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A Revision of the Genus *Vitex* (Lamiaceae) in Thailand

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ABSTRACT.– The genus *Vitex* L. in Thailand is revised. Sixteen species are enumerated and described; viz. *V. canescens, V. cochinchinensis, V. gamosepala, V. glabrata, V. limonifolia, V. longisepala, V. negundo, V. peduncularis, V. pinnata, V. quinata, V. rotundifolia, V. scabra, V. siamica, V. thailandica, V. trifolia* and *V. vestita*. In addition, *V. vestita* var. *siamica* and *V. vestita* f. *quinquefoliolata* are reduced as synonymies of *V. vestita*. Two species, *V. limonifolia* and *V. pierrei*, are typified. A key to the species, photographs, ecological and distributional information are provided.

KEY WORDS: Revision, *Vitex*, Lamiaceae, Thailand

INTRODUCTION

The genus *Vitex* was established by Linnaeus (1753) with four species; *V. agnus-castus*, *V. negundo*, *V. pinnata* and *V. trifolia* in Verbenaceae. The last three of these four species are found in Thailand. The genus is comprised of approximately 250 known species worldwide, members of which are distributed mainly in the tropics and subtropics. *Vitex* and several genera, e.g. *Clerodendrum*, *Paravitex* (= *Vitex*) and *Tectona*, of the former Verbenaceae have been transferred to the Lamiaceae based upon the results of phylogenetic analyses (Cantino *et al*., 1992; Harley *et al*., 2004). In Thailand, Clarke (1900-1916) was the first botanist who recorded four species of *Vitex* from Ko Chang, Trat province; *V. ovata*, *V. pubescens*, *V. trifolia* and *V. vestita*. The most recent major revision of the genus in Thailand is that of Fletcher (1938). He recognised 18 species and also made the key to species. Moldenke (1971), Suvattii (1978), Smitinand (1980) and The Forest Herbarium, Royal Forest Department (2001) have since published their checklists of *Vitex* in Thailand. From their works I had studied carefully not only types and specimens but also collected living specimens in the fields and put the synonyms together, and added an overlooked name for the revision. The present work forms the basis of an account being prepared for the Flora of Thailand.

MATERIALS AND METHODS

In this study all herbarium material from Thailand and adjacent areas has been consulted from the following herbaria: AAU, BCU, BK, BKF, BM, C, CMU, E, HN, K, KKU, L, P, PSU and QBG. The abbreviations follow Thiers (2011) and Biology Herbarium, Chiang Mai University. Field observation was carried out throughout Thailand and ecological data and location were also provided.

SYSTEMATICS

Genus *Vitex* L.

Vitex L., Sp. Pl.: 638. 1753.

Paravitex H.R. Fletcher, Bull. Misc. Inform., Kew 1937: 74. 1937.

Trees or shrubs, rarely straggling or prostrate shrubs; young branches and branchlets 4-angled, glabrous to hairy. *Leaves* opposite, digitately 3–7-foliolate, rarely 1-foliolate or simple, the central one the largest and the lowest pair smallest; leaflets entire, rarely crenate, serrate or incised, often glandular, petiolate. *Inflorescence* terminal and/or axillary; mostly dichasial cymes, short and dense to open and spreading, panicle-like cymose, sometimes verticillaster-like cymose; bracts and bracteoles small and narrow. *Flowers* zygomorphic. *Calyx* campanulate or cupuliform, (3–) 5-lobed; lobe triangular, truncate or shortly toothed, usually accrescent. *Corolla* infundibuliform, bilabiate with a short tube; upper lip 2-lobed, the lower lip 3-lobed, the central lobe of the lower one much largest. *Stamens* didynamous, inserted in middle part of tube, exserted; anthers 2-lobed, parallel at first, afterwards divaricate, black, rarely dark purple. *Ovary* superior, 2-locular, syncarpous, later usually 4-locular, with one ovule in each locule; style terminal, filiform; stigma bifid. *Fruits* globose, ovoid or obovoid drupe, pale green or green turning to purplish black, black or dark brown when mature. *Seeds* exalbuminous.

There are about 250 species distributed throughout the tropics and subtropics. Sixteen species are enumerated in Thailand.

Key to the Thai *Vitex* species

1. Prostrate or straggling shrubs……...….**2**
– Trees or shrubs……..…....**3**
2. Inflorescence and leaves aromatic when crushed…..…..…..… **11. *V. rotundifolia***
– Inflorescence and leaves non-arommatic ……..…. **14. *V. thailandica***
3. Inflorescence axillary…….…..…...**4**
– Inflorescence terminal or both terminal and axillary…….……**8**
4. Inflorescence less than 7 cm long, not exceeding the leaves……..…….**5**
– Inflorescence more than 7 cm long, exceeding the leaves……..…....…**7**
5. Calyx lobes 3, unequal..... ……..…...**3. *V. gamosepala***
– Calyx lobes 5, subequal……..**6**
6. Bracteoles and calyx lobes linear…….… ……..... **6. *V. longisepala***
– Bracteoles filiform; calyx lobes truncate …… **16. *V. vestita***
7. Inflorescence a compound dichasium. Leaves eglandular...…….. **4. *V. glabrata***
– Inflorescence a panicle-like cyme or thyrse. Leaves glandular-scaly on lower surface.…….. **8. *V. peduncularis***
8. Inflorescence a verticillaster-like cyme or thyrse……..…**9**
– Inflorescence a panicle-like or a compact pyramidal panicle-like cyme…….…...**11**
9. Shrubs. Inflorescence rarely unbranched …….. **2. *V. cochinchinensis***
– Trees. Inflorescence branched…....…**10**
10. Petiole winged.……..... **5. *V. limonifolia***
– Petiole unwinged.…...… **1. *V. canescens***
11. Shrubs or small trees. Inflorescence and leaves aromatic when crushed…..……**12**
– Trees. Inflorescence and leaves non-aromatic……...….....**13**
12. Leaves (3–) 5-foliolate, often lanceolate or narrowly lanceolate, the central leaflet distinctly stalked….....…**7. *V. negundo***
– Leaves 1–3 (–5)-foliolate, often obovate, the central leaflet almost sessile…..…….. …….. **15. *V. trifolia***
13. Trunk often with buttress and large spines. Leaflets scabrid….. **12. *V. scabra***

– Trunk stout without spine. Leaflets glabrous or with minute hairs…..…....**14**

14. Flowers less than 4 mm long……..…… ……..…… **13. *V. siamica***

– Flowers at least 5 mm long……..…..**15**

15. Inflorescence a compact pyramidal panicle-like cyme. Leaflets mostly 3, stiffy pubescent on lower surface. Terminal petiolule 1-6 mm long…….…..… ……..…….. **9. *V. pinnata***

– Inflorescence a spreading panicle-like cyme. Leaflets mostly 5, glabrous or sparsely pubescent on lower surface. Terminal petiolule 12-30 mm long…...… …….. **10. *V. quinata***

1. *Vitex canescens* Kurz (Figure 1A)

Vitex canescens Kurz, J. Asiat. Soc. Bengal 42: 101. 1873. Type: India, Assam, *Griffith* 6066 (holotype K!).

Vitex pierrei Craib, Bull. Misc. Inform., Kew 1918: 367. 1918. Type: Thailand, Chon Buri, Sriracha, April 1913, *D.J. Collins* 72 (lectotype K!, isolectotypes BK!, BM!, designated here).

Tree 7–20 m high; branchlets 4-angled, densely hairy; bark yellowish grey, slightly smooth or cracked. *Leaves* with (3–) 5 leaflets; petiole 5–10 cm long, hairy; leaflets coriaceous, ovate or obovate, 8–14 by 2–8 cm, apex acute, base obtuse, margin entire, rarely crenate, both surfaces of leaflet with hairs and yellowish brown glands; secondary veins 5–10-paired; petiolule 1.5–5 cm long, petiolule of the lowest pair 1–2 mm long, densely hairy. *Inflorescence* terminal, a verticillaster-like cyme or thyrse, branched, 7-20 cm long; peduncle 4–7 cm long, densely hairy; bracteoles, 2–7 mm long; pedicel 1–2 mm long, densely hairy. *Calyx*: tube 2–3 mm long, outside with hairs and glands; lobes 5, triangular, 1.5–2 mm long; *Corolla* yellowish brown; tube 6–6.5 mm long, outside with dense hairs and glands, inside glabrous; upper lobe ovate to slightly rounded or triangular, 1–1.8 by 1–1.5 mm, lower lobe ovate or rounded, margin crenate, 2–2.5 by 1.5–2 mm. *Stamens*: filament glabrous with whitish hairs at base; short filament 4.5–5 mm long, long filament 5–5.5 mm long; anthers 0.5–1 mm long, subequal. *Ovary* ovoid or slightly globose; style 6-6.5 mm long; stigma 0.5–0.6 mm long. *Fruits* slightly globose, 3–7 mm in diam.

Thailand.– NORTHERN: Mae Hong Son, Chiang Mai, Chiang Rai, Lamphun, Lampang, Phrae, Uttaradit, Sukhothai, Nakhon Sawan; NORTH-EASTERN: Loei, Nong Khai, Nakhon Phanom, Khon Kaen; EASTERN: Nakhon Ratchasima, Si Sa Ket; SOUTH-WESTERN: Uthai Thani, Kanchanaburi, Ratchaburi, Prachuap Khiri Khan; CENTRAL: Saraburi; SOUTH-EASTERN: Prachin Buri, Chon Buri, Chanthaburi; PENINSULAR: Surat Thani, Nakhon Si Thammarat, Phatthalung, Trang, Songkhla.

Distribution.– India (Assam), Myanmar, China (Yunnan, Hainan), Laos, Cambodia, Vietnam.

Ecology.– Dipterocarp, mixed deciduous and dry evergreen forests, alt. 25-750 m. Flowering in March-August.

Vernacular.– Chang, Chong aang, Chong aang ton, Phaa sian, Kaanon lua, Khee hen, Kham paan, Kham pon, Kamchang, Khong laeng, Lee-luu-pho-di, Phawang, Saambai, Samo kaanon, Samo teenpet, Sang aa, So sian, Sawong yuak, Teen nok.

Note.– *Vitex canescens* is distinctive in having densely and softly pubescent in all parts but roughish on the upper surface of the leaf, a terminal, branched and verticillaster-like inflorescence. Two collections, *D.J. Collins 72* and *Pierre* 1839, are mentioned in the original description. *D.J. Collins 72* at K, which was collected from Chon Buri province, Thailand, is the best preserved and so it is designated here as the lectotype.

2. *Vitex cochinchinensis* Dop (Figure 1B)

Vitex cochinchinensis Dop, Trav. Lab. for Toulouse 1(1): 3, pl. 3. 1928. Type: Vietnam, Thuduc, *Talmy* 259 (lectotype P!, chosen by P. Chantaraothai *et al*., 2004).

