

***Isodon walkeri* (Lamiaceae), a new record for Thailand**

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ABSTRACT. *Isodon walkeri*, a rheophyte from Phu Langka National Park, is newly recorded for Thailand. The species is described and illustrated.

KEY WORDS: *Isodon*, Lamiaceae, rheophyte, Thailand.

INTRODUCTION

The recent revision of the tribe Ocimeae (Labiatae/Lamiaceae) for continental South East Asia (Burma, Thailand, Laos, Cambodia and Vietnam) included 9 genera with a total of 77 taxa (Suddee et al. 2004a, 2004b & 2005). The genus *Isodon* belongs in the Ocimeae and 6 species are currently known from Thailand: *I. ternifolius* (D. Don) Kudo, *I. coetsa* (Buch.-Ham. ex D.Don) Kudo, *I. eriocalyx* (Dunn) Kudo, *I. meeboldii* (W.W.Smith) Suddee, *I. hispidus* (Benth.) Murata and *I. lophanthoides* (Buch.-Ham. ex D.Don) H.Hara. Suddee et al. (2004a) reported the occurrence of the rheophytic species *I. walkeri* from Sri Lanka, India, Southern China, Northern Burma, Northern Laos and Northern Vietnam, but not from Thailand. To quote from Steenis (1981): ‘rheophytes are plant species which are in nature confined to the beds of swift-running streams and rivers and grow there up to flood-level, but not beyond the reach of regularly occurring flash floods’.

From plant collecting trips to northeastern Thailand and from herbarium specimen studies, the authors found *I. walkeri* in streams at Phu Langka National Park by the Mae Khong River, Nakhon Phanom Province. The species is newly recorded for Thailand.

ISODON

(Schrad. ex Benth.) Spach, Hist. Nat. Veg. 9: 162 (1840); Kudo, Mem. Fac. Sci. Taihoku Imp. Univ. 2(2): 118. 1929; H.W.Li, J. Arnold Arbor. 69(4): 291. 1988; H.W.Li & Hedge in Z.Wu & P.H.Raven, Fl. China 17: 269. 1994; A.J.Paton & Ryding, Kew Bull. 53(3): 723–731. 1998. Lectotype: *Isodon rugosus* (Wall. ex Benth.) Codd (chosen by Codd, 1986) (basonym: *Plectranthus rugosus* Wall. ex Benth.).

Annual or perennial herbs or undershrubs. *Stems* quadrangular or round-quadrangular, glabrous or pubescent and usually hollow inside. *Leaves* membranous to chartaceous, usually serrate or sometimes serrate-crenate, lower pairs petiolate, upper pairs usually sessile. *Inflorescence* terminal and axillary, usually branched, forming a small or

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large panicle; cymes sessile or pedunculate, lax or dense, few to many-flowered; lower pairs of bracts similar to leaves, gradually reduced in size upwards, persistent; bracteoles present, short, caducous or persistent. *Calyx* campanulate or tubular-campanulate, straight or declinate, subequally 5-toothed or bilabiate with posterior lip 3-lobed and anterior lip 2-lobed; tube 10-nerved, usually twice or more as long as teeth, without spur at anterior base. *Corolla* with posterior lip subequally 4-lobed, usually pubescent with sessile glands on back; anterior lip concave or flattened, glabrous inside, usually pubescent with sessile glands outside; tube tubular, straight or declinate, usually gibbous on posterior side near base. *Stamens* exerted or included in anterior corolla lip; insertion of anterior pair varying from above the middle of corolla tube to the base of anterior corolla lip, glabrous or only slightly pubescent at base; posterior pair inserted near the base of corolla tube, sparsely or densely villous at base. Style shortly bifid with subequal branches, shorter or longer than stamens. *Ovary* glabrous. *Disc* with anterior side well or slightly developed. Nutlets oblong, ovoid or ellipsoid, smooth or minutely tuberculate, producing mucilage when wet or not.

About 95 species in Africa, Southern China, Indochina, Sumatra and Peninsular Malaysia. Seven species in Thailand.

