

Two new names and five lectotypified taxa for the genus *Smilax* (Smilacaceae), and the transfer of *Smilax petiolatumidus* to the genus *Dioscorea* (Dioscoreaceae)

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ABSTRACT

Smilax asiatica Kladwong, Chantar. & D.A.Simpson and *S. goeringii* Kladwong, Chantar. & D.A.Simpson are proposed as new names for two later homonyms, *S. laevis* A.DC. and *S. japonica* (Kunth) P.Li & C.X.Fu, respectively. Two taxa are reduced to synonymy: *S. petiolatumidus* B.R.Moore, Narkkong, Th.Moore & Lutat is placed into the synonymy of *Dioscorea cirrhosa* Lour. and *S. zeylanica* var. *penangensis* A.DC. is a new synonym of *S. asiatica*. *Smilax ferox* Wall. ex Kunth and *S. polyacantha* Wall. ex Kunth are newly recorded for Thailand. *Smilax asiatica*, *S. ferox*, *S. lanceifolia* var. *opaca* A.DC., *S. polyacantha* and *S. zeylanica* var. *penangensis* are lectotypified.

KEYWORDS: *Dioscorea*, lectotype, new record, nomenclature, Smilacaceae, taxonomy.

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INTRODUCTION

The genus *Smilax* L. is the sole genus of the family Smilacaceae which comprises 310 species (Judd *et al.*, 2016). It is distributed mainly in tropical and subtropical regions of America, Africa and Asia (Heywood *et al.*, 2007; Mabberley, 2008). Koyama (1975) published a revision of the family in Thailand in which he recognized 27 species. Later, a new species, *S. petiolatumidus* B.R.Moore, collected in north-eastern Thailand, was described by Moore *et al.* (2008).

During revisionary work on the family in Thailand, herbarium specimens were examined from AAU, ABD, BK, BM, BKF, CMU, E, GH, GZU, HN, HNU, K, KCU, KYO, L, P, SING, TCD and TI. Field collections in Thailand were also made by the first author. The circumscriptions of taxa, together with associated nomenclatural problems, were reassessed. In the present work two new names are provided, two species are newly recorded for Thailand, two names are placed into synonymy and five taxa are lectotypified.

TAXONOMIC TREATMENT

New names and new synonyms

Smilax asiatica Kladwong, Chantar. & D.A.Simpson, **nom. nov.**—*S. laevis* Wall. ex A.DC., Monogr. Phan. 1: 56. 1878, **nom. illeg.**, non *S. laevis* Gueldenst. ex Ledeb., Fl. Ross. 4: 129. 1852. Type: Peninsular Malaysia, 1821, ♀, *Wallich Numer. List 5116* (lectotype **K-W** [K001104844!], designated here; isolectotypes **K** [K000292129!], **P** [P00686985!], [P00686986!]).

— *Smilax laevis* var. *ophirensis* A.DC., Monogr. Phan. 1: 56. 1878. Type: Peninsular Malaysia, Mount Ophir, ♂, *Griffith 5450* (holotype **K** [K000292130!]).

— *Smilax laevis* var. *parkii* A.DC., Monogr. Phan. 1: 57. 1878. Type: China, *Park s.n.* (**G-DC**, fide A. de Candolle, 1878).

— *Smilax lanceifolia* var. *opaca* A.DC., Monogr. Phan. 1: 57. 1878.— *S. opaca* (A.DC.) J.B.Norton in Sargent, Pl. Wilson. 3(1): 11. 1916.— *S. lanceifolia* subsp. *opaca* (A.DC.) T.Koyama, Fl. E. Himalaya 2: 172. 1971. Type: Hong Kong, ♂, *C. Wilford s.n.*

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(lectotype **K** [K00820687!], designated here; isolecotypes **GH** [00030093!], [00030104!]).

— *Smilax zeylanica* var. *penangensis* A.DC., Monogr. Phan. 1: 191. 1878. Type: Peninsular Malaysia, ♀, *Griffith 5416* (lectotype **K** [K000292123!], designated here), **syn. nov.**

Climber, 3–4 m long, stem and branches terete, smooth, yellowish green. *Petiole* 1.3–2.5 cm long, terete; sheath narrow, 3–7 by 0.5–1 mm, herbaceous. *Tendrils* well-developed, up to 18 cm long on stem but very short or wanting on flowering branches. *Leafblade* lanceolate to elliptic-lanceolate or ovate-lanceolate, 7–13 by 2–6.7 cm, base cuneate or attenuate, apex attenuate or acuminate to mucronate; main veins 3–5, prominent on both surfaces, separating at lamina base; lateral veinlets finely reticulate, prominent on both surfaces, thinly coriaceous or coriaceous. *Inflorescence* an umbellate raceme, 11–22-flowered; axis 0.6–2 cm long, 1 node with a reduced umbellar axis; prophyll present, broadly ovate, 2–4 by 2–3 mm, herbaceous; peduncles of umbels stout, terete, 0.3–2 cm long, bracts ovate, 1.9–2.2 by 1.7–1.8 mm; receptacles globose or subglobose, 2–4 by 2–3 mm; bracteoles ovate, 0.7–0.9 by 0.2–0.4 mm; pedicels 0.6–1.1 cm long, reddish to purple at base, pale green to yellowish near the top. *Tepals* 6, free. *Male flower*: tepals oblong to linear, 4–5 by 0.7–1.6 mm, apex obtuse or acute, recurved when mature, yellowish green. *Stamens* 6; filaments 3–4 mm long; anthers elliptic, 1–1.2 mm long, yellowish. *Female flower*: tepals elliptic to elliptic-lanceolate, 3–4 by 1.4–1.9 mm, recurved when mature. *Ovary* ovoid; style very short; stigmas unknown; staminodes 3, ca 1 mm long, needle-like. *Berry* 5–6 mm in diameter.