Shrub 1–2 m high; branchlets densely hairy; bark yellowish grey, slightly smooth. *Leaves* with 1–3 (–5) leaflets; petiole 0.5–5 cm long, hairy; leaflets coriaceous, ovate, obovate, lanceolate or oblong, 2–12 by 1–6 cm, apex acute, base obtuse, margin entire, rarely crenate, upper surface of leaflet with hairs and whitish glands, lower surface with dense hairs and yellowish glands; secondary veins 5–10-paired; petiolule 1–15 mm long, petiolule of the lowest pair 1–3 mm long, densely hairy. *Inflorescence* terminal, a verticillaster-like cyme or thyrse, 4–12 cm long; peduncle 1.5–5 cm long, densely hairy; bracteoles lanceolate or linear-oblong, 5–15 mm long; pedicel absent. *Calyx*: tube 3–7 mm long, outside with dense hairs, inside glabrous; lobes 5, triangular, 1–2 mm long. *Corolla* greenish yellow; tube 6–6.5 mm long, outside with dense hairs, inside glabrous; upper lobe ovate, 1–1.8 by 1–1.5 mm; lower lobe ovate or rounded, margin crenate, 2–2.5 by 1.5–2 mm. *Stamens*: filament glabrous with whitish hairs at base; short filament 4.5–5 mm long, long filament 5–5.5 mm long; anthers 0.5–1 mm long, subequal. *Ovary* slightly globose; style 7-14 mm long; stigma 0.5–0.6 mm long. *Fruits* slightly globose, 3–7 mm in diameter.

Thailand.– NORTH-EASTERN: Nong Khai; EASTERN: Si Sa Ket.

Distribution.– Vietnam.

Ecology.– Dry dipterocarp forest, alt. 150-350 m. Flowering in March-June.

Vernacular.– Phaa sian poom.

Note.– *Vitex cochinchinensis* differs from *V. canescens* in the unbranched inflorescence and the habit which is a shrub. It is widespread from southern Vietnam to northeastern Thailand.

3. *Vitex gamosepala* Griff.

Vitex gamosepala Griff., Not. Pl. As. 4: 178. 1851. Type: Malaysia, Malacca, Ching Rgingull, *Griffith* 6065 (holotype K!, isotype NY).

Tree 10–15 m high; branchlets hairy; branches slightly smooth; bark brownish grey. *Leaves* with 3 leaflets; petiole 2–9 cm long; leaflets chartaceous, elliptic or ovate, 3–12 by 1.5–5 cm, apex acuminate, base cuneate or attenuate, margin entire, upper surface green, glabrous, lower surface brownish red, glabrous, with glands; secondary veins 4–7-paired; petiolule of central leaflet 5–30 mm long, petiolule of lateral pair 5–7 mm long. *Inflorescence* axillary, a compound dichasium, 2–4 cm long, shorter than leaf; peduncle 1–2 cm long; bracteoles linear, 1.5–2 mm long.

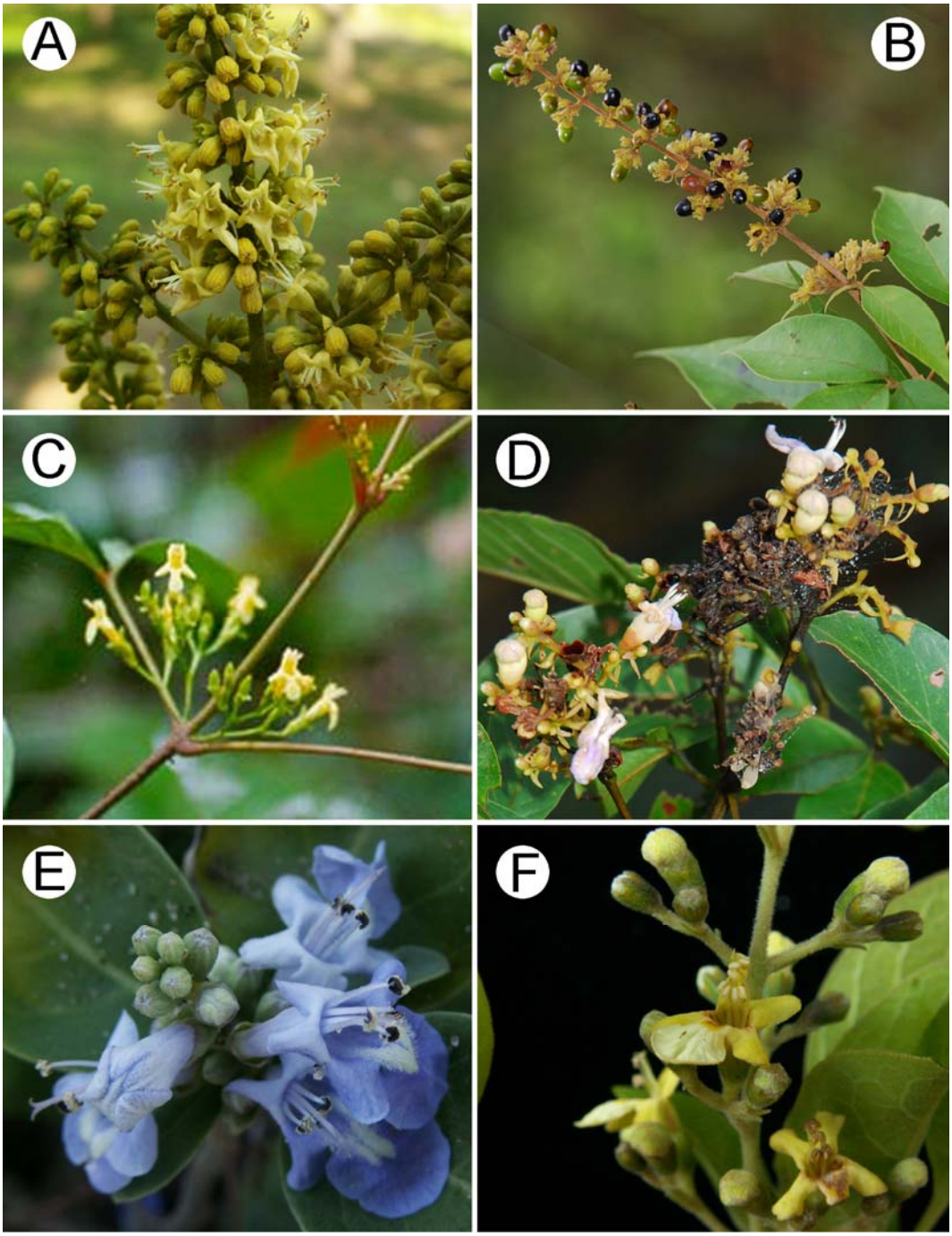

FIGURE 1. A) *Vitex canescens*, **B**) *Vitex cochinchinensis*, **C**) *Vitex longisepala*, **D**) *Vitex pinnata*, **E**) *Vitex rotundifolia* and **F**) *Vitex scabra*.

Calyx: tube 6–9 mm long, outside with yellow glands, inside glabrous; lobes 3,

lanceolate or oblong, apex acute, 3–5 mm long, other two lobes shorter than the first one, triangular, 1–2 mm long. *Corolla* yellowish; tube 6–12 mm long, outside with sparse hairs and scattered glands, inside glabrous or with sparse hairs and glands; upper lobe triangular, 2–3 mm long, lower lobe rounded or slightly rounded, margin crenate, 1-2 mm long. *Stamens* filament glabrous with whitish hairs at base; short filament 5–6 mm long, long filament 7–10 mm long; anthers 1–2 mm long. *Ovary* slightly globose or ovoid; style 10–12 mm long; stigma 0.1–0.2 mm long. *Fruits* globose, 1–1.5 cm in diameter.

Thailand.– NORTH-EASTERN: Loei; EASTERN: Nakhon Ratchasima; SOUTH-WESTERN: Uthai Thani, Kanchanaburi, Prachuap Khiri Khan; PENINSULAR: Ranong, Surat Thani, Phangnga, Nakhon Si Thammarat, Pattani, Yala, Narathiwat.

Distribution.– Laos, Malaysia and Indonesia (Sumatra).

Ecology.– Moist evergeen forest, alt. 0-500 m. Flowering in March-August.

Vernacular.– Maak lek maak noi and Maak sakhang.

Note.– The distinguishing features of *V. gamosepala* are the three calyx lobes which are unequal in length, and the unequal stigmatic lobes.

4. *Vitex glabrata* R. Br.

Vitex glabrata R. Br., Prodr. Fl. Nov. Holl.: 512. 1810. Type: Australia, Northern Territory, Groote Eylandt, 1803, *R. Brown* s.n. (*J.J. Bennets* 2319), (lectotype MEL; isolectotypes BM, MEL, chosen by Munir, 1987).

Vitex pentaphylla Merr., Philip. Journ. Sci. (Bot.) 4: 320. 1909. Type: Philippines, Mindanao, Siocon R., distr. of Zamboange, Feb. 1908, *Whitford & Hutchinson* 9490 (syntypes PNH, K!, US); Mindanao, Siocon R., distr. of Zamboange, Mar. 1908, *Hutchinson* 11245 (syntypes PNH, US); Mindanao, Santa Cruz, 16 June 1905, *Williams* 2949 (syntypes PNH, NY, US).

Tree 10–20 m high; branchlets 4-angled, minutely puberulous; bark yellowish or grey, slightly smooth. *Leaves* with 3–5 leaflets petiole 6–9 cm long; leaflets chartaceous, obovate or elliptic, 8–12 by 2.5–4 cm, apex acuminate, base obtuse or acute, margin entire, both surfaces of leaflets with scabrid hairs and scattered yellowish glands; secondary veins 10–15-paired; petiolule 5–10 cm long. *Inflorescence* terminal, a corymb-like dichasium; peduncle 4–6 cm long; bracteoles linear, 5–10 mm long; pedicel 5–6 mm long, puberulous. *Calyx*: tube 1.5–2.5 mm long, outside glabrous or puberulous, inside glabrous; lobes 5, minute toothed, 0.4–0.5 mm long. *Corolla* pale yellowish or whitish yellow; tube 2.5–3 mm long, outside with whitish hairs, inside puberulous; upper lobe 1–1.5 by 1–1.5 mm, triangular, lower lobe 3–3.5 by 4.5 mm, slightly rounded, crenate. *Stamens*: filament glabrous with whitish hairs at base; short filament 3.5–4.5 mm long; long filament 4.5–7 mm long; anthers 0.5–1 mm long. *Ovary* ellipsoid or ovoid, glabrous; style 2.5–3 mm long; stigma 0.6–1.2 mm long. *Fruits* globose, ellipsoid or obovoid, 3–15 mm in diameter.