Isodon walkeri (Arn.) H.Hara, J. Jap. Bot. 60: 237. 1985; H.W. Li, J. Arnold Arbor. 69(4): 323, f. 5K. 1988; H.W.Li & Hedge in Z.Wu & P.H.Raven, Fl. China 17: 278. 1994; Phuong, J. Biol. 17 (4, special vol.): 37. 1995; Phuong, Fl. Vietnam 2: 49. 2000.— *Plectranthus walkeri* Arn., Nova Acta Car. Nat. Cur. 18: 354. 1836; Arn. in A.DC., Prodr. 12: 58. 1848; Hook.f., Fl. Brit. India 4: 617. 1885; Gamble, Fl. Madras: 1120. 1924; Mukerjee, Rec. Bot. Surv. India 14: 41. 1940.— *Rabdosia walkeri* (Arn.) H.Hara, J. Jap. Bot. 47: 202. 1972. Type: Sri Lanka, Hb. Hort. Soc. 1839, *Mackenzie* s.n. (neotype **K**, chosen by Suddee, 2004a).— *Plectranthus stracheyi* Benth. ex Hook. f., Fl. Brit. India 4: 618. 1885; Dunn, Notes Roy. Bot. Gard. Edinburgh 6 (28): 139. 1915; Doan in H.Lecomte, Fl. Indo-Chine 4: 948. 1936; Mukerjee, Rec. Bot. Surv. India 14 (1): 44. 1940.— *Isodon stracheyi* (Benth. ex Hook. f.) Kudo, Mem. Fac. Sci. Taihoku Imp. Univ. 2(2): 136. 1929.— *Rabdosia stracheyi* (Benth. ex Hook.f.) H.Hara, J. Jap. Bot. 47: 201. 1972; H.W.Li in Z.Wu & H.W.Li, Fl. Reipubl. Popularis Sin. 66: 483, f. 103, 11. 1977; Phuong, Novit. Syst. Pl. Vasc. 19: 154. 1982. Type: India, Kumaon, Surja valley, *Strachey & Winterbottom* 9 (holotype **K!**; isotype **BM!**).— *Plectranthus veronicifolius* Hance, J. Bot. 23: 327. 1885.— *Isodon stracheyi* (Benth. ex Hook.f.) Kudo var. *veronicifolius* (Hance) Kudo, Mem. Fac. Sci. Taihoku Imp. Univ. 2(2): 136. 1929. Type: China, Hainan, 21 Nov. 1882, *Henry Herb. propr.* 22298 (holotype **BM!**).— *Plectranthus brandisii* Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 59 (4): 296. 1890; Mukerjee, Rec. Bot. Surv. India 14: 44. 1940. Type: Burma, Pegu, *Brandis* 813 (**K!**, lectotype chosen here). Figs. 1 & 2.

Erect or ascending annual herb to 50 cm tall. *Stems* sometimes rooting at nodes below, quadrangular, puberulous below, puberulous or glabrous above. *Leaves* chartaceous, narrowly lanceolate or elliptic-lanceolate, 12–115 by 12–25 mm, apex acute or acuminate, base cuneate or attenuate and decurrent onto petiole, margin serrate above the middle, entire below, scaberulous on veins above and beneath, otherwise glabrous or glabrescent, dotted with minute sessile glands beneath or on both sides, veins prominent beneath; petioles subsessile to 20 mm long, puberulous or pubescent; crushed leaves slightly smell of mint. *Inflorescence* terminal, forming a narrow panicle, 5–25 cm long;

axis with indumentum similar to stem but less dense; verticils 5–35 mm apart; cymes lax, few to many-flowered, lateral branches short, not conspicuously cincinnate; bracts elliptic or lanceolate; bracteoles oblong or linear, 0.5–2 mm long, obtuse, ciliate, pubescent, caducous or persistent; pedicels slender, 2–4 mm long at anthesis, 2–5 mm long in fruit, pubescent. *Calyx* green or greenish-purple, tubular-campanulate, conspicuously 2-lipped, ca 2 mm long at anthesis, 2–4 mm long in fruit; posterior lip shortly 3-lobed, ovate, acute at apex, median lobe broadest; anterior lip 2-lobed, ovate-oblong, acute or obtuse at apex, subequal in length to posterior or longer; tube declinate, 10-nerved, twice as long as calyx teeth, puberulous on nerves, with sessile glands, not gibbous at anterior base. *Corolla* white, straight, 6–7 mm long, pointing downward; posterior lip deeply 4-lobed, lobes obovate-oblong, obtuse or rounded at apex, slightly pubescent, with sessile glands on back, two median lobes slightly larger than lateral lobes, with scattered dark purple dots inside; anterior lip orbicular, 2–3 mm long, equal or slightly longer than posterior, flattened, glabrous; tube straight, 3–4 mm long, only slightly gibbous above posterior base, slightly dilated at throat, pubescent on anterior side inside, glabrous or glabrescent outside. *Stamens* long-exserted from anterior corolla lip, villous at base, posterior pair inserted near the base of corolla tube, anterior pair inserted around the middle of corolla tube; anthers dark purple. *Style* subequal to anterior stamens. *Disc* obscurely lobed. *Nutlets* brown, ovoid or oblong, 1–2 mm long, smooth or minutely tuberculate, producing a small amount of mucilage when wet.