Thailand.— **EASTERN**: Nakhon Ratchasima [Khao Rom, Khao Yai National Park, 700–1300 m, 2 Dec. 1983, *Fukuoka & Ito T-34579* (**KYO!**)]; **CENTRAL**: Saraburi [Khao Yai, 1000 m, 5 Dec. 1965, ♂, *Vidal 4578* (**BKF!**)]; Nakhon Nayok [Khao Fa-pa, 700 m, 11 Jan. 1969, ♂, *Kasin 603* (**BK!**)]; Mo Singto Area, Khao Yai National Park, 740 m, 26 Nov. 1999, ♀, *Charoenchai 166* (**BKF!**, **CMU!**); *ibid.*, 750 m, 6 Aug. 2000, ♀, *Charoenchai 388* (**BKF!**); Khao Yai National Park, 800 m, 16 Dec. 2001, *Maxwell 01-715* (**BKF!**, **CMU!**); *ibid.*, 775 m, 19 Dec. 2001, *Maxwell 01-755* (**BKF!**, **CMU!**); *ibid.*, 17 Jan. 2015, ♂, *Kladwong 152* (**KKU!**); **SOUTH-EASTERN**:

Chanthaburi [Khao Soi Dao, North Khao Soi Dao Wildlife Sanctuary, Pong Nam Ron District, 1100–1300 m, 27 Nov. 1979, *Shimizu et al. T-23726* (**KYO!**)]; Trat [Laem Ngop, Khao Cha Ngok, 32 m, 29 Mar. 1955, ♀, *Sangkhachand 388* (**BKF!**, **K!**)]; **PENINSULAR**: Chumphon [Khao Nom Sao, 900 m, 21 Feb. 1964, ♀, *Kerr 12058* (**BK!**, **K!**)]; Ranong [Khao Pawta Luang Keow, 700–900 m, 2 Jun. 1974, ♀, *Geesink et al. 7443* (**AAU!**, **BKF!**, **K!**); *ibid.*, 800 m, 8 Jan. 1977, ♂, *Santisuk 887* (**BKF!**)]; Phangnga [Takua Pa, 100 m, 17 Mar. 1960, ♀, *Smitinand 6572* (**BKF!**)]; Nakhon Si Thammarat [Khao Luang, 750 m, 19 May 1968, ♀, *Beusekom & Phengkklai 868* (**AAU!**, **BKF!**, **K!**)].

Vietnam.— Lam Dong [Da Lat, Dalat Reserve du Camly, 24 Oct. 1920, *Evrard 270* (**K!**)]; Da Nang [Ba Na-Nui Chu, 22 Oct. 2008, ♀, *Du et al. HNK 3187* (**K!**), ♀, 3243 (**K!**)]; Nghe An [Pu Maf, 5 Apr. 1998, ♀, *CH. C. 346* (**HNU!**); Pu Maf, 16 Apr. 1998, *CH. C. 199* (**HNU!**); Khe Kem Waterfall, Pu Mat National Park, 13 Oct. 2008, ♀, *Du et al. HNK 2869* (**K!**)]; Lao Cai [Van Bam District, Liem Phu Community, Khuoi Ngoa Village, 323–1050 m, 22 Feb. 2001, ♀, *Harder et al. DKH 6635* (**HNU!**), ♀, 6679 (**HNU!**)]; Quang Ninh [Oimain, Dend du Ligue, 7 May 1924, ♀, *Poillane 10305* (**K!**)]; Taai Wong Mo Shan and Vicinity Chuk-phai, Ha-coi, 2 m, 23–31 Oct. 1936, *Tsang 27119* (**K!**); Taai Wong Mo Shan, expedition along Kwangtung-Tonkin Border, 18 Nov.–2 Dec. 1936, ♂, *Tsang 27331* (**K!**); Taai Wong Mo Shan, near Chuk-phai Ha-coi, 2 m, 3 May–22 June 1939, ♀, *Tsang 29229* (**K!**); Taai Wong Mo Shan and Vicinity Shui Mei Village, northeast of Chu-phai Ha-coi, 23 June–31 Aug. 1939, ♀, *Tsang 29258* (**K!**); Taai Wong Mo Shan (Sai Vong Mo Leng), Lung Wan Village Dam-ha, 18 May–5 July 1946, ♀, *Tsang 30006* (**K!**)].

Malaysia.— Kedah [Sungai Petani, Gunong Jerai, 1158 m, *Ahmad SA 288* (**K!**)]; Terengganu [leading eastern side, Gunung Mandi Angin, Shale Summit, 12 July 1968, ♀, *Whitmore FRI 12093* (**K!**)]; Pahang [9 Sept. 1969, *Whitmore FRI 12583* (**K!**); Cameron Highlands, Sungei Pauh Valley, 1524 m, 4 May 1963, ♀, *Wee-lek CWL 798* (**K!**); Benteng, Genting Highlands, 1730 m, 4 Feb. 2008, ♂, *Chew FRI 60110* (**SING!**)]; Selangor [Pahang Summit, Gunung Nuang, 15 Aug. 1968, ♀, *Whitmore FRI 12188* (**K!**)]; Negeri Sembilan [♀, *Jebebu et al. FRI 63880* (**K!**)]; Johor [Mount Ophir, 1188 m, 18 Mar.