Thailand.– NORTHERN: Chiang Mai, Tak, Nakhon Sawan; NORTH-EASTERN: Loei, Mukdahan, Khon Kaen; EASTERN: Nakhon Ratchasima; SOUTH-WESTERN: Kanchanaburi, Prachuap Khiri Khan; CENTRAL: Saraburi, Krung Thep Maha Nakhon; SOUTH-EASTERN: Prachin Buri, Chon Buri, Chanthaburi, Trat; PENINSULAR: Chumphon, Ranong, Surat Thani, Phangnga, Phuket, Krabi, Nakhon Si Thammarat, Trang, Songkhla, Pattani, Narathiwat.

Distribution.– India, Bangladesh, Myanmar, Laos, Cambodia, Vietnam, Malaysia, Indonesia, Philippines, New Guinea, Australia.

Ecology.– Dipterocarp and dry evergreen forests, alt. 10-1,280 m. Flowering in February-June.

Vernacular.– Farang khok, Khai nao, Khee hen, Khomm khwaan, Nao nai, Teen nok.

Note.– *Vitex glabrata* is distinctive on account of its loose, axillarly, corymb-like inflorescence which is markedly dichotomous and spreading branches.

5. *Vitex limonifolia* Wall. ex Walp.

Vitex limonifolia Wall. [Cat. no. 1754. 1831, *nom. nud.*] ex Walp., Repert. Bot. Syst. 4: 84. 1845. Type: Myanmar, *Wallich* 1754.C (lectotype K-W!, designated here).

Tree 10–20 m high; branchlets hairy; bark dark grey or black, slightly smooth or cracked. *Leaves* with (3–) 5 leaflets; petiole winged, 1.5–5 by 2–3 cm, pubescent; leaflets coriaceous, elliptic to broadly elliptic, broadly lanceolate or ovate, 5–25 by 2–10 cm, apex acute, acuminate or aristate, base attenuate, margin entire, rarely crenate, upper surface of leaflets with sparse hairs and yellowish glands, lower surface pubescent, with yellowish glands; secondary veins 10–25-paired, hairy; expetiolulate. *Inflorescence* terminal, a verticillaster-like cyme or thyrse, 15-25 cm long, with yellow hairs; peduncle 2–8 cm long; bracts broadly lanceolate or linear-oblong, 8–10 by 3–5 mm; bracteoles lanceolate, 1–2 by 0.2–0.5 mm; pedicel 1–5 mm long, densely hairy. *Calyx*: tube 2–4 mm long, outside with hairs; lobes 5, triangular, 1–1.5 mm long. *Corolla* yellowish white; tube 6–6.5 mm long, outside with sparse hairs or glabrous, inside with dense long hairs; upper lobe triangular, 1–5 mm, lower lobe rounded or slightly rounded, margin entire, 1.5–2.5 by 5–10 mm. *Stamens*: filament glabrous with whitish hairs at base; short filament 3–4 mm long; long filament 4–5 mm long; anthers 1–2 mm long, subequal. *Ovary* ellipsoid or slightly globose, upper part hairy; style 4–5 mm long; stigma 0.5–1 long. *Fruits* globose, 3–6 mm in diameter.

Thailand.– NORTHERN: Mae Hong Son, Chiang Mai, Lampang, Phrae, Tak, Nakhon Sawan; EASTERN: Nakhon Ratchasima; SOUTH-WESTERN: Uthai Thani, Kanchanaburi, Ratchaburi, Phetchaburi, Prachuap Khiri Khan; CENTRAL: Lop Buri, Saraburi; SOUTH-EASTERN: Chon Buri, Chanthaburi; PENINSULAR: Surat Thani, Nakhon Si Thammarat.

Distribution.– Myanmar, Laos, Cambodia, Vietnam.

Ecology.– Moist and dry evergreen forests, alt. 0-800 m. Flowering in May-August.

Vernacular.– Lam-puun-saa-mo, Samo luang, Samo non, Samo teenpet, Sawong, Sawong hin, Sawong luang, Sawong teenpet, Sawong yai, Teen nok.

Note.– *Vitex limonifolia* uniques in this genus on account of its large leaves and leaflets and its large winged petiole. Three collections, *Wallich* 1754.1, *Wallich* 1754.2 and *Wallich* 1754.C, are mentioned in the original description as *Wallich* 1754. *Wallich* 1754.C is the best preserved with flowers and leaves and so it is designated as the lectotype.

6. *Vitex longisepala* King & Gamble (Figure 1C)

Vitex longisepala King & Gamble, Bull. Misc. Inform., Kew 1908: 112. 1908. Type: Malaysia, Perak, Tapa, *L. Wray* 1319 (lectotype K!, chosen by P. Chantaraothai *et al*., 2004).

Tree 10–15 m high; branchlets puberulous with brownish hairs; bark brownish or black, slightly smooth. *Leaves* with 3 leaflets; petiole 2–10 cm long; leaflets chartaceous or subchartaceous, elliptic or ovate, 10–30 by 5–16 cm, apex acuminate or long-acuminate, base attenuate or obtuse, margin entire, both surfaces of leaflets with scabrid hairs and scattered glands; secondary veins 5–10-paired; petiolule of central leaflet 2–6 mm long, the lowest pair 0.5-1 mm long. *Inflorescence* axillary, a compound dichasium, 3–7 cm long; peduncle 1–2 cm long; bracteoles lanceolate or linear, 6–10 by 1.5–4 mm; pedicel 1–2 mm long. *Calyx*: tube 2.5–3 mm long, outside densely hairs, inside glabrous; lobes 5**,** oblong-lanceolate, 3-6 by 1.5-4 mm. *Corolla* pale yellow; tube 5–8 mm long, outside with yellowish glands, inside with sparse glands; upper lobe 3–5 mm long, triangular, lower lobe 2–7 by 2–5 mm, rounded or slightly rounded. *Stamens*: filament glabrous with whitish hairs at base; short filament 6–8 mm long, long filament 8–10 mm long; anthers 1–2.5 mm long. *Ovary* globose; style 9–12 mm; stigma 0.2–0.5 mm long. *Fruits* globose, 1–1.5 cm in diameter.

Thailand.– PENINSULAR: Pattani, Yala, Narathiwat.

Distribution.– Malaysia.

Ecology.– Moist and dry evergreen forests, alt. 50-750 m. Flowering in March-May.

Vernacular.– Kaun tai.

Note.– *Vitex longisepala* is distinct from the other members of this genus by virtue of its dense pubescence on the leaf surface and the calyx lobes that are oblong lanceolate shaped.

7. *Vitex negundo* L.

Vitex negundo L., Sp. Pl.: 638. 1753. Type: India, *Herb. Linnaeus* 811/8 (holotype LINN).

Vitex chinensis Mill., Garden Dict. ed. 8, no. 5. 1768. Type: ex Hort., *Miller* s.n. (holotype BM).

Vitex leucoxylon Blanco, Fl. Filip.: 516. 1837; ed. 2, 359. 1845. Type: Philippines, not located.

Shrub 1–3 m high; branchlets puberulous; bark thin, dark brown or black, slightly smooth. *Leaves* with (1–3–) 5 leaflets; petiole 3–7 cm long; leaflets

chartaceous, lanceolate or elliptic, 1–10 by 1–4 cm, apex acute or acuminate, base attenuate or obtuse, margin serrate or entire, upper surface of leaflets dark green, hairy or glabrous, lower surface with short hairs, greyish and scattered glands; secondary veins 5–10-paired; petiolule of central leaflet 5–15 mm long, the lowest pair 5-10 mm long. *Inflorescence* terminal, a panicle-like cyme or thyrse, 10–25 cm long; peduncle 2–5 cm long; bracteoles 1–3 mm long; pedicle 1–3 mm long. *Calyx*: tube 1.5–2.5 mm long, outside with short hairs, inside glabrous: lobes 5, triangular, *c.* 1 cm long. *Corolla* yellowish white, tube 1–4 mm long, outside with short hairs, inside with whitish hairs; upper lobe triangular, 1–2 by 1–2 mm; lower lobe rounded, crenate, 1.5–2 by 1–2 mm. *Stamens*: filament glabrous with whitish hairs at base; short filament 3–4.5 mm long; long filament 4–6 mm long; anthers 0.5–1 mm long. *Ovary* globose or ellipsoid; style 4–6 mm long; stigma 0.1–0.5 mm long. *Fruits* globose, 5–10 mm in diameter.

Thailand.– NORTHERN: Nan, Tak; EASTERN: Surin, Roi Et; SOUTH-WESTERN: Prachuap Khiri Khan; CENTRAL: Krung Thep Maha Nakhon; PENINSULAR: Ranong, Surat Thani, Songkhla, Narathiwat.

Distribution.– Iraq, Kuwait, Pakistan, India, Bhutan, Sri Lanka, Myanmar, China, Taiwan, Vietnam, Malaysia, Philippines, Australia, Polynesia.

Ecology.– Deciduous forest or open limestone hills, alt. 0-900 m. Flowering in March-August.

Vernacular.– Khonthee khemaa, Kuu-ning, Ku-no-kaa-mo.

Note.– *Vitex negundo* has distinctive leaflets which are white on the lower surface of the leaf, an entire or coarsely toothed margin and is aromatic when crushed.

8. *Vitex peduncularis* Wall. ex Schauer

Vitex peduncularis Wall. [Cat. no. 1753. 1831, *nom. nud*.] ex Schauer in DC., Prodr. 11: 687. 1847. Type: Myanmar, Moulmein, *Wallich* 1753 (holotype G-DC!).

Tree 10–20 m. high; branchlets 4-angled, sparsely greyish hairs; bark brownish or dark grey, smooth or scaly. *Leaves* with 3–5 leaflets; petiole winged or unwinged, 5–11 cm long; leaflets chartaceous, lanceolate or narrowly elliptic, 8–15 by 2.5–4 cm, apex acute, base acute, margin entire or crenate, both surfaces of leaflets glabrous or glabrescent, with scattered yellowish glands; secondary viens 10–15-paired, petiolule 1–2 cm long or absent. *Inflorescence* terminal, a panicle-like cyme or thyrse, 7-21 cm long, with short hairs; peduncle 5–10 cm long; bracts linear, 3–4 mm long, caducous; bracteoles linear or narrowly triangular, 0.5–1.5 mm long; pedicel 5–6 mm long, with short hairs. *Calyx* greenish-grey; tube 1.5–2.5 mm long, outside with sparsely greyish hairs and scattered yellowish glands; lobes 5, triangular or truncate, 0.5–1 mm long. *Corolla* yellowish white; tube 2–3 mm long, outside with short hairs and scattered yellowish glands, inside with long whitish hairs; upper lobe triangular, 1–1.5 by 1–1.5 mm, lower lobe ovoid-rounded, crenate, 3–3.5 by 4–4.5 mm. *Stamens*: filament glabrous with whitish hairs at base; short filament 2.5–3.5 mm long, long filament

3.5–4.5 mm long; anthers 0.5–1 mm long. *Ovary* ellipsoid or globose; style 2.5–3 mm long; stigma 0.2–0.4 mm long. *Fruits* globose or ellipsoid, 5–10 mm in diameter.

