

An additional record for Rhamnaceae in Thailand

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ABSTRACT

Rhamnella tonkinensis (Rhamnaceae) is established as a new record for the Flora of Thailand. A lectotypification of *Chaydaia tonkinensis* is proposed. An updated key to genera of Rhamnaceae in Thailand is provided.

KEYWORDS: flora, lectotype, *Rhamnella*, *Rhamnella tonkinensis*, typification, Rosales.

Accepted for publication: 21 October 2024. Published online: 28 October 2024

INTRODUCTION

The family Rhamnaceae, with about 50 genera and more than 900 species, includes deciduous or evergreen trees, shrubs, woody climbers, or lianas, and rarely herbs, mainly distributed in subtropical to tropical areas in the world (POWO, 2023). The recent taxonomic account of the family in the Flora of Thailand documented 11 genera and 32 species (Norsaengsri *et al.*, 2020).

During a botanical survey in Umphang District, Tak Province in November 2023, we collected one unknown species of Rhamnaceae. After a careful examination with literature (e.g. Fan & Yang, 1997; Ho, 2003; Chen & Schirarend, 2007; Lu & Sun, 2019, 2020; Norsaengsri *et al.*, 2020) and herbarium specimens at BKF, FOF, KAG, SAR, TNS and VNM, as well as digitalized images available on the web (e.g., JSTOR Global Plants <https://plants.jstor.org/>), we identified it as *Rhamnella tonkinensis* (Pit.) T.Yamaz., which was not treated even at genus level in the Flora of Thailand (Norsaengsri *et al.*, 2020).

The genus *Rhamnella* Miq. is a small genus with about 10 species, characterized by pedicellate flowers and fleshy, 1-stoned drupaceous fruits, pinnately veined leaves with serrate margins, semi-inferior ovaries, stipules without thorns, and flowers

in axillary cymes (Chen & Schirarend, 2007; Lu & Sun, 2020). To contribute to a better understanding of the Thai flora, we here report it based on our voucher specimens along with two additional collections at BKF, L and P, which were found during our identification process for this species. In addition, an updated key to genera of Rhamnaceae in Thailand is provided.

NEW RECORD

Rhamnella tonkinensis (Pit.) T.Yamaz., J. Jap. Bot. 48: 32. 1973.—*Chaydaia tonkinensis* Pit. in Lecomte, Fl. Indo-Chine 1: 925. 1912. Type: Vietnam, ‘Tonkin in montibus inter Lam Mât et Lat Sou’, 4 Nov. 1883, *H.F.Bon 2246* (lectotype **P** [P00078435, photo seen], designated here; isolectotypes **P** [P01818780, P01818779, photos seen]).

Straggling shrubs or woody climbers, 10 m tall. *Young twigs* slightly zigzag, green, drying pale brown to blackish brown, glabrous, old twigs grayish brown. *Leaves* alternate; petiole 4–11.8 mm long, glabrous, sulcate adaxially, rounded abaxially; blades ovate-elliptic to ovate-oblong, 2.9–12.4 × 1.3–6.1 cm, length/width ratio 2.0–2.5, glabrous on both surfaces, apex acuminate to caudate with the apex up to 1.4 cm long, base rounded to broadly

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cuneate, margin serrate with very shallow teeth, when dry midrib sunken adaxially, prominent abaxially, secondary veins 4–5 pairs, prominent abaxially, tertiary veins scalariform, slightly prominent abaxially. *Flowers* not seen. *Fruits* drupaceous, 1–3 in the axils of leaves, ovoid-ellipsoid, $7\text{--}9 \times 4.8\text{--}5.5$ mm, shallowly flattened, green when young, ripening orange-red, apex acute, ending in persistent stigma; fruiting pedicel 4–8 mm long, glabrous, enlarged toward the apex. *Seed* 1, oval-ellipsoid, shallowly flattened, ca. $9 \times 4.5 \times 3$ mm, dull brownish yellow, apex acute.

Thailand.— NORTHERN: Phayao [Phoosang (Phu Sang) National Park, Summit of Phoosang (Phu Sang) Waterfall, 14 Dec. 2009, *Puudja et al.* 1560 (BKF)]; Tak [Umphang, 15.81267°N , 98.87928°E , 608 m, 26 Nov. 2023, *Tamura et al.* T-70608 (BKF, HYO, KAG [KAG185121], KYO)]; NORTH-EASTERN: Chaiyaphum [Thunkamang, alt. 800 m, 15 Dec. 1971, *Beusekom et al.* 4339 (L[L2323780], P[P06791684])].

Distribution.— China, Vietnam.

Ecology.— In humid evergreen forest near streams, savannah; 600–800 m alt.; fruiting: November to December.

Note.— The genus *Rhamnella* includes two species groups defined using the character of an evergreen or deciduous habit, of which *Rhamnella tonkinensis* belongs to the former together with the three other evergreen species: *R. brachycarpa*

Z.Qiang Lu & Y.Shuai Sun, *R. intermedia* Z.Qiang Lu & Y.Shuai Sun, and *R. rubrinervis* (H.Lév.) Rehder. Those are apparently similar to each other; Lu & Sun (2020) provided a detailed comparison and key to these four species, and we followed their classification in this study.