1981, ♀, *Wong Khoon Meng FRI 32171 (K!)*; Kluang, Kluang F.R., near the summit of Gunung Belumat, 12 Aug. 2009, ♀, *Ezzawanis FRI 58361 (K!)*.

China.— Hong Kong [1853, ♀, *Wright 531 (K!)*, ♂, *Wilford s.n. (K!, GH!)*]; Hunan [Mountain of Mangshan, Yizhang County, 520 m, 21 Feb. 2004, ♀, *Bai-Zhong 3330 (K!)*].

Distribution.— China, Vietnam, Malaysia.

Ecology.— In hill evergreen forest, sandstone bedrock, 520–1730 m alt.

Phenology.— Flowering and fruiting December–February.

Note.— *Smilax laevis* was first described based on Wallich specimens by A. de Candolle (1878) and accepted by Hooker (1892), Stapf (1894) and Ridley (1907, 1915 & 1940). However, the species was treated as a synonym of *S. lanceifolia* var. *opaca* by Koyama (1960 & 1963). Later, Koyama (1975 & 1983) placed both taxa under *S. lanceifolia*. Recently, *S. lanceifolia* var. *opaca* was reinstated by Chen & Koyama (2000) while *S. laevis* was treated as a synonym of this taxon. On examination we found several differing characteristics between *S. lanceifolia* and *S. laevis* (see Table 1) and conclude that *S. laevis* should be reinstated. However, *S. laevis sensu* A. de Candolle (1878) is illegitimate as a later homonym of *S. laevis* Ledebour (1852) according to Art. 53.1 of the ICN (McNeill *et al.*, 2012). Therefore, *S. asiatica* is proposed as a replacement name for *S. laevis* Wall. ex A.DC. The original protologue of this species

was based on Wallich specimens with two duplicates in **P** and one each in **K** and **K-W**. We selected the sheet K001104844 at **K-W** (Fig. 2) as a lectotype of *S. laevis* Wall. ex A.DC. (now *S. asiatica*) because it has more mature leaves and fruits. The others are isolectotypes.

The original description of *Smilax lanceifolia* var. *opaca* was based on *Hance 10088*, *Wilford s.n.* and *Wright 531*. On examination we found *Hance 10088* in **P** and two duplicates of *Wilford s.n.* in **GH**. One duplicate located in **K** was mounted on a sheet together with *Wright 531*. However, after careful investigation we selected *Wilford s.n.* [K00820687] (Fig. 3) as the lectotype for this name because it has mature male flowers.

Smilax zeylanica var. *penangensis* was proposed by A. de Candolle (1878) based on specimens collected from Peninsular Malaysia. After investigating the type specimens we found that this taxon has many characters which correspond with *S. asiatica*, including glabrous branches and stem, thinly coriaceous to coriaceous leaf blades with closely fine reticulate lateral veins and a single umbellate raceme inflorescence. Therefore, we conclude that *S. zeylanica* var. *penangensis* is a synonym of *S. asiatica*. *Griffith 5416* and *Wallich 5130* were cited in the protologue of *S. zeylanica* var. *penangensis*. However, *Griffith 5416* matches well with the original description and has many fruits and mature leaves. Therefore, we selected *Griffith 5416* [K000292123] (Fig. 4) as a lectotype.

Table 1. Comparison of characters between *Smilax lanceifolia* and *S. laevis*

Character	<i>S. lanceifolia</i>	<i>S. laevis</i> (now <i>S. asiatica</i>)
Habit	climber or scandent shrub with 5–17 turions arising from an individual rhizome	slender climber with 1–3 turions
Prickles	dense prickles on the stem but sparse or absent on branches	stem and branches glabrous
Leaf texture	chartaceous to membranous	thinly coriaceous or coriaceous
Reticulate lateral veins	separately	closely fine reticulate
Stems, branches and leaves colour	dark green	pale green or yellowish (Fig. 1)
Flower colour	greenish or whitish	pale green or yellowish flowers and purple on pedicel (Fig. 1)



Figure 1. *Smilax asiatica*, A., leaf on flowering branches; B.–D., male inflorescence, photos by W. Saisorn. *S. lanceifolia*, E., leaf on flowering branches; F., male inflorescence, photos by P. Koichaiphat.