Thailand.– NORTHERN: Mae Hong Son, Chiang Mai, Chiang Rai, Lamphun, Lampang, Phrae, Sukhothai, Phitsanulok, Kamphaeng Phet; NORTH-EASTERN: Phetchabun, Loei, Sakon Nakhon, Khon Kaen; EASTERN: Nakhon Ratchasima, Surin; SOUTH-WESTERN: Uthai Thani, Kanchanaburi, Ratchaburi, Prachuap Khiri Khan; CENTRAL: Suphan Buri, Saraburi; SOUTH-EASTERN: Chon Buri.

Distribution.– India, Bangladesh, Myanmar, China, Laos, Cambodia, Vietnam.

Ecology.– Dry dipterocarp, moist and dry evergreen forests, alt. 250-1,150 m. Flowering in March-June.

Vernacular.– Haa chan, Kaa chaplak, Kaa sam peek, Khae teen nok, Ma yaang, Pa-thang-mi, Poe-to-meh, Samo teen pet, Samo wong, Teen kaa, Teen nok, Teen nok phuu, Teen pet.

Note.– This species resembles *V. altissima* L.f. from India but differs in having the axillary inflorescence. The plant has unwinged petiole except for *Phengklai et al.* 6637 (BKF) and *Suvarnasara* 43 (BKF).

9. *Vitex pinnata* L. (Figure 1D)

Vitex pinnata L., Sp. Pl.: 638. 1753. Type: Sri Lanka, *Herb. Herman* 1: 16 no. 415, lower left (BM).

Vitex pubescens L. ex Vahl, Symb. Bot. 3: 85. 1794. Type: as *V. pinnata*.

Vitex arborea Roxb. [Hort. Beng.: 46. 1814, *nom. nud.*] ex Hook., Bot. Misc. 1: 285. 1830. Type: India, Circars, 1799, *T. Boosce* s.n. (holotype BR).

Tree 12–15 m high; branchlets 4-angled, sparsely hairy; bark brownish or dark grey. *Leaves* with 3–5 leaflets; petiole winged, older plant unwinged, 3–10 cm long; leaflets chartaceous, elliptic or obovate, 8–15 by 2.5–4 cm, apex acute or obtuse, base acute, margin entire, both surfaces of leaflets glabrous or glabrescent, with scattered glands; secondary viens 10–15-paired, petiolule 1–5 mm long. *Inflorescence* terminal, a compact pyramidal panicle-like cyme, 7-20 cm long; peduncle 2–7 cm long; bracteoles linear or lanceolate, 3–12 by 2-5 mm; pedicel absent. *Calyx*: tube 4–6 mm long, outside with sparsely hairs, inside glabrous; lobes 5, triangular, 0.5–1 mm long. *Corolla* pale violet or violet; tube 2–3 mm long, outside with sparsely or densely short hairs, inside glabrous or with long whitish hairs; upper lobe triangular, 1–1.5 by 1–1.5 mm, lower lobe ovoid-rounded, crenate, 3–3.5 by 4–4.5 mm. *Stamens*: filament glabrous with whitish hairs at base; short filament 10–11 mm long, long filament 11–15 mm long; anthers 0.5–1 mm long. *Ovary* ellipsoid or globose; style 7–15 mm long; short stigma 0.3–0.4 mm long, long stigma 0.7–0.8 mm long. *Fruits* globose, 8–15 mm in diameter.

Thailand.– NORTHERN: Chiang Mai, Phitsanulok; NORTH-EASTERN: Loei, Nong Khai, Sakon Nakhon, Mukdahan, Khon Kaen; EASTERN: Chaiyaphum, Nakhon Ratchasima, Buri Ram, Si Sa Ket, Ubon Ratchathani; SOUTH-WESTERN: Uthai Thani, Ratchaburi, Phetchaburi, Prachuap Khiri Khan; CENTRAL: Lop Buri, Saraburi; SOUTH-EASTERN: Sa

Kaeo, Prachin Buri, Chachoengsao, Chon Buri, Chanthaburi, Trat; PENINSULAR: Chumphon, Ranong, Surat Thani, Phang-nga, Phuket, Krabi, Nakhon Si Thammarat, Trang, Satun, Songkhla, Yala, Narathiwat.

Distribution.– India, Sri Lanka, Bangla-desh, Myanmar, Laos, Cambodia, Vietnam, Malaysia, Indonesia, Philippines.

Ecology.– Dry dipterocarp and mixed deciduous forests, alt. 0-400 m. Flowering in March-September.

Vernacular.– Kaanon, Ka phun, Kaa saam peek, Khai nao, Khon samo, Lue-mae, Nao, Non, Non den, Ta phrun, Ta phun, Ta phun thong, Ta phum, Sa phun thong, Samo buang, Samo hin, Samo kaanon, Samo paa, Samo teen nok, Samo teen pet, Sawong hin, Teen nok.

Note.– *Vitex pinnata* is characterized by both surfaces of the leaf being glabrous or sparsely with hairs and the terminal and compact pyramidal panicle-like cyme inflorescence with lanceolate or elliptic oblong bracts.

10. *Vitex quinata* (Lour.) F.N. Williams

Vitex quinata (Lour.) F.N. Williams, Bull. Herb. Boiss. Sér. 2(5): 431. 1905.

Cornutia quinata Lour., Fl. Cochinch. 2: 387. 1790. Type: China, Canton, *Loureiro* s.n. (holotype P, picture K!).

Vitex heterophylla Roxb., [Hort. Beng.: 46. 1814, *nom. nud*.] Fl. Ind. ed. 2, 3: 75. 1832. Type: Tipperah, 1797, *Harris* s.n. (holotype?), *nom in syn*.

Vitex quinata (Lour.) Druce, Rep. Bot. Exch. Cl. Brit. Isles 4, 2nd suppl.: 652. 1917.

Vitex sumatrana Miq., Fl. Ind. Bat., Suppl. 1: 567. 1860. Type: Indonesia, Sumatra, Lampong prov., prope Natar, *Teysmann* 4302 (holotype U, isotypes BO, K, MEL).

Vitex urceolata C.B. Clarke in Hook.f., Fl. Brit. Ind.4: 585. 1885. Type: Malaysia, *Griffith* 6064 (syntypes K!, K!, U); Malacca, 13 June 1867, *Maingay* 1207 [3308] (syntypes K!, K!); Malacca, 1867-1868, *Maingay* 1205 [3368] (syntype K!).

Tree 10–20 m high; bark brown to dark grey, slightly smooth or cracked; branchlets 4-angled, with sparse hairs. *Leaves* with 3 (–5) leaflets; petiole 3–13 cm long; leaflets chartaceous, lanceolate or elliptic, 8–17 by 4–10 cm, apex mucronulate or caudate, base cuneate or obtuse, margin entire, both surfaces of leaflets smooth or with sparse bristles; upper surface with white glands, lower surface with yellow glands; secondary veins 9–12-paired; petiolule 1.5–4.5 cm long. *Inflorescence* axillary, a spreading panicle-like cyme, whitish grey, 15-35 cm long; peduncle 3–5 cm long; bracts foliaceous, lanceolate or oblanceolate, 10–22 by 5–7 mm with petiole *ca*. 3 mm long; bracteoles linear or oblong, 0.7–1 by 0.5–1 mm, caducous; pedicel 5–6 mm long with short hairs. *Calyx*: tube 1.5–2.5 mm long, outside with grey hairs and scattered yellow glands, inside glabrous; lobes 5, slightly lobed or truncate, 0.5–0.8 m long. *Corolla* whithish yellow; tube 2–3 mm long, outside with cream short hairs and scattered yellow glands; upper lobe triangular, 1–1.5 by 1.5 mm, lower lobe ovate-rounded with lobed margin, 3–3.5 by 4–4.5 mm. *Stamens*: filament glabrous with long whitish hairs at base; short filament 2.5–3.5 mm long, long filament 3.5–4.5 mm long; anthers 0.5–1.4 mm long. *Ovary* globose or ovoid; short

stigma 0.2–0.4 mm long, long stigma 0.5–0.8 mm long. *Fruits* globose or ellipsoid, 5–10 mm in diameter.

Thailand.– NORTHERN: Chiang Mai, Chiang Rai, Lamphun, Lampang; NORTH-EASTERN: Loei, Udon Thani, Sakon Nakhon, Mukdahan, Khon Kaen; EASTERN: Nakhon Ratchasima, Ubon Ratchathani; SOUTH-WESTERN: Uthai Thani, Ratchaburi; CENTRAL: Saraburi; SOUTH-EASTERN: Chanthaburi, Trat; PENINSULAR: Chumphon, Ranong, Surat Thani, Phangnga, Phuket, Krabi, Narathiwat.

Distribution.– India, Myanmar, China, Taiwan, Laos, Vietnam, Malaysia, Indonesia, Philippines, New Guinea, Polynesia.

Ecology.– Mixed deciduous, moist and dry evergreen forests, alt. 40-1,500 m. Flowering in March-June.

Vernacular.– Ee pae, Saa Khaang.

Note.– *Vitex quinata* is distinguished by its terminal and thinly cinereous tomentose inflorescence.

11. *Vitex rotundifolia* L.f. (Figure 1E)

Vitex rotundifolia L.f., Suppl. Pl. Syst. Veg.: 294. 1782. Type: Japan, *Thunberg* s.n. (Hb. Thunb. 14619 (holotype LINN-SM; isotype UPS-THUNB [picture].

Vitex ovata Thunb in A.Murray, Syst. Veg. 14: 578. 1784. Type: China, Macao, *Bladh* s.n. (Hb. Thunb. 14618 (syntype UPS-THUNB, picture).

Vitex trifolia L. var. *ovata* (Thunb.) Makino, Bot. Mag. Tokyo 17: 92. 1903.

Vitex trifolia L. var. *simplicifolia* Cham., Linnaea 7: 107. 1832. Type: Philippines, Luzon, Cavite, Dec. 1817-Jan. 1818, *Chamisso* s.n. (holotype LE, picture K).

Vitex repens Blanco, Fl. Filip.: 513. 1837. Type: Philippines, not located.

Vitex trifolia L. subsp. *littoralis* Steenis, Blumea 8(2): 516. 1957. Type: Indonesia, Lesser Sunda Island, Kisar, E of Wonreli 22 March 1939, *Bloembergen* 3894 (L).