In the protologue of *Chaydaia tonkinensis* (Pitard, 1912), Pitard cited the specimens from “Vers Ninh-binh, vallée de Đông-hâm, près es Khien khé; Mount Crucis, près Hao-nho; Montagenes entre Lan-mat et Latson (Bon)”. Those are syntypes and represented by *Bon* 2722, 1378, 683, and 2246, respectively, all deposited at P. Among them, the collection of *Bon* 2246, P00078435 has a “lectotype” determination and the two specimens P01818779 and P01818780 have “isolectotype” determinations, in which only “Lecto-” and “Isolecto-” were handwritten and lacking information who indicated them as lecto- and isolectotypes. We could not trace any publications in which the lectotypification of *C. tonkinensis* had been made. Hence, we formally propose a lectotype of *C. tonkinensis* in this study. To avoid unnecessary confusion, we follow the current determination on the sheets and designated P00078435 as lectotype. The selected specimen showed the characteristics consistent with the description of the protologue (Pitard, 1912) and has preference over the other syntype materials on account of better preservation with many fruits, presence of descriptive figure and handwritten note.

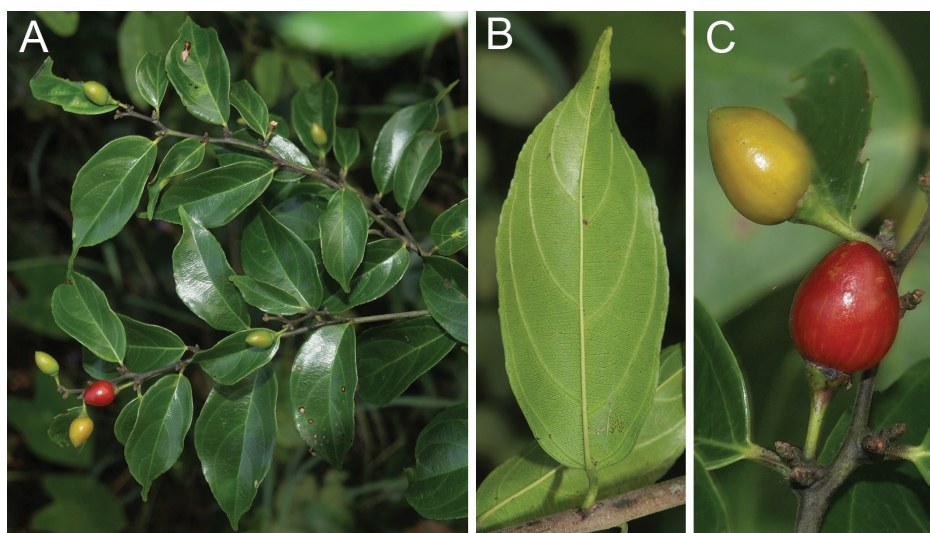


Figure 1. *Rhamnella tonkinensis* (Pit.) T.Yamaz. A. Fruiting branch; B. Abaxial leaf surface; C. Fruits. Photos from *Tamura et al.* T-70608, taken by S. Tagane.

KEY TO THE GENERA OF RHAMNACEAE IN THAILAND

(Modified from Norsangsri *et al.*, 2020)

1. Ovary superior to half-inferior
 2. Infructescence axis succulent and fleshy **Hovenia** Thunb.
 2. Infructescence axis never succulent
 3. Fruit dry
 4. Fruit bearing a $\pm$ long, wing-like apical appendage
 5. Seed chamber of fruit globose and clearly distinct from its wing-like appendage **Ventilago** Gaertn.
 5. Seed chamber of fruit $\pm$ compressed and gradually turning over into its wing-like appendage **Smythea** Seem.
 4. Fruit a capsule, never bearing any wing-like appendages **Colubrina** Rich. ex Brongn.
 3. Fruit fleshy
 6. Leaves distinctly tripliveined **Ziziphus** Mill.
 6. Leaves pinnately veined
 7. Flowers and fruits sessile or subsessile **Sageretia** Brongn.
 7. Flowers and fruits distinctly pedicellate
 8. Fruit a 1-stoned drupe
 9. Leaf margin entire; inflorescence terminal, paniculate-raceme up to 20 cm long **Berchemia** Neck. ex DC.
 9. Leaf margin serrate; inflorescence axillary, in fascicles **Rhamnella** Miq.
 8. Fruit a berry-like drupe with 2–4 indehiscent stones
 10. Branchlets with 1 or 2 recurved spines per node **Scutia** (Comm. ex DC.) Brongn.
 10. Branchlets without recurved spines
 11. Flowers mostly unisexual, 4-merous. Seeds $\pm$ distinctly furrowed **Rhamnus** L.
 11. Flowers bisexual, 5-merous. Seeds never furrowed **Frangula** Mill.
 1. Ovary inferior **Gouania** Jacq.

ACKNOWLEDGEMENTS

We would like to thank the manager and staff members of Umphang Wildlife Sanctuary for their assistance during the fieldwork in the protected area. We are also very grateful to the curators and staff of BKF, FOF, KAG, SAR, TNS and VNM for their kind permission to access their herbaria. This study was supported by JSPS KAKENHI (JP21KK0132).

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