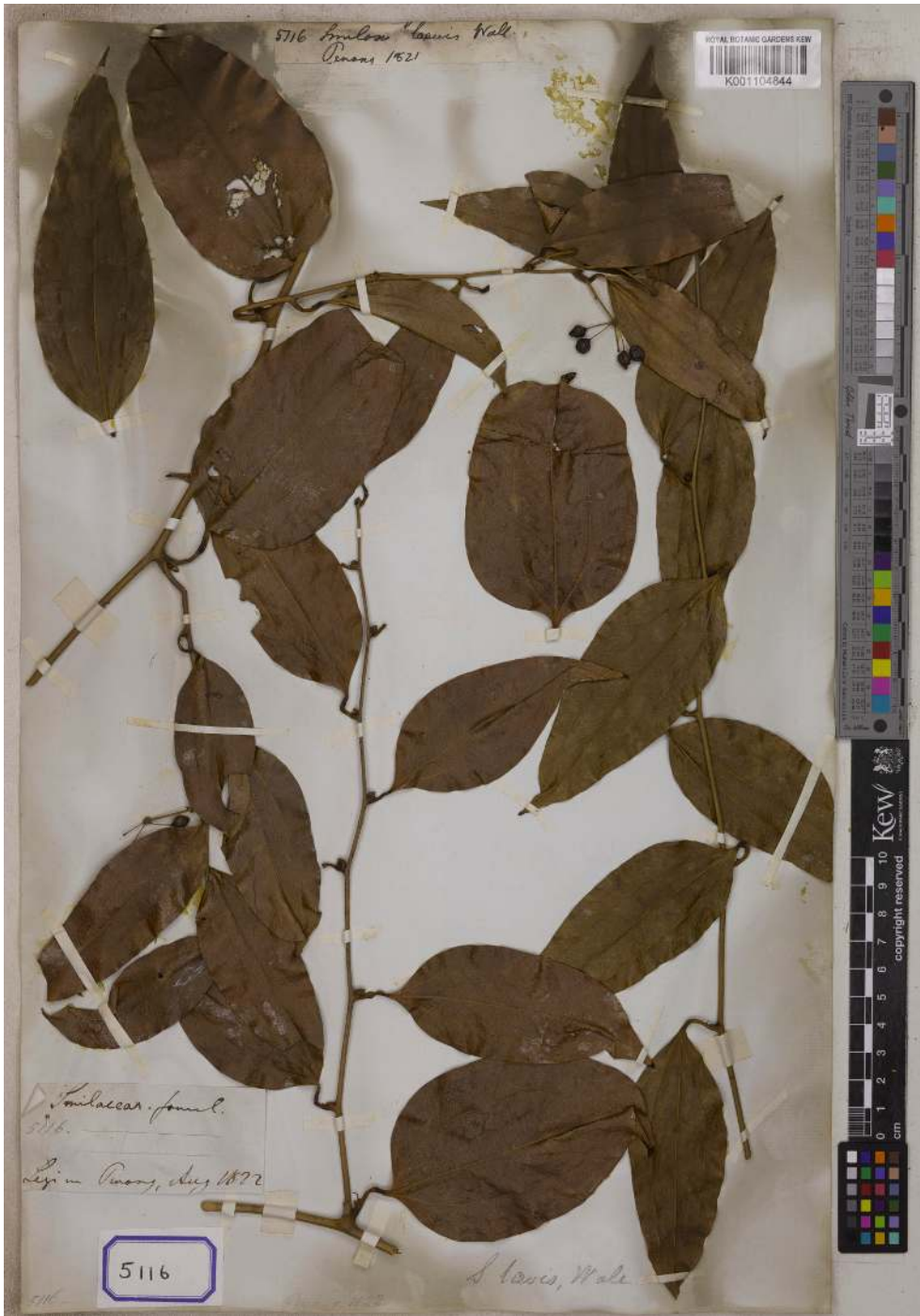


Figure 2. Lectotype of *Smilax asiatica* Kladwong, Chantar. & D.A.Simpson. Reproduced with permission of the Royal Botanic Gardens, Kew.