Prostrate shrub with adventious roots at node, branchlets erect; bark brownish or greyish, smooth. *Leaves* palmately compound, with 1 leaflet, sometimes with 3 leaflets when young, all parts aromatic; petiole 3–20 mm long; leaflets coriaceous, rounded, obovate or elliptic, 1–5.5 by 1–4.5 cm, apex obtuse or acute, base obtuse or acute, margin entire, upper surface greenish, glabrescent, lower surface with greyish hairs and glands; secondary viens 3–5-paired, inconspicuous reticulate; petiolule 0.5–4 cm long. *Inflorescence* terminal, a panicle-like cyme or thyrse, 7–12 cm long; bracts foliaceous, 7–20 by 5–10 mm; peduncle 1–7 cm long; cyme or compound cyme, bracteolets linear, caducous, 1–2 mm long; pedicel 0.5–1 mm long. *Calyx* campanulate, greenish-grey, 5-lobed; tube 3–5 mm long, outside with short greenish hairs, inside glabrous. *Corolla* infundibuliform, 10–14 mm long, purplish or blue, aromatic; upper lobe 2–3 by 2–3 mm, triangular; lower lobe 5–6 by 3–5 mm, rounded, crenate; tube 4–8 mm long, outside with short hairs, inside with long whitish hairs. *Stamens*: filament glabrous with whitish hairs at base; short filament 6–7 mm long, long filament 7.5–8 mm long; anthers 1.5 mm long, whitish-purple. *Ovary* globose or dome-shaped; style 9–15 mm long; stigma 4–5 mm long. *Fruits* globose, 5–6 mm in diameter.

Thailand.– SOUTH-WESTERN: Kanchanaburi, Ratchaburi, Phetchaburi, Prachuap Khiri Khan; SOUTH-EASTERN: Chon Buri, Rayong, Chanthaburi, Trat; PENINSULAR: Chumphon, Phuket, Nakhon Si Thammarat, Songkhla, Narathiwat.

Distribution.– China, Korea, Japan, Taiwan, Vietnam, Malaysia, Australia, Polynesia.

Ecology.– Along sandy seashore. Flowering in June-October.

Vernacular.– Khon thi, Khon thiso, Khon thiso thale, Kuu-ning.

Note.– *Vitex rotundifolia* is readily distinguished from all other member of its genus by its habit which is a prostrate shrub on the sandy seashore.

12. *Vitex scabra* Wall. ex Schauer (Figure 1F)

Vitex scabra Wall. [Cat. no. 1758. 1831, *nom. nud*.] ex Schauer in DC., Prodr. 11: 695. 1847. Type: Myanmar, Seagaen (Sokaen), *Wallich* 1758 (holotype G-DC!, isotype K-W!); Thailand, Udon Thani, Nong Bua *A.F.G. Kerr* 8612 (epitype K!, isoepitypes BK!, BKF!, chosen by Chantaranothai *et al*., 2004).

Tree 10–12 m high, buttressed, with yellowish brown bark and large spines. *Leaves* with 3–5 leaflets; petiole 2–4 cm long; leaflets chartaceous, elliptic or obovate, 2–10 by 1–4 cm, apex acute acuminate or cuspidate, base acute, margin entire or crenate; both surfaces of leaflets scabrous; secondary veins in 5–10-paired; petiolule 1–3 mm long. *Inflorescence* axillary or terminal, a panicle-like cyme or thyrse, 4–12 cm long; peduncle 2–3 cm long; bracteoles linear, 2.5–3 mm long; pedicel 1-2 mm long. *Calyx*: tube 3.5–5 mm long; outside with short hairs and scattered glands, inside glabrous with brownish lines; lobes 5, triangular, 0.5–1 mm long. *Corolla* pale or dark yellow; tube 3–10 mm long, outside glabrous or with hairs and sparse glands, inside with white hairs; upper lobe triangular or rounded, 3-3.5 by 1-1.5 mm; lower lobe rounded, crenate, 3.5–4 by 2.5–3 mm. *Stamens*: filament glabrous with long whitish hairs at base; short filament 3.5–4 mm long, long filament 5.5–6.5 mm long; anthers 0.5–1 mm long. *Ovary* globose; style 7–14 mm long; stigma 0.5–0.8 mm long. *Fruits* ellipsoid or rarely globose, 1–1.5 cm in diameter.

Thailand.– NORTHERN: Chiang Mai, Chiang Rai; NORTH-EASTERN: Loei, Udon Thani, Nong Khai, Sakon Nakhon, Mukdahan, Khon Kaen; EASTERN: Chaiyaphum, Nakhon Ratchasima; SOUTH-WESTERN: Uthai Thani, Kanchanaburi, Ratchaburi, Phetchaburi, Prachuap Khiri Khan; CENTRAL: Saraburi; SOUTH-EASTERN: Sa Kaeo, Chanthaburi, Trat; PENINSULAR: Chumphon, Phangnga, Songkhla.

Distribution.– Myanmar, Laos, Cambodia.

Ecology.– Dipterocarp, mixed deciduous and dry evergreen forests, alt. 0-700 m. Flowering in April-August.

Vernacular.– Ee pae, Maak lek maak noi, Ma khaang, Sa-khaang.

Note.– *Vitex scabra* is a very distinct species because of the leaf texture which is distinctly scabrous. The species has been

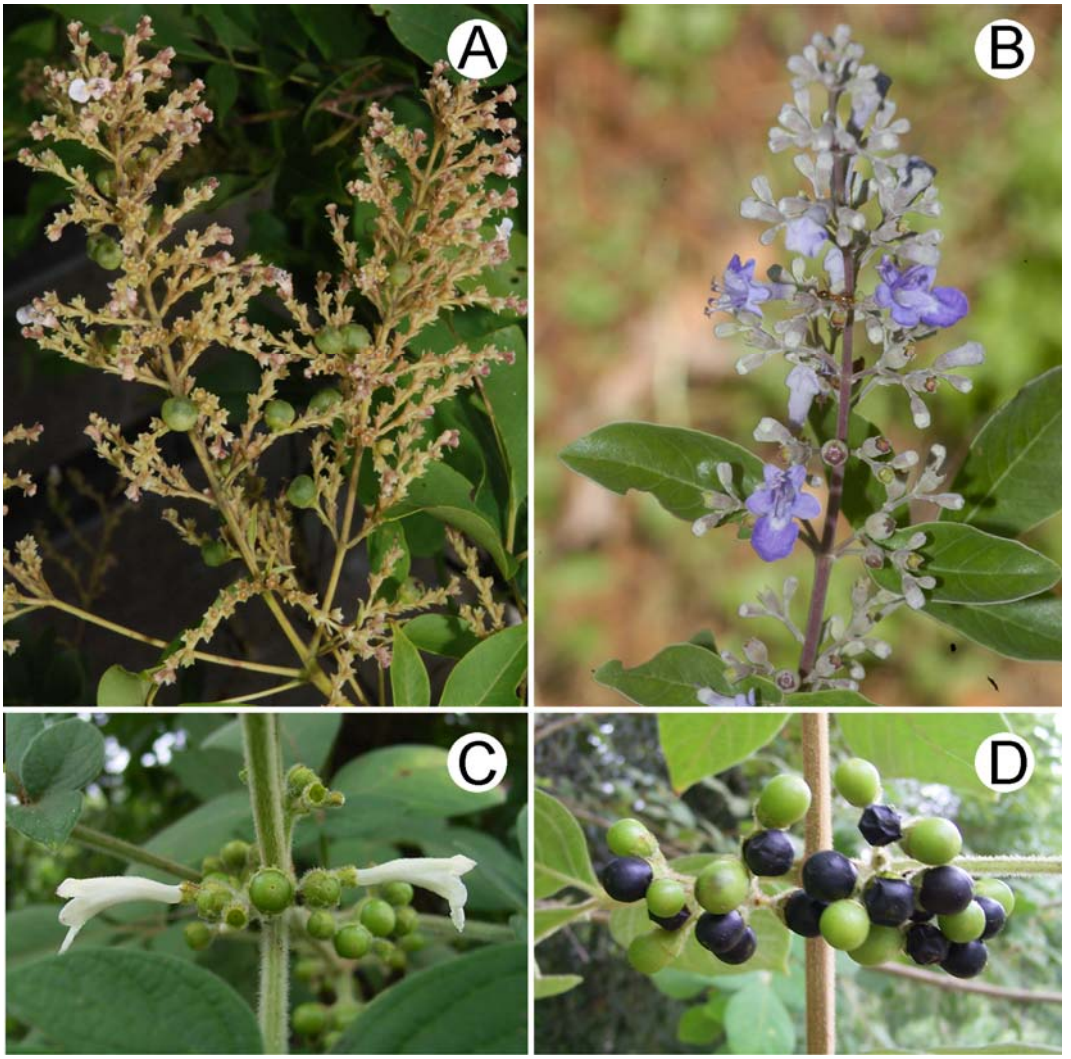

FIGURE 2. A) *Vitex siamica*, **B**) *Vitex trifolia* and **C, D**) *Vitex vestita*.

overlooked and misidentified under *V. quinata* for a long time.

13. *Vitex siamica* F.N. Williams (Figure 2A)

Vitex siamica F.N. Williams, Bull. Herb. Boiss. Sér. 2(5): 431. 1905. Type: Malaysia, Langkawi Archipelago, Tarutao, Aug. 1888, *Anonymous* 1683 (lectotype K!, chosen by de Kok, 2008).

Tree 7–12 m high; branches and branchlets hairy, old branches with lenticels; bark brown to dark grey, slightly smooth. *Leaves* with 3 (–5) leaflets; petiole 1.5–5 cm long; leaflets subchartaceous, ovate, obovate, elliptic or lanceolate, 2–10 by 1.5–5 cm, apex acute acuminate or cuspidate, base acute, margin entire or serrate, both surfaces of leaflets smooth and with sparse glands or hairs on midvein; secondary veins 12–24-paired; petiolule of central leaflet 1–

1.5 cm long, petiolule of lateral leaflet 0.5–1 cm long or absent. *Inflorescence* axillary or terminal, a panicle-like cyme or thyrse, 2–10 cm long; bracts foliaceous, spathulate, 1–5 by 0.3–1.5 cm with petiole 0.7–1 mm long; peduncle 1–2 cm long; bracteoles lanceolate or linear-oblong, 1.5–2 mm long. *Calyx*: tube 2–3 mm long, outside glabrous or with long white hairs, inside glabrous; lobes 5, triangular, 1–1.5 mm long. *Corolla* pale yellow; tube 2.5–3.5 mm long, outside glabrous, inside with long white hairs; upper lobe triangular, 1–1.5 mm long; lower lobe ovate-rounded with lobed margin, 1.5–2.5 by 1–1.5 mm. *Stamen*s: filament glabrous with long whitish hairs at base; short filament 1–2 mm long, long filament 2–2.5 mm long; anthers 0.5–1 mm long. *Ovary* globose or ovoid; style 2-3 mm long; stigma 0.1–0.5 mm long. *Fruits* globose, 2–5 mm in diameter.

