, P, and QBG (acronyms follow Thiers, 2025, continuously updated). Field surveys were conducted in North-Eastern Thailand where new ecological information was obtained by the authors for this study.

[1] Department of Biology, Faculty of Science, Mahasarakham University, Kantarawichai District, Maha Sarakham 44150, Thailand.

* Corresponding author: kamolhathai.w@msu.ac.th

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TAXONOMIC TREATMENT

Pitardella Tirveng., Biogeographica 79: 32. 2003. Type: *Pitardella caudatifolia* (Pit.) Tirveng.

— *Randia* sect. Anisophyllea Hook.f., Fl. Brit. India 3: 113. 1880, p.p.; Pit. in Lecomte, Fl. Indo-Chine 3: 225. 1923.

— *Gardenia sensu* Valeton in Engl. & Prantl., Bot. Jahrb. 48: 116. 1912, p.p.

Deciduous shrub or small tree. *Stipules* broadly triangular, apex acute, acuminate or cuspidate, slightly fused at the base, keeled, deciduous. *Leaves* opposite, entire, petiolate, sometimes slightly anisophyllous or rarely strongly anisophyllous, vein prominent on lower surfaces. *Inflorescences* cymose, initially terminal and then appearing laterally by the subsequent over-topping lateral growth, pedunculate or subsessile. *Flowers* (4–)5-merous, with bracteoles. *Calyx* connate, tube short cylindrical or campanulate, pubescent; calyx lobes shorter than tube, sometimes reflexed, deciduous at fruit. *Corolla* connate, tube long cylindrical, throat slightly expanded, indumentum of appressed hairs covering the outside surface, with a ring of hairs on the inside; corolla lobes shorter than the tube. *Stamens* attached at the throat, alternipetalous; anthers sessile or filaments short, half exserted. *Ovary* 2(–3)-locular, many ovules on each placenta attached to the septum; disk present, concave and above the ovary; style glabrous or tomentose, longer than corolla tube, exserted; stigma clavate, bifid. *Fruit* a berry, globose to ellipsoid. *Seeds* few in each locule, ovoid or ellipsoid, sunken in the placenta.

A small genus of three species distributed from the northern part of South Asia to mainland South-East Asia. Two species are known as lithophytes in sandstone habitats. Only one species occurs in Thailand.

Pitardella poilanei Tirveng., Biogeographica 79: 34, figs. 4(1b), 6(2). 2003. Type: Cambodia, in the Khmer ruins of Prah Vihear in the northwest of Cheom Khsan, 14 Mar. 1928, *E. Poilane 14930* (lectotype **VNM** [VNM00023756 photo seen], designated here). Figs. 1 & 2.

Shrub or small tree 3–10 m high, sympodially branched; young branches subquadrangular, indumentum of white pubescent hairs, becoming reddish-brown on aging; bark reddish-brown with lenticels. *Stipules* broadly triangular, apex acute to acuminate, keel elevated at the middle part and towards the apex, green and turn brown when dry, covered with white pubescent hairs when young, both stipules and hairs turn to reddish-brown when old and dry. *Leaves* slightly anisophyllous or rarely one leaf of the pair reduced to small linear blade; blades usually elliptic, oblong-elliptic, ovate or oblanceolate, 8.5–15 × 3.5–6 cm, slightly villosulous above and villosulous underneath, submembranous, apex acuminate, acute, caudate or apiculate, base obtuse or acute, secondary veins (7–)8–12 pairs, prominent underneath; petioles 2–15 mm long, villosulous. *Inflorescences* cymose corymb with (3–)6–15-flowers, borne on short flowering branches; peduncle 5–10 mm long, villosulous; bracts linear to lanceolate, 2–4 mm long, villosulous on both surfaces. *Flowers* with pedicel 5–8 mm long, villosulous; bracteoles linear, villosulous on both surfaces. *Calyx* tube campanulate or shortly cylindrical, 2.5–3 mm long, villosulous on the outer surface; lobes triangular to broadly triangular, 1–2 mm long, recurved, villosulous on both sides. *Corolla* infundibuliform, tube 14–17 mm long, outside sericeous, inside almost glabrous with a villous band of hairs at the height of one-third of the corolla tube length from the base; lobes oblong, 8–11 mm long, apex obtuse, slightly acute or mucronate. *Stamens* sessile or with short filaments, attached at the sinus of corolla lobes; anthers exserted halfway, linear, 5–6 × 0.5–1 mm, recurved, base sagittate, apex acuminate. *Ovary* villosulous, 2-locular; style erect, exserted from corolla tube, subcylindrical, 18–21 mm long, glabrous; stigma club-shaped and slightly flattened, 5–6 mm long, longitudinally striate. *Fruit* a berry, globose or subglobose, 7–10 mm in diameter, pubescent; disc protruding over the calyx ring scar, concave inside. *Seeds* 8–10 per locule, lenticular to triangular-ellipsoid, 2–3 × 1–2 mm, dark brown to black.

Thailand.— NORTH-EASTERN: Sakon Nakhon [Mueang District, Huai Yang Subdistrict, near Kham Hom Waterfall, 21 June 2022, *Wangwasit 220621-3*

Figure 1. Lectotype of the *Pitardella poilanei* Tirveng. in herbarium of **VNM** (*Poilane 14930*, **VNM** [VNM00023756]). Photographs by Phetlasy Souladeth.