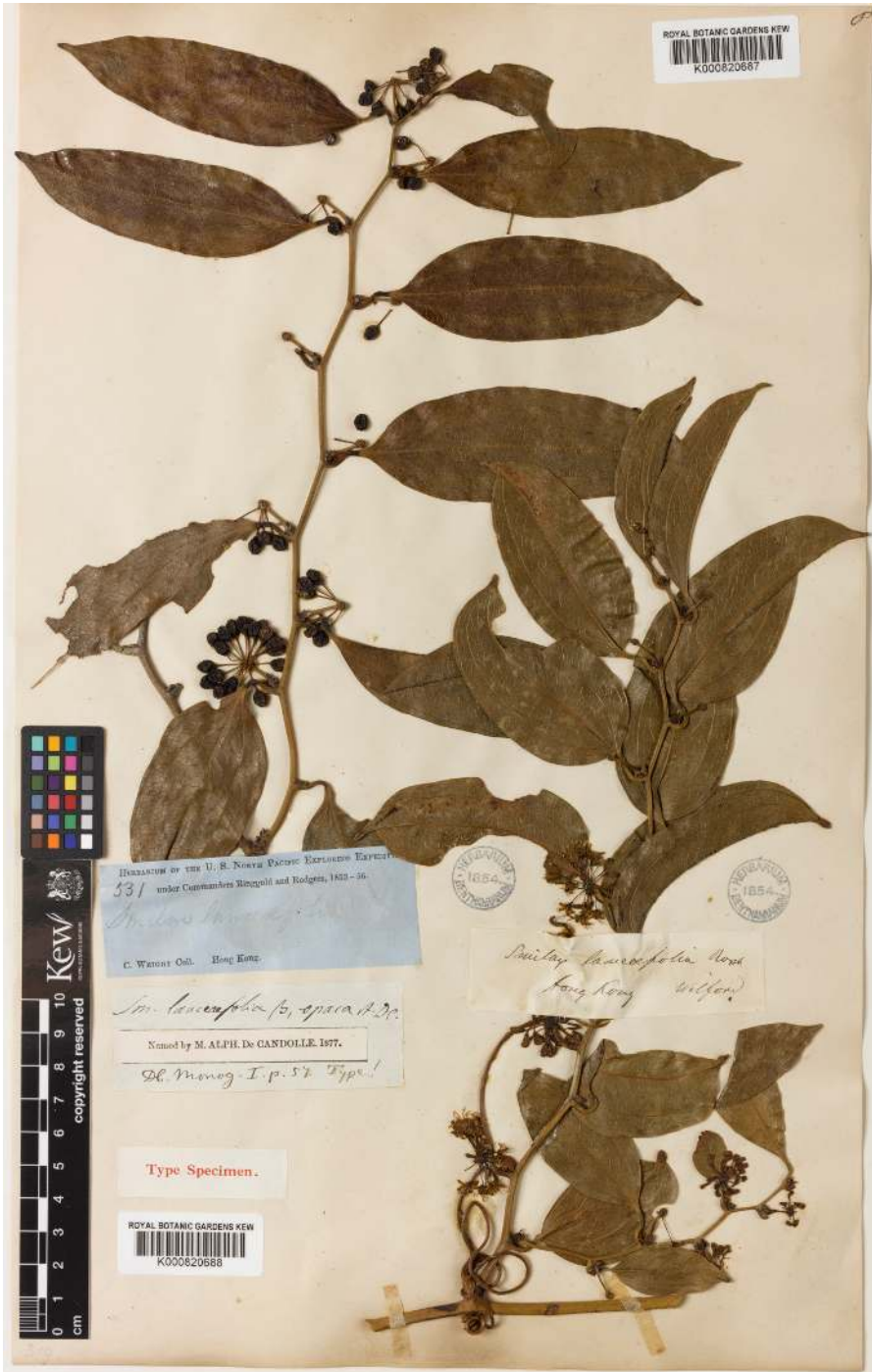


Figure 3. Lectotype of *Smilax lanceifolia* var. *opaca* A. DC. Reproduced with permission of the Royal Botanic Gardens, Kew.



Figure 4. Lectotype of *Smilax zeylanica* var. *penangensis* A. DC. Reproduced with permission of the Royal Botanic Gardens, Kew.

Smilax goeringii Kladwong, Chantar. & D.A.Simpson, **nom. nov.**— *Heterosmilax japonica* Kunth, Enum. Pl. 5: 270. 1850. Type: Japan, ♀, *Goering s.n.* (holotype **L** fide Koyama, 1984).— *S. japonica* (Kunth) P.Li & C.X.Fu, Phytotaxa 117(2): 58. 2013, **nom. illeg.**, non *S. japonica* A.Gray, Mem. Amer. Acad. Arts ser. 2, 6(2): 412. 1858.

— *Heterosmilax indica* A.DC., Monogr. Phan. 1: 43. 1878. Type: India, Assam, *Hook.f. & Thomson 77* ♂ (lectotype **K** [K000820620!], designated by Koyama, 1984).

Climber, stem and branches slender, terete, smooth. *Petiole* 1–3 cm long; sheath narrow, 4–7 by ca 1 mm. *Tendrils* up to 10 cm long, slender. *Leafblade* lanceolate to ovate-lanceolate, 4–10 by 1.5–4 cm, base rounded or rounded-truncate, apex narrowly acute to acuminate; main veins 3–5, prominent beneath, separating at lamina base; lateral veinlets very slender, chartaceous to membranous. *Inflorescence* a single umbel, 5–30-flowered; prophyll absent; peduncles of umbels slightly compressed or flattened, 2–8 cm long; receptacles globose or subglobose, 2–4 by 2–4.5 mm; bracteoles ovate, 1–1.5 by 0.6–0.8 mm; pedicels 1–4 cm long. *Tepals* connate into a bottle-shaped structure, 3-toothed at apex. *Male flower*: perianth obovoid or obovoid-ellipsoid shaped, 2–4 by 1.5–2.5 mm; apex open with 3 teeth, acute. *Stamens* 3–4; filaments 1.2–4 mm long, connate at base; anthers elliptic, 0.3–0.5 mm long, yellowish. *Female flower* unknown.

Thailand.— NORTH-EASTERN: Buengkan [Chanan Waterfall, Phu Wua Wildlife Sanctuary, 14 Sept. 2017, ♂, *Kladwong 406* (**KKU!**); Ho Kham community forest, Pak Khat-Bueng Kan, 150 m, 4 May 2002, ♂, *Pooma et al. 3475* (**BKF!**)].

India.— Assam (♂, *Hook.f. & Thomson 77* (**K** [K000820620!])).

Distribution.— India, Bhutan, China, Japan.

Ecology.— Common in partial shade, at the edge of open grassy wet area next to mixed evergreen forest, 150 m alt.

Phenology.— Flowering in May.

Note.— *Smilax japonica* (Kunth) P.Li & C.X.Fu was proposed by Qi *et al.* (2013) as a new combination transferred from *Heterosmilax*. However, we found that the name is illegitimate because it is a later

homonym of *S. japonica* A.Gray (1858) according to Art. 53.1 of the ICN (McNeill *et al.*, 2012). Therefore, *S. goeringii* is proposed as a new name for this species.

The original protologue of *Heterosmilax japonica* was based on *Goering s.n.* (**L**) collected from Nagasaki, Japan (Koyama, 1984). However, Goering's specimen is a female plant which lacks important staminal characteristics. Therefore, Makino's illustration was designated as the correct application of the name by Koyama (1984) because the drawing showed the characteristics of staminate flowers for the first time. Moreover, in the present study we investigated male specimens from India and Thailand. The result shows that the characteristics of the staminate flower correspond with Makino's illustration (Makino, 1890) (Fig. 5).

Dioscorea cirrhosa Lour., Fl. Cochinch. 2: 625. 1790; Kunth, Enum. Pl. 5: 402. 1850; P.Wilkin & C.Thapyai, Fl. Thailand 10(1): 29. 2009. Type: Vietnam, *Loureiro s.n.* (**BM** [BM000797358!]).