Thailand.– SOUTH-WESTERN: Ratchaburi, Prachuap Khiri Khan; PENINSULAR: Chumphon, Surat Thani, Phangnga, Krabi, Phatthalung, Trang, Songkhla, Yala.

Distribution.– Malaysia.

Ecology.– Limestone hill in evergreen forest, alt. 0-150 m. Flowering in May-August.

Vernacular.– Krachang khao.

Note.– Morphologically *V. siamica* appears close to *V. ajugaeflora* Dop from Vietnam. Although both species have a similar size and shape of the calyx tube and shape of the inflorescence, those taxa are by no means conspecific. The most obvious distinguished characters are sparse white hairs or glabrous calyx tube, hairy on both surfaces of the calyx lobe tip and sapthulate bracts that have hairs along the margin of the former, compared with hairy calyx tube, glabrous on both surfaces of the calyx lobe and filiform bracts which are hairy of the latter.

14. *Vitex thailandica* Bramley

Vitex thailandica Bramley, Taxon 58(2): 508. 2009.

Paravitex siamica H.R. Fletcher, Bull. Misc. Inform., Kew 1937: 74, f. 2. 1937. Type: Thailand, Supan (Suphan Buri), Dom Bang (Derm Bang Nang Buat), 19 May 1923, *A.F.G. Kerr* 7002 (holotype K!, isotypes BK!, BM!).

Vitex holoadenon Dop, Trav. Lab. for Toulouse 1(1): 8. 1928. Type: Cambodia, Houdon, Kompong Luong, Expédition du Me Kong, 1866-1868, *Thorel* 2028 (type K!). syntype: Cambodia, Pursart, *Pierre* 1218

Straggling shrub, branchlets 4-angled or terete, glabrous. *Leaves* simple; petiole 5–10 mm long; lamina chartaceous, ovate or elliptic, 3–8 by 2–4 cm, apex acute, obtuse or obtuse-apiculate, base rotundate or attenuate, margin entire, upper surface brown, glabrescent, lower surface brownish with hairs and glands; secondary viens 7–9-paired; petiolule 0.5–4 cm long. *Inflorescence* terminal, a compound diachasium, 10-12 cm long, with hairs and glands; bracts 1-3 mm long; peduncle 1–7 cm long; bracteoles linear, caducous, 1–2 mm long; pedicel 0.5–1 mm long. *Calyx*: tube 2–5 mm long, outside with short hairs, inside glabrous; lobes 5, triangular or obtuse. *Corolla* yellowish white; tube *ca*. 5 mm long; upper lobes 2 mm long, lower lobes with rounded apex, 5 mm long. *Stamens*: filament glabrous with whitish hairs at base; short filament 5 mm long, long

filament 7 mm long; anthers 0.7-0.8 mm long. *Ovary & fruits* not seen.

Thailand.– CENTRAL: Suphan Buri, Ang Thong, Phra Nakhon Si Ayutthaya; SOUTH-EASTERN: Sa Kaeo.

Distribution.– Cambodia, Vietnam.

Ecology.– In evergreen forest by stream or river banks, alt. 20-50 m.

Vernacular.– .

Note.– *Vitex thailandica* is distinct by its straggling shrub and simple leaves.

15. *Vitex trifolia* L. (Figure 2B)

Vitex trifolia (as *trifoliis* p. 938) L., Sp. Pl.: 638. 1753. Type: India, *Herb. Linnaeus* 811/7 (holotype-LINN).
Vitex agnus-castus L. var. *trifolia* (L.) Kurz, For. Fl. Burma 2: 270. 1877.

Shrub 50–150 cm high; branchlets puberulous; bark brown, slightly smooth. *Leaves* with 1–3 leaflets; petiole 5–30 mm long; leaflets chartaceous, obovate or elliptic, 2.5–7.5 by 1–4 cm, apex and base acute, margin entire; upper surface dark green, glabrous, lower surface with glands and grey hairs; secondary veins 4–12-paired; petiolule absent. *Inflorescence* terminal, a panicle-like cyme, 5–20 cm long; peduncle 2–5 cm long; bracts foliaceous, obovate or oblanceolate, 2–5 by 1–1.5 mm with petiole 1–5 mm long; bracteoles linear, 1–2 mm long. *Calyx* green with pale purple; tube 2–4.5 mm long, outside with short grey hairs, inside glabrous; lobes 5, triangular, 0.3–0.5 mm long. *Corolla* funnel–shaped, 8–12 mm long, pale purple; upper lobe 2–3 by 2–3 mm, triangular, one lower lobe 6–7 by 4–6 mm, rounded with entire margin; tube 3–7 mm long, outside with cream short hairs, inside with white hairs. *Stamens*: filament glabrous with long whitish hairs at base; short filament 6.5–7.5 mm long; long filament 7.5–8.5 mm long; anthers 1–1.5 mm long, dark purple. *Ovary* globose or ovoid; style 7–13 mm long; stigma 1–1.3 mm long. *Fruits* globose, 5–8 mm in diameter.

Thailand.– NORTHERN: Chiang Mai, Tak; NORTH-EASTERN: Loei, Kalasin; EASTERN: Nakhon Ratchasima; SOUTH-WESTERN: Kanchanaburi, Prachuap Khiri Khan; CENTRAL: Krung Thep Maha Nakhon; SOUTH-EASTERN: Chon Buri, Rayong, Chanthaburi, Trat; PENINSULAR: Chumphon, Satun.

Distribution.– India, Sri Lanka, Bangladesh, China, Japan, Vietnam, Malaysia, Indonesia, Brunei, Philippines, New Guinea, Australia, Polynesia.

Ecology.– Deciduous forest, alt. 0-700 m. Flowering in March-August.

Vernacular.– Dinso, Dok samut, Khon dinso, Khon thiso, Khon thiso khaao, Khun teeso, Muut phoeng, Phee suea, Phae suea noi, See suea noi, Seeso, Thiso.

Note.– *Vitex trifolia* differs from *V. negundo* in its obovate leaflets with the central one being almost sessile.

16. *Vitex vestita* Wall. ex Walp. (Figure 2C, D)

Vitex vestita Wall. [Cat. no. 1750. 1831, *nom. nud.*] ex Walp., Repert. Bot. Syst.

4: 85. 1845. Type: East India, Toong-Dong Avae, *Wallich* 1750 (lectotype K!, isolectotype K-W!, designated by de Kok, 2008).

Vitex vestita var. *siamica* Moldenke, Phytologia 4(1): 65. 1952. Type: Thailand, Kanchanaburi, *ca*. 40 km north of Wagka (Wangka), Tripagodas, 14 May 1946, *Kasin* (*K. Suvatabhandhu*) 346 (holotype BO, isotypes L!, L!, P!), **syn. nov**.

Vitex vestita f. *quinquefoliolata* Moldenke, Phytologia 34(1): 20. 1976. Type: Thailand, Kanchanaburi, Kritty, Muang Ceha, 9 July 1973, *J.F. Maxwell* 73-232 (holotype AAU!, isotype BK!), **syn. nov**.

Small tree 1–3 m high; branchlets with villous hairs; bark dark brown. *Leaves* with 3 (–5) leaflets; petiole 1.5–3 cm long, hairy; leaflets subchartaceous, ovate, lanceolate or elliptic, 5–11 by 4–7 cm, apex acuminate, base acuminate or attenuate, margin entire; both surfaces of leaflets with sparsely villous hairs and yellow glands; secondary veins 8–10-paired, hairy; petiolule of central leaflet 1–1.5 cm long, petiolule of lateral leaflet 2–5 mm long or absent. *Inflorescence* axillary, a compound diachasium, 3–7 cm long, shorter than leaf, with yellow villous hairs; peduncle 1–2 cm long; bracteoles linear, 2–3 mm long; pedicel 1–2 mm long or sessile. *Calyx*: tube 2–3.5 mm long, outside with villous hairs, inside with hairs or glabrous; lobes 5, minutely toothed or truncate. *Corolla* whitish yellow; tube 4–7 mm long, outside with yellow villous hairs and scattered small yellow glands upper lobe triangular, 1–1.5 by 1–1.5 mm, lower lobe ovate-rounded with lobed margin, 3–3.5 by 3–4.5 mm. *Stamens*: filament glabrous with long whitish hairs at base; short filament 2–3 mm long; long filament 3.5–4 mm long; anthers 0.5–1.5 mm long. *Ovary* globose or ovoid; style 2.5–3 mm long; stigma 0.4–0.5 mm long. *Fruits* oblong, 5–7 mm in diameter.

Thailand.– NORTHERN: Mae Hong Son, Chiang Mai, Chiang Rai, Lamphun, Lampang, Tak; NORTH-EASTERN: Phetchabun, Loei; EASTERN: Chaiya-phum; SOUTH-WESTERN: Kanchanaburi, Prachuap Khiri Khan; SOUTH-EASTERN: Chon Buri, Chanthaburi, Trat; PENIN-SULAR: Ranong, Yala, Narathiwat.

Distribution.– India, Myanmar, China, Vietnam, Malaysia, Indonesia, Brunei.

Ecology.– Mixed deciduous, moist and dry evergreen forests, alt. 0-1,450 m. Flowering in March-August.

Vernacular.– Khort nguu, Pha hai noi, Teen nok khao.

Note.– *Vitex vestita* is closely related to *V. longisepala* but differs in having the much smaller leaves, the small and caducous bracts and the small and truncate calyx lobes.