Figure 2. *Pitardella poilanei* Tirveng.: A. Habit (arrows); B. the roots of the plant are buried in the cracked sandstone substrate. C. Inflorescences and flowers. D. Infructescence. E. Longitudinal dissection of flower. F. Cross section of fruit. Photographs by Khanit Wangwasit.

(**KKU**)]; EASTERN: Surin [Bauched District, Khao Sala Temple, 14 Apr. 2021, *Wangwasit & Wangwasit 210414-1* (**KKU**)]; Si Sa Ket [Kantaraluk, Roong Subdistrict, Khao Pra Wihan, 10 Apr. 1976, *Maxwell 76-190* (**BK**); Kantaraluk, Orchid nature trail, Khao Phravihan NP., 17 Sept. 2004, *Pooma et al. 4787* (BKF, **L** [L.4186032], P [P06637286])].

Distribution.— Cambodia and Thailand.

Ecology.— Dry evergreen forest, near stream, or open area on sandstone bedrock, at 0–400 m alt. Flowering in April–May. Fruiting in May–January.

Notes.— *Pitardella poilanei* and *P. caudatifolia* differ from *P. sikkimensis* in having a distinct peduncle (vs. sessile in *P. sikkimensis*). *Pitardella poilanei* is distinct from *P. caudatifolia* in having an acute to acuminate stipule apex, the inside of the

corolla tube with a villous band of hairs at the height of one-third of the corolla tube length from the base, and a glabrous style which is erect at the apex (compared to *P. caudatifolia* with a cuspidate stipule apex, the inside of the corolla tube with a villous band of hairs inserted at the mid-point, and a pubescent style which is elbowed at the apex).

In the protologue, Tirvengadum (2003) cited the specimens *Poilane 14930* deposited at **P** as the holotype and **HN** as the isotype. *Maxwell 75-190* or *Maxwell 76-190* (collected in Si Sa Ket, Thailand) was referred as a paratype. However, we could not find these specimens when the authors visited and examined the specimens at **P** and also in the online database. In addition, the curator of **HN** could not find the isotype specimen (*Poilane 14930*) at **HN** (Do Van Hai pers. comm.). Nevertheless, we found VNM00023756 at **VNM** possible as one of the isotypes. The original label of VNM00023756 was typed as *Poilane T4930*, while it has an annotation card stating *Poilane 14930*. Therefore, the collection number of the **VNM** specimen was examined with comparison to similar specimens from the same locality and date. Additional specimens of Poilane collected on 14 March 1928 were observed from the online P database. The collection number of *Poilane 14926* (P01752789) was typed as *Poilane I4926* on the label, while those on the sheets *Poilane 14927* (P00748266), *Poilane 14929* (P06760975), and *Poilane 14936* (P01752803) were handwritten. The locality of these collections is recorded as "*Dans les ruines Kmer de Prah Vilear au Nord Ouest de Chéom Khsan*", the same as VNM00023756. Consequently, we regard the collector number of VNM00023756 not as '*T14930*' but '*14930*', and consider it as an isotype of *P. poilanei*.

According to Arts. 9.3 of the ICN (Turland *et al.*, 2018) a lectotype should be designated when the holotype is lost. Therefore, VNM00023756 is proposed here as the lectotype of *Pitardella poilanei* Tirveng. for the stabilization of the name. The specimens showed the characteristics consistent with the description of the protologue.

For the paratype, Tirvengadum (2003) referred to '*Maxwell 75-190*' in the first line, while he cited '*Maxwell 76-190*' in the fifth line of the page 35 of the protologue. The authors searched for Maxwell specimens in the **L** online database, and found *Maxwell 75-190* (L.1193164, L.1193165) was collected from Siracha District, Chonburi Province, Thailand. It was identified as *Gnetum macrostachyum* Hook.f. However, we found *Maxwell 76-190* at **BK** is *Pitardella poilanei*, and it was collected from Sisaket Province, Thailand, as given in the protologue. As a consequence, '*Maxwell 75-190*' in Tirvengadum (2003) is considered to be typo and the correct paratype is *Maxwell 76-190* at **BK**.

Tirvengadum (2003) described that the corolla tube length of *Pitardella poilanei* was "6–8 cm long" but this description is wrong. Considering the scale in the figure is a ruler which is approximately 15 cm long, the corolla tube length could be about 1–2 cm long and corresponds with the measurements in this study (1.4–1.7 cm long). Here, we correct the measurements of corolla tube length. Also, morphological characters on fruits have not been previously known for this species, and we provide this new information here.

The result of the change in size of the corolla affects the key in the Flora of Thailand (Rubiaceae) (Puff *et al.*, 2021), and key G is revised as below.

EMENDED KEY TO GENERA OF FLORA OF THAILAND (RUBIACEAE): **KEY G** (MODIFIED FROM PUFF *ET AL.*, 2021)

53. Anthers completely included in corolla tube or partially exserted. Calyx persistent or tardily deciduous. Fruit at least 20 mm diameter
  54. Corolla lobes at least 25 mm long. Fruit at least 40 mm in diameter **70. Fosbergia**
  54. Corolla lobes 3–10 mm long. Fruit 20–45 mm in diameter **88. Porterandia**
53. Anthers half to completely exserted from corolla tube. Calyx caducous when fruiting stage. Fruit less than 20 mm diameter
  55. Corolla length up to 10 mm long. Calyx lobes obscure or linear to narrowly triangular. Plant evergreen **99. Tarennoidea**
  55. Corolla length at least 20 mm long. Calyx lobes distinct and triangular. Plant deciduous **87. Pitardella**

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