— *Smilax petiolatumidus* B.R.Moore, Narkkong, Th.Moore & Lutat, Science Asia 34: 103. 2008. Type: Thailand, Phu Kradueng, 31 Dec. 2004, *B.R. Moore 13* (**BKF** [SN166226!], [SN166227!]), **nom. inval.**

Note.— *Smilax petiolatumidus* was published based on Moore's specimens that were collected from evergreen forest of Phu Kradueng in north-eastern Thailand and deposited in BKF. We found that this name is illegitimate because the original protologue is without a Latin description and the gender of the specific epithet is erroneous according to Art. 39.1 and Art. 62 of the ICN, respectively (McNeill *et al.*, 2012). In addition, this species has a twining and climbing stem with prickles, the swollen petioles lack tendrils, and its alternately arranged leaves are elliptic to narrowly elliptic-lanceolate with three abaxial, convex, median veins and irregular, laterally reticulate venation; the flower and fruit are unknown (Moore *et al.*, 2008).

Closer examination of the type specimens revealed that both of them are sterile and they lack petiolar sheets and tendrils, which are common characters of the genus *Smilax*. During fieldwork this plant was found in evergreen forest in eastern

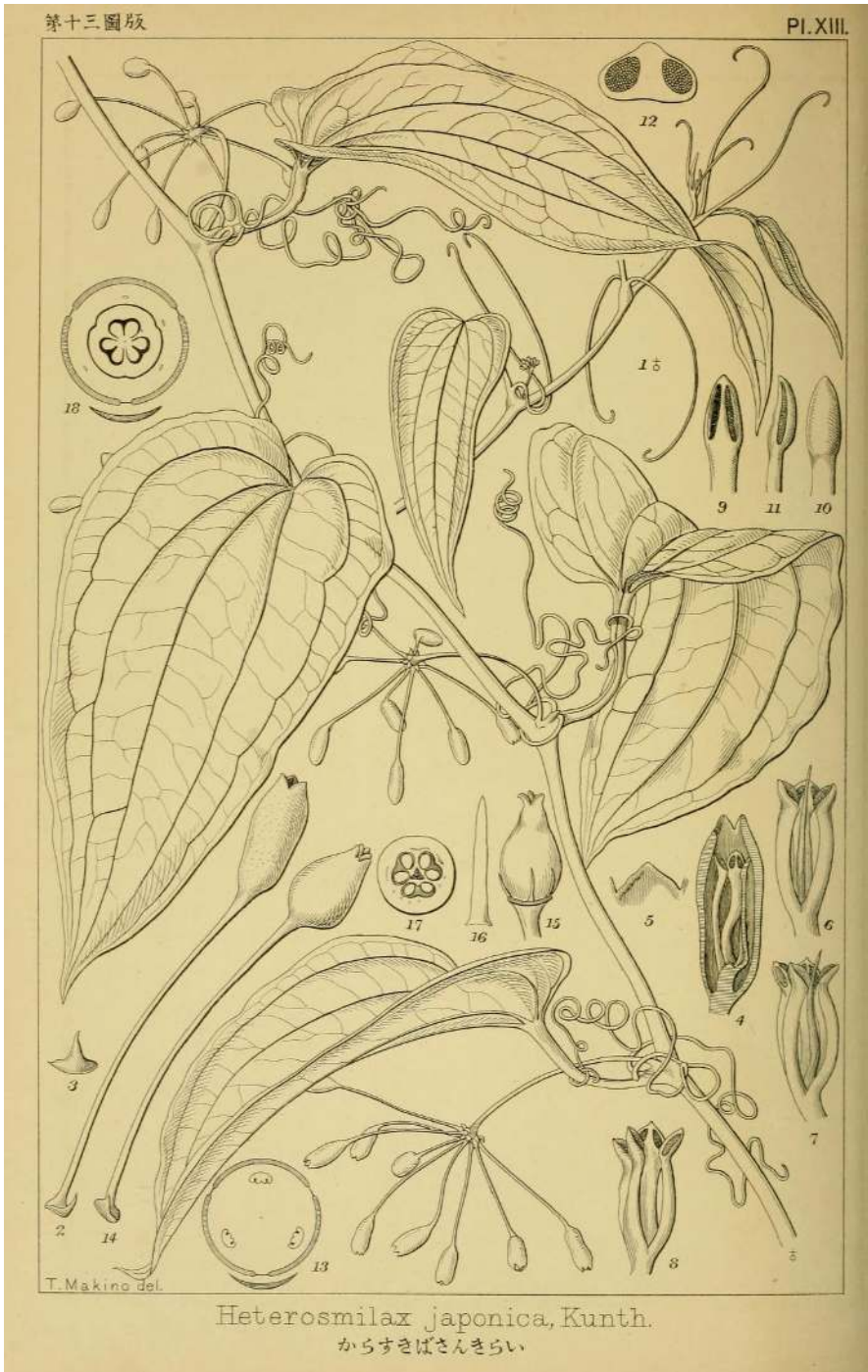


Figure 5. Illustration of *Smilax goeringii* drawing by Makino (1899) in *Phanerogamae et pteridophytae japonicae iconibus illustratae* (<http://www.biodiversitylibrary.org>).

and south-eastern Thailand. The species has spicate inflorescences. Male flowers have six stamens with oblong to obovate-oblong outer tepals and obovate inner tepals. We identified this species as *Dioscorea cirrhosa* and concluded that *S. petiolatumidus* is conspecific with *D. cirrhosa*.