Thailand.— NORTH-EASTERN: Nakhon Phanom [Ban Phaeng District, Phu Langka National Park, in stream above Tat Pho waterfall, 19 Jan. 2003, *Suddee, Puudjaa & Chatrupamai* 1746 (BKF); idem., 27 Feb. 2007, *Suddee, Trisarasri, Tanaros & Ritphet* 3055 (BKF); Ban Phaeng District, Phu Langka National Park, Tat Kham waterfall, in wet places by the running stream, 24 Feb. 2003, *Wongprasert et al.* 032-19 (BKF)].

Ecology.— In sandy soil in sandstone river beds in dry evergreen forest, on rocks beside stream; altitude 150–200 m in Thailand, to much greater altitudes elsewhere. Flowering & fruiting November – February.

Distribution.— India, Sri Lanka, South China, Burma, Laos, Vietnam.

Conservation.— The species is considered to be rare in Thailand. Two small populations have been found in two waterfalls in the same National Park, separated by about 4 km. The National Park needs to ensure these populations are protected.

Notes.— The main characters which distinguish *I. walkeri* from other related species are the narrow lanceolate or elliptic-lanceolate leaves shapes, the leaf base being decurrent onto petiole, and the rheophytic habit. The specimens *Kurz* 575 (K!) and *Kurz* 2405 (K!) are paralectotypes of *Plectranthus brandisii* Prain. *Brandis* 813 (K) was chosen as the lectotype because it is the most representative of the three former syntype specimens.

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Figure 1. *Isodon walkeri* (Arn.) H.Hara: A. habit; B. inflorescence; C. flower; D. fruiting calyx; E. nutlet when wet (all from Wongprasert et al. 032-19 (BKF). Drawn by Arthit Kamgamnerd.

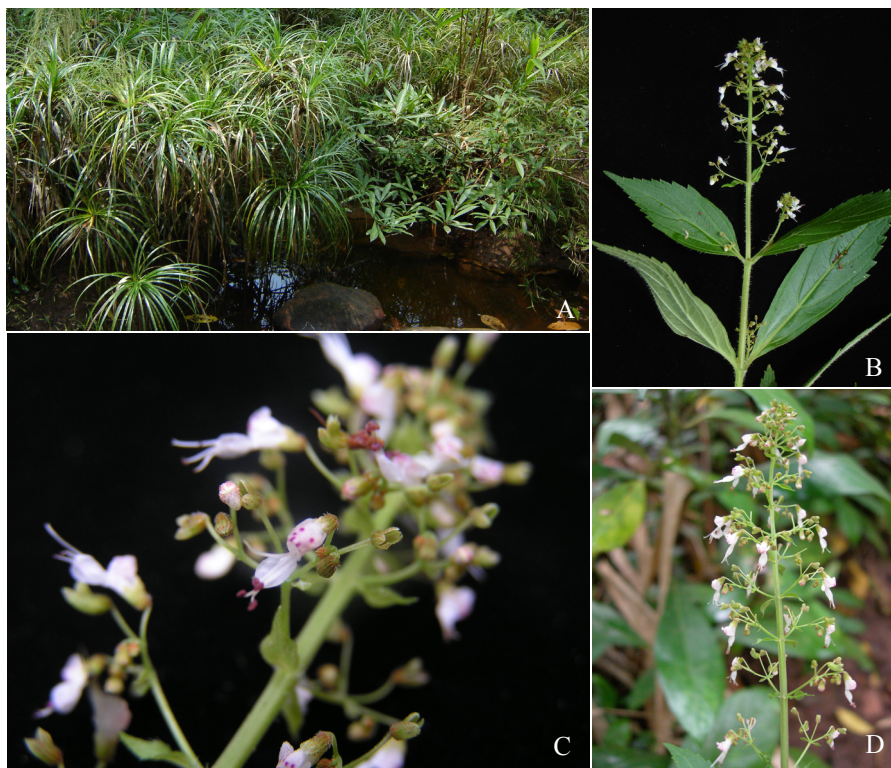


Figure 2. *Isodon walkeri* (Arn.) H.Hara: A. habitat; B. habit; C. & D. inflorescences. Photographed by Somran Suddee (A–B.); Montri Tanaros (C); Piyachart Trisarassri (D).

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