ACKNOWLEDGEMENTS

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APPENDIX

Specimens Examined

1. *Vitex canescens*: *Boonsong* 4 (BKF); *Bunchoo* 729 (BCU, BK); *C. Bunnab* 228 (BKF); *D. Bunpheng* 49 (BKF), 1167 (BKF); *P. Charoenmayu* 399 (BKF); *D.J. Collins* 72 (E), 706 (US); *Dee* 41 (BKF), 49 (BKF); *N. Fukuoka* 63679 (BKF); *S. Gardner* ST0130 (BKF); *S. Gardner & P. Sidisunthorn* ST0471 (BKF); 2089 (Herb. Biology, Chiang Mai University); *T. Jonganurak* 509 (BCU-2 sheets); *M. Kanokvichid* 3 (BKF); *A.F.G. Kerr* 1766 (L), 4851 (E), 5970 (BK, BM, E, K), 12845 (BK, BM, E, K), 15382 (BK, BM, E, K), 19246 (BK, BM, E, K), 21408 (BK, BM, E, K); *Khantchai* 341 (BKF); *S. Khoomgratok* 97-3 (KKU); *R.M. King* 5493 (L, US); *KK* 1144 (BCU), 1282 (BCU-2 sheets); *A. Kostermans* 719 (BK, K-2 sheets, L-3 sheets, P), 1248 (US, L-3 sheets), s.n. (BK); *A. Kostermans & G. den Hoed* 652 (BK, L, P); *A. Marcan* 1765 (E), 2170 (E); *K. Larsen, S.S. Larsen, S.S. Renner, C. Niyomdham, W. Ueachirakan & P. Sirirugsa* 42788 (AAU); *J.F. Maxwell* 72-60 (AAU, L-2 sheets), 72-109 (AAU, BK), 74-296 (BK, BKF), 74-580 (BK, L), 75-48 (AAU), 75-240 (AAU, BK, L), 75-480 (BK, L), 76-303 (AAU, BK, L), 85-575 (BKF, Herb. Biology, Chiang Mai University), 88-379 (BKF, E-2 sheets), 88-499 (BKF), 89-603 (BKF, L), 90-444 (E), 94-277 (Herb. Biology, Chiang Mai University), 94-403 (Herb. Biology, Chiang Mai University), 95-263 (BKF, Herb. Biology, Chiang Mai University), 97-399 (BKF, Herb. Biology, Chiang Mai University); *Meesathan* 3 (BKF); *D. Nakkan* 51 (BKF), 176 (BKF), 274 (BKF); *W. Nanakorn* 500 (BKF-2 sheets); *Pa-Yun* 2 (BKF); *C. Phengklai* 26 (BKF, K), 96 (BKF), 3230 (L-2 sheets); *S. Phengnaren* 404 (BKF); *S. Phusomsaeng* 157 (BKF, E, K, L-2 sheets, P); *S. Pinnin* 404 (L, P); *Piya et al.* 41 (BCU); *Prayoon* 2 (BKF); *Preecha* 399 (BKF*); K. Saifu* 22461 (Herb. Biology, Chiang Mai University); *B. Sangkhachand* 968 (BKF), 1879 (BK); *T. Smitinand* s.n. (BKF), s.n. (BKF); *Somkhid* 429 (BKF), s.n. (BKF); *W. Somprasong* 60 (BK), 60A (BK); *D.D. Soejarto & N. Nantasan 6056* (L); *BGO. Staff* 18 (QBG), 459 (QBG), 6096 (QBG); *A. Suksamrarn* 5 (BKF), 6 (BKF), 12 (BKF); *E. Smith* 761 (BK-2 sheets, E); *S. Sutheesorn* 1269 (BK), 1340 (BK), 2394 (BK); *Teerawat* 3 (BKF); *Thapthimthong* 4 (BKF), s.n. (BKF); *S. Thirachint* 3 (BKF); *T. Tiptabiankarn* 10740 (BKF); *P. Trisarasri* 236 (BCU); *Vanpruk* 33 (BKF), 425 (BKF, K); *Vibul* 22 (BKF-2 sheets); *Williams & T. Smitinand* 17162 (BKF); *Winit* 256 (E); *Worawut* 18 (BKF, L).

2. *Vitex cochinchinensis*: *C. Leeratiwong* 2001-12 (PSU); *J.F. Maxwell* 76-537 (AAU, BK); *C. Niyomdham* 4465 (BKF-2 sheets), 5083 (BKF); *S. Phengnaren* 153 (BKF), s.n. (BKF); *C. Phengklai* s.n (BKF); *R. Pooma* 1597 (BKF); *R. Pooma, K. Phattarahirankanok, S. Sirimongkol & M. Poopath* 4118 (BKF, K); *R. Pooma, W.J.J.O. de Wilde, B.E.E. Dyfjes, V. Chamchumroon & K. Phattarahirankanok* 2726 (BKF-2 sheets); *T. Smitinand* 2551 (BKF, K); *S. Suddee, A. Paton, T. Jonganurak & V. Chamchumroon* 982 (K); *A. Suksamrarn* 7 (BKF); *Th. Wongprasert et al.* 046-86 (BKF-2 sheets); *Vanpruk* 941 (BKF), *Winit* 566 (BKF).

3. ***Vitex gamosepala***: *KB* 1922 (BKF); *S. Gardner & P. Sidisunthorn* ST0825 (BKF-2 sheets); *S. Gardner & P. Tippayasri* ST1326 (BKF); *R. Geesink & T. Smitinand* 4960 (AAU, BKF, E, L-2 sheets, P); *R. Geesink, T. Hattink & C.C. Charoenphol* 7390 (AAU, BKF, K, L, P); *A.F.G. Kerr* 7440 (BK, E, K); *M.C. Lakshnakara* 695 (BK, K); *K. Larsen* & *S.S. Larsen* 33 (BKF), 421 (BKF), 32838 (BKF, K, L), 32931 (BKF, K, L-2 sheets, P), 33421 (AAU, BKF, K, P); *J.F. Maxwell* 87-273 (AAU, BK, BKF, L); *D. Middleton, C. Hemrat, S. Lindsay, S. Suddee & S. Suwanachat 3957* (BKF); *C. Niyomdham & P. Puudjaa* 4684 (BKF); *C. Phengklai & T. Smitinand* 1160 (BKF); *R. Pooma, K. Phattarahirankanok, S. Sirimongkol, M. Poopath & S. Sangrit 4531* (BKF); *P. Puudjaa* 710 (BKF-2 sheets); *B. Sangkhachand* 848 (BKF); *T. Santisuk* 636 (BKF-4 sheets), 819 (BK, BKF, US); *T. Santisuk & B. Nimanong* 284 (BKF); *T. Smitinand* 11764 (BKF-2 sheets, K, L-2 sheets); *T. Smitinand & T. Santisuk* s.n. (BKF-2 sheets); *S. Thaworn* 483 (BKF), 756 (BKF); *Tippan* 97 (BK).

4. ***Vitex glabrata***: *D. Barnkol* s.n. (BK); *S. Boongird* 7 (BKF, US); *C. Boonnab* 271 (BKF); *D. Bourcke* s.n. (BK); *D. Bunpheng* 37 (BKF), 343 (BKF), 349 (BKF); *C. Chermsirivathana* 524 (BK); *D.J. Collins* 165 (K), 1247 (BK, BM, E, K, US); *G. Congdon* 591 (AAU)*; Damrongsak* 56 (BKF); *Dee* 37 (BKF), 343 (BKF), 349 (BKF); *S. Gardner & P. Sidisunthorn* ST0551 (BKF); *R. Geesink & T. Smitinand* 4976 (AAU, BKF, E, K, L, P); *R. Geesink, T. Hattink & C. Phengklai* 6617 (L); *H. Hoe* 202 (BK); *Kanthachai* 58 (BKF); *A.F.G. Kerr* 3369 (E), 4391 (BK, BM, E, K), 6031 (BK, BM, K), 6156 (BK, BM, E, K), 7748 (BK, BM, E, K), 15211 (BK, BM, E, K), 15370 (BK, BM, E, K), 17103 (BK, BM, E, K), 19121 (BK, BM, E, K) 21602 (BK), s.n. (BK-19070), s.n. (BK-19072); *A. Kostermans* 99 (BK, K, L-2 sheets, P), 705 (BK, K, L-2 sheets, P), 1166 (L), 1222 (L-2 sheets, US), 1317 (L, US); *M.C. Lakshnakara* 960 (BK, BM, E, K); *K. Larsen, S.S. Larsen, S.S. Render, C. Niyomdham, W. Ueachirakan & P. Sirirugsa* 42987 (AAU); *K. Larsen et al.* 58 (BKF); *A. Marcan* 1722 (K), 2086 (E); *J.F. Maxwell* 74-418 (AAU, BK), 75-214 (BK), 96-616 (Herb. Biology, Chiang Mai University); *Narong* 1 (BKF); *C. Niyomdham, W. Ueachirakan & P. Puudjaa* 3661 (BKF-2 sheets); *Noe* 202 (BK, E); *C. Phengklai* s.n. (BKF); *C. Phengklai et al.* 9112 (BKF); *S. Phusomsaeng* 238 (AAU, BKF, E, K, L, P); *S. Phusomsaeng & S. Pinnin* 383 (BKF, L); *D. Prapat* 56 (BKF-2 sheets, K, L); *Put* 1612 (BKF, E); *P. Puudjaa* 145 (BKF-2 sheets); *Rabil* 383 (BK, BM, E, K); *S.S. Renner et al.* s.n. (PSU); *S.N.* 381 (BKF); *Sa-ard* 7 (BKF); *B. Sangkhachand* 12 (BKF, K); *B. Sangkhachand & B. Nimanong* 1277 (BKF, E, K, L, P); *T. Santisuk* 1278 (BKF, PSU), s.n. (BKF-85364); *T. Smitinand* 1415 (BKF); *T. Smitinand & H. Sleumer* 1030 (L); *Snan* 299 (BKF, K), 412 (BKF, K); *B. Sukkri* 6 (L); *Suksamrarn* s.n. (BKF); *H. Takahashi* T-63209 (BKF); *Th. SØrensen et al.* s.n. (BKF), s.n. (BKF); *Tippan* 133 (BK); *P. Trisarasri* 268 (BCU); *C.F. van Beusekom & C. Phengklai* 1305 (K), 1307 (E); *Vanpruk* 725 (BKF, K); *Th. Wongprasert* s.n. (BKF-99500), s.n. (BKF-120219).

5. ***Vitex limonifolia***: *Asa* s.n. (BKF); *M. Banterngsuk* 6 (US); *D. Bunpheng* 41 (BKF), 148 (BKF,K); *A. Bunyarataphand & C. Phengklai* 87 (BKF, K, P); *D.J. Middleton, S. Suddee, S.J. Davies & C. Hemrat* 843 (K); *K. Chaichareon* 11 (BCU); *Chantana-orapin* 2 (BCU); *P. Charoenmayu* 495 (BCU); *D.J. Collins* 9 (E, L); *R. Geesink, D. Phanichapol & T.*