Newly recorded species

Smilax ferox Wall. ex Kunth, Enum. Pl. 5: 251. 1850. Type: Nepal, 1821, ♂♀, *Wallich, Numer. List 5119* (lectotype **K-W** [K001104849!], designated here; isolectotypes **E** [E00318406!], **GH** [00030112!], **GZU** [GZU000282683!], **K** [K000820901!], **P** ([P00686775!], [P00686776!], [P00686777!], [P00686778!]).

Shrub 1–2 m tall, stem and branches terete, stout, with sparse prickles, 0.4–1 cm long. *Petiole* 0.5–1.2 cm long with abaxial angle; sheaths narrow, 0.5–1 by 0.1–0.2 cm. *Tendrils* 1–10 cm long, slender. *Leaf blade* lanceolate or elliptic-lanceolate to elliptic or elliptic-orbicular, 2.5–9 by 1.5–6.5 cm, base rounded or cuneate, apex acute to attenuate or mucronate; main veins 3, sharply, separating at the base of the lamina; lateral veinlets very slender, prominent on both surfaces, chartaceous to thinly coriaceous, dark green above, glaucous and white-powdery beneath. *Inflorescence* a single umbel borne on lower part of flowering branches, 6–14-flowered; prophyll absent; peduncles of umbels terete or weakly compressed, 0.7–1.3 cm long; receptacles oblong, 3–7 by 2–3 mm; bracteoles elliptic-lanceolate, 0.7–0.9 by 0.4–0.6 mm; pedicels 5–7 mm long. *Tepals* 6, free. *Male flower*: tepals oblong to linear, 4–5 by 0.8–1.2 mm, apex obtuse. *Stamens* 6; filaments 3–4 mm long; anthers elliptic to orbicular, 0.3–0.5 mm long. *Female flower*: tepals elliptic to elliptic-lanceolate, 3–4 by 1.4–2 mm, apex obtuse. *Ovary* ellipsoid; style short or absent; stigmas 0.4–0.6 mm long; staminodes 3, 1.8–2 mm long, needle-like. *Berry* 5–7 mm in diameter, red, with 1–3 seeds.

Thailand.—NORTHERN: Chiang Mai [Doi Pha Hom Pok, 2285 m, 23 Mar. 1965, *E.P. B.S., et al. 959* (**BKF!**); Doi Pha Hom Pok, 2285 m, 7 Feb. 1978, *Lojntant & Niyomdham 178* (**K!**); *ibid.*, 2250 m, 23 Dec. 2014, ♀, *Kladwong 137* (**KKU!**); *ibid.*, 2250 m, 23 Dec. 2015, ♀, *Kladwong 354* (**KKU!**)].

Lao PDR.—Xiengkhouang [Phu Bia, 2500 m, 13 Apr. 1932, ♂, *Kerr 21033* (**K!**)].

Vietnam.—Thai Nguyen [Đại Từ, Bắc Thái, 26 May 1966, *Nguyễn Thúy Nga s.n.* (**HNU!**)].

India.—Meghalaya [Khasia, 1200 m, ♂♀, *Hook.f. & Thomson s.n.* (**TCD!**); Khasi Hills, *Griffith s.n.* (**TCD!**)].

Nepal.—1812, ♂♀, *Wallich Numer. List: 5119* (**E!**, **GH!**, **GZU!**, **K!**, **K-W!**, **P!**).

Distribution.—India, Nepal, Lao PDR, Vietnam.

Ecology.—In open evergreen scrub on mountain summits, 1200–2500 m alt.

Phenology.—Flowering and fruiting October–December.

Note.—The original description of *Smilax ferox* was based on *Wallich 5119*. We found four duplicates of this specimen in **P** and one in each of **E**, **GH**, **K**, **K-W** and **GZU**. We selected the sheet K001104849 at **K-W** (Fig. 6) as the lectotype of *S. ferox* because it has many mature male flowers.

Smilax polyacantha Wall. ex Kunth, Enum. Pl. 5: 239. 1850. Type: Penang, 1832, ♀, *Wallich, Numer. List 5127* (lectotype **K-W** [K001104873!], designated here; isolectotypes, **BM!**, **E** [E00318404!], **K** ([K000292118!], [K000292119!], [K000292120!]), **L** [L0041488!], **P** ([P00686988!], [P00686989!], [P00686990!]), **TCD!**).

Climber or scandent shrub 1–4 m long, stem and branches terete, with sparse prickles. *Petiole* 1.2–3 cm long, with abaxial angle; sheaths 4–6 by 2–3 mm. *Tendrils* up to 10 cm long, well-developed on stem but very short or wanting on flowering branches. *Leaf blade* elliptic-oblong or oblanceolate, 9–16 by 2–7 cm, base attenuate or cuneate, apex acute to attenuate or mucronate apiculate; main veins 3, sharply, separating at the base of the lamina; lateral veinlets very slender, herbaceous to chartaceous. *Inflorescence* 1–2 umbellate racemes, 11–16-flowered per umbel; axis 0.8–2 cm long, 1–2 nodes; prophyll present, broadly ovate, 4–5 by 3–4 mm, rigid; peduncles of umbels terete or weakly compressed, 1.5–4 cm long; receptacles globose, ca 3 mm in diameter; bracteoles ovate-lanceolate, 0.8–0.9 by 0.4–0.6 mm; pedicels 1.5–2 cm long. *Tepals* 6, free. *Male flower* unknown. *Female flower*: tepals elliptic or elliptic-lanceolate, 3–4 by 1–1.5 mm, apex obtuse or acute. *Ovary* ellipsoid. *Berry* 6–8 mm in diameter, with 1–3 seeds.



Figure 6. Lectotype of *Smilax ferox* Wall. ex Kunth. Reproduced with permission of the Royal Botanic Gardens, Kew.

Thailand.— PENINSULAR: Ranong [Ngao Waterfall, ca 150 m, 22 Nov. 1973, ♀, *Santisuk 657* (**BKF!**); Phon Rang Hot Spring, 89 m, 29 Jul. 2015, ♀, *Kladwong 290* (**KKU!**); Krabi [50–150 m, 22 July 1972, ♀, *Larsen et al. 31211* (**BKF!**)].

Malaysia.— Kedah [Sungkup Forest Reserve, 27 Nov. 1959, ♀, *Everett FRI 13711* (**SING!**); Penang [1832, ♀, *Wallich, Numer. List: 5127* (**BM!, E!, K!, K-W!, L!, P!, TCD!**)].

Distribution.— Malaysia.

Ecology.— Scattered along edges of tropical rainforest and in open areas in hill evergreen scrubs, on limestone, 50–150 m alt.

Phenology.— Fruiting in November.

Note.— *Wallich 5127* is mentioned in the original protologue of *Smilax polyacantha*. We found three duplicates of this specimen in **K**, three in **P** and one each in **BM**, **E**, **K-W**, **L** and **TCD**. We selected the sheet K001104873 at **K-W** (Fig. 7) as a lectotype of *S. polyacantha* because it has many female inflorescences and fruits as well as mature leaves.

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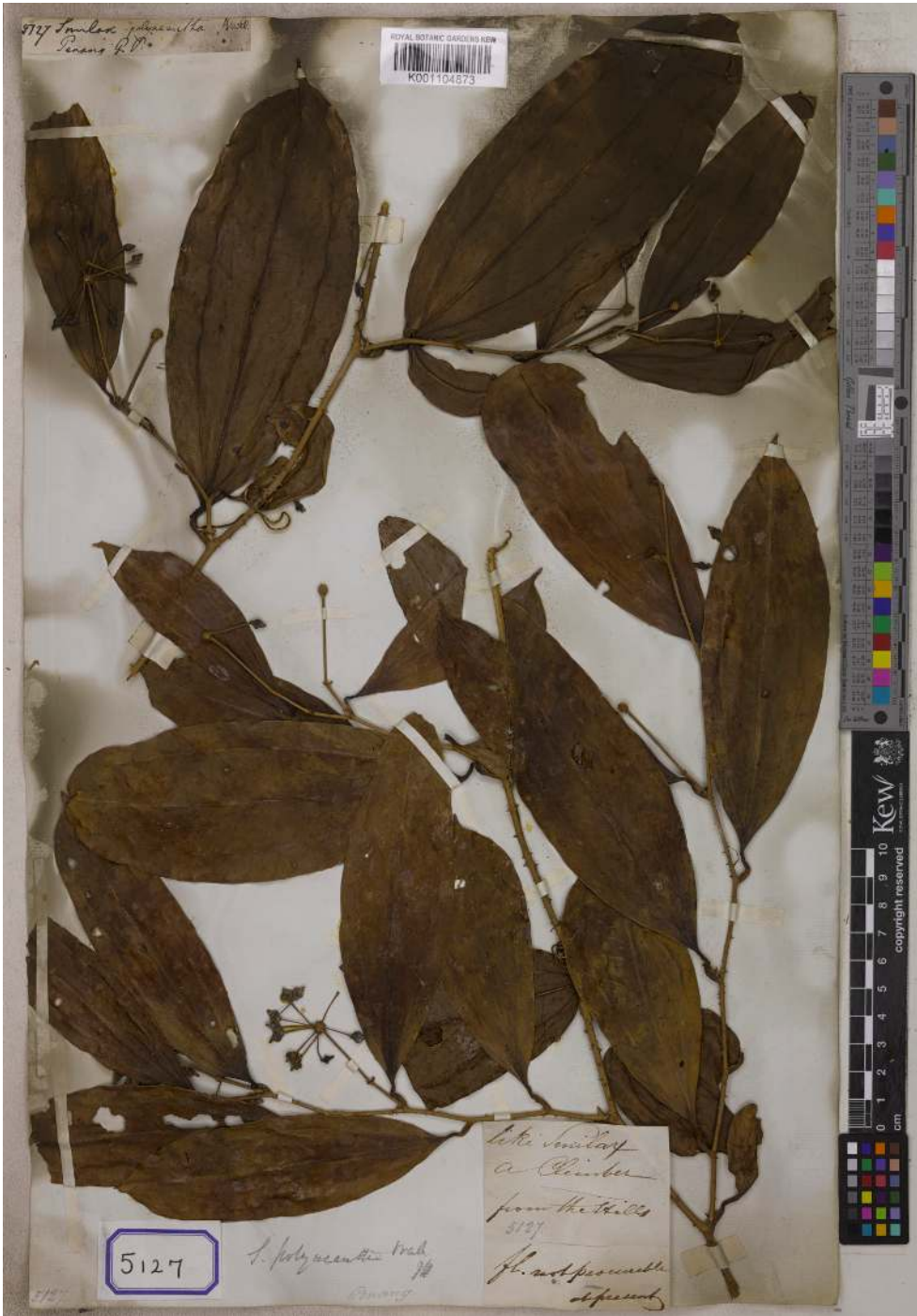


Figure 7. Lectotype of *Smilax polyacantha* Wall. ex Kunth. Reproduced with permission of the Royal Botanic Gardens, Kew.

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