Santisuk 5622 (AAU, BKF, E, K, L, P); *Hardial* 583 (BKF, K, L); *Herb. Trip* 1181 (BCU); *K. Hosakul* 9 (BCU); *Kasem* 528 (BK); *A.F.G. Kerr* 19488 (BK, BM, E, K), s.n. (BK); *S. Khoomgratok* 99-8 (KKU); *Kiah* 24414 (BK, E, K); *R.M. King* 5474 (K, L, US), 5488 (K, L, US-2 sheets), s.n. (US-2436013); *F. Konta, C. Phengklai & S. Khao-iam 4490* (BKF-2 sheets); *M.C. Lakshnakara* 1537 (BK); *K. Larsen, T. Santisuk & E. Warncke* 2199 (AAU, BKF, L); *J.F. Maxwell* 1275 (BKF), 73-683 (AAU-2 sheets, BK), 75-951 (AAU, BK, L), 87-1275 (BKF), 90-832 (AAU, L), 92-688 (L-2 sheets, P, Herb. Biology, Chiang Mai University), 93-837 (L-2 sheets, Herb. Biology, Chiang Mai University), 96-943 (BKF, Herb. Biology, Chiang Mai University), s.n. (AAU-2 sheets, E, L); *D.J. Middleton, S. Suddee, S.J. Davies & C. Hemrat* 843 (BKF); *D.J. Middleton, S. Suddee & C. Hemrat* 1288 (BKF); *D. Nakkan* 163 (BKF); *W. Nanakorn* 10263 (QBG); *Narong* 4 (BKF); *M. Norsangsri* 895 (QBG); *C. Niyomdham 5775* (BKF-2 sheets); *J.A.N. Parnell, C. Pendry, M. Jebb & R. Pooma* 95-267 (BKF); *C. Phengklai* 3979 (BKF-2 sheets, PSU), 8818 (BKF); *C. Phengklai, M. Tamura, C. Niyomdham & B. Sangkhachand* 4269 (BKF, K, L); *C. Phengklai et al.* 12224 (BKF), 12234 (BKF), 12444 (BKF), 12476 (BKF), 12510 (BKF), 12636 (BKF-2 sheets); *S. Phengnaren* 114 (BKF), s.n. (BKF, K, L); *R. Pooma* 197 (BKF, Herb. Biology, Chiang Mai University); *R. Pooma, W.J.J.O. de Wilde, B.E.E. Dyfjes, V. Chamchumroon & K. Phattarahoirankanok* 3008 (BKF); *Prayad* 330 (BK); *Preecha* 495 (BKF); *A. Ranand* 2 (BKF-2 sheets); *J.F. Rock* 466 (US); *L. Samanvanakit* s.n. (BKF); *P. Sangkhachand* 330 (BK), 518 (BKF, K), 578 (BKF); *T. Santisuk et al.* s.n. (BKF-99400-2 sheets); *K. Setbubpa* 27 (BKF-2 sheets); *T. Shimizu, N. Fukuoka & A. Nalampoon* T-7710 (AAU, BKF, L); *T. Shimizu, H. Koyama & A. Nalampoon* T-10687 (AAU, BKF, K, L); *T. Smitinand & C. Phengklai* 8818 (BKF); *BGO. Staff* 20 (QBG), 1148 (QBG), 7064 (QBG); *V. Sudthsathien* 203 (BCU); *A. Suksamrarn* 4 (BKF); *P. Suvannakoset* 2095 (BKF, E, K, L, P); *O. Thaithong et al.* 247 (BCU-5 sheets); *S. Thaworn et al.* s.n. (BKF); *P. Trisarasri* 489 (BCU); *C.F. van Beusekom & R. Geesink* 3445 (BKF, K, L, P); *C.F. van Beusekom & C. Phengklai* 1232 (AAU, BKF, E, K, L, P); *Vanpruk* 184 (BKF, K), 1009 (BKF, K); *Th. Wongprasert et al.* s.n. (BKF-124306).

6. *Vitex longisepala*: *C.S.S.* 180 (BKF); *C. Charoenphol, K. Larsen & E. Warncke* 3975 (AAU, BKF, P); *R. Geesink,T. Hattink & C. Charoenphol* 6390 (BKF, K, L); *A.F.G. Kerr* 7113 (BK, BM, E, K); *Kiah* 24275 (BK, E); *M.C. Lakshanakara* 634 (E); *K. Larsen & S.S. Larsen* 32697 (AAU, BKF, P); *K. Larsen, S.S. Larsen, A.S. Barford, W. Nanakorn, W. Ueachirakan & P. Sirirugsa* 41740 (AAU); *K. Larsen, S.S. Larsen, C. Niyomdham, W. Ueachirakan & P. Sirirugsa* 42212 (AAU, BKF); *K. Larsen, S.S. Larsen, C. Tange, R. Moran, C. Niyomdham & P. Puudjaa* 45608 (AAU); *C. Leeratiwong* 05-213 (PSU); *J.F. Maxwell* 86-1092 (AAU, BKF, L); *D. Middleton, V. Chamchamroon, S. Lindsay, M. Phuphat & R. Pooma 3508* (BKF); *C. Niyomdham 5805* (BKF-2 sheets); *B. Phusomsaeng & C. Niyomdham* 384 (BKF, L); *T. Premrasmi* 3266 (BKF); *C. Promdej & C. Niyomdham* 295 (BKF, K, L); *S. Pinnin & S.S.* 445 (BKF, K, L, P); *B. Sangkhachand & B. Nimanong* 1245 (BKF, L-2 sheets); *B. Sangkhachand, S. Phusomsaeng & B. Nimanong* 1000 (BKF, L, P); *P. Sangkhachand* 434 (BK), 434*A* (BK), 1241 (BK); *T. Santisuk* s.n. (BKF-2 sheets); *T. Smitinand* 10543 (BKF-2 sheets), 10943 (BKF, L, P), s.n. (BKF).

7. *Vitex negundo*: *Boonnag* 538 (BCU); *G. Congdon* 872 (AAU); *A.F.G. Kerr* 3657 (BK, E), 4286 (BK, BM), 14238 (BK, BM, E, K), 16627 (BK, BM, E, K); *S. Khoomgratok* 99-6 (KKU); *M.C. Lakshnakara* 664 (BK, BM, E, K); *A. Marcan* 263 (BM); *J.F. Maxwell* 85-575 (BKF); *Y. Paisooksantiwatana & S. Sutheesorn* 897-82 (BK), 1023-82 (BK); *Pensaeng* 19 (BCU); *R. Pooma, K. Phattarahirankanom, S. Sirimongkol & M. Poopath 4627* (BKF-2 sheets); *R. Pooma, N. Phattarahrantricin & S. Sirimongkol 6706* (BKF 2-sheets); *Rabil* 55 (BK, BM, E, K); *B. Sangkhachand* 856 (BKF); *Sawai & Rob* 737 (KKU); *T. Smitinand* 40 (BKF), 60 (BKF); *S. Sutheesorn* 1099 (BK); *S. Sutheesorn* & *Y. Palsooksantivatana* 897-82 (BK), 1023-82 (BK); *Winit* 235 (BKF); *Zimmermann* 2 (BM).

8. *Vitex peduncularis*: *Amnat* 110 (BKF), s.n. (BKF); *Anpruk* 300 (BKF); *BGO. Satff* 1 (QBG), 5 (QBG), 547 (QBG), 731 (QBG), 6390 (QBG), 8956 (QBG); *K. Bunchuai* 85 (BKF-2 sheets), 115 (BKF), 125 (BKF), 181 (BKF, K), 613 (BKF, E, P); *K. Bunchuai* & *B. Nimanong* 1352 (BKF), 1359 (BKF, K, L, P), 1467 (AAU, BKF, E, K, P), *K. Chayamarit, T. Santisuk, T. Boonthavikoon, R. Pooma, S. Suddee & K. Phattarahirankanok* 2953 (BKF-2 sheets); *K. Chayamarit, T. Santisuk, T. Wongprasert, T. Boonthavikoon, R. Pooma, S. Suddee & K. Phatarahirankanok* 2953 (BKF-2 sheets); *C. Chermsirivathana* 524 (BK); *Damrongsak* 8 (BKF), s.n. (BKF); *S. Dhamachart* 1 (BKF); *N. Fukuoka* T-62014 (BKF); *Kasem* 344 (BK, BKF); *A.F.G. Kerr* 5275 (BK, BM, K-2 sheets), 10590 (BK, BM, E-2 sheets, K), 21318 (BK, BM), s.n. (BK); *S. Khoomgratok* 96-1 (KKU); *R.M. King* 5461 (L, US); *S. Kopachon* 14361 (Herb. Biology, Chiang Mai University); *A. Kostermans* 813 (BK, K, L-2 sheets, P); *H. Koyama* & *C. Phengklai* T-39034 (BKF); *K. Larsen* 33 (BKF), 677 (BKF); *K. Larsen* & *S.S. Larsen* 33677 (AAU, L, P), 33951 (AAU, BKF, K, L, P); *K. Larsen, T. Santisuk & E. Warncke* 2770 (AAU, L); *C. Leeratiwong* 06-314 (PSU), s.n. (PSU-13425); *J.F. Maxwell* 74-158 (AAU, BK), 75-214 (AAU, BK, L), 75-342 (AAU, BK, L), 76-293 (AAU, BK, L), 87-605 (BKF, L), 88-342 (AAU, BKF, L), 90-572 (E, L), 91-590 (AAU, E, L), 91-639 (E, L, P), 93-332 (L-2 sheets, Herb. Biology, Chiang Mai University), 93-740 (BKF, Herb. Biology, Chiang Mai University, L-2 sheets), 94-386 (Herb. Biology, Chiang Mai University), 96-616 (BKF), 97-400 (BKF, Herb. Biology, Chiang Mai University), 97-578 (BKF, Herb. Biology, Chiang Mai University), 98-593 (BKF), s.n. (BKF); *G. Murata et al.* T-17429 (BKF); *Narong* 8 (BKF); *Native* A33 (US); *S. Nilphanit* 23 (BKF); *B. Nimanong & Sinchai* 184 (BKF-2 sheets), 17429 (BKF); *P. Nuchorn* 10 (BKF); *P. Pasatchasatnukul* 1 (QBG); *P. Phakthup* 36 (BKF); *C. Phengklai* 121 (BKF), 145 (BKF, L), 3031 (BKF, L); *C. Phengklai* & *T. Smitinand* 145 (BKF); *C. Phengklai et al.* 6318 (AAU, BKF-2 sheets, E, K), 6637 (BKF), 7215 (BKF-2 sheets, K, L), 12207 (BKF), 12223 (BKF), 12225 (BKF), 13228 (BKF-2 sheets), s.n. (BKF); *S. Phengnaren* & *C. Hambananda* 609 (BKF, L); *Phrayapananuchon* 10 (BKF); *S. Phusomsaeng* 212 (BKF, K, L); *R. Pooma* 174 (BKF); *R. Pooma, K. Phattarahirankanok, S. Sirimongkol& M. Poopath* 5038 (BKF); *Pradit* 891 (BK); *Prayad* 848 (BK); *Put* 2788 (BK, BM, E, K); *Saikaew* 29 (BKF); *P. Sangkhachand* 76 (BKF, K), 394 (BK), 848 (BK), 979 (BKF-2 sheets, K, L), s.n. (BKF); *Sanoh 461* (BKF); *T. Santisuk* s.n. (BKF), s.n. (BKF-2 sheets); *Sawai & Rob* 728 (KKU); *T. Shimizu, H. Koyama & M. Hutoh* T-8785 (BKF), T-10445 (AAU, BKF, K, L), 10495 (L);

Singhatsathit 466 (BKF); *D. Skunawong* 13 (BKF); *T. Smitinand* 2673 (BKF), 2746 (BKF); *Th. SØrensen, K. Larsen & B. Hansen* 956 (E), 2642 (BKF, BM); *Th. SØrensen et al.* s.n. (BKF-3 sheets); *S. Sutheesorn* 253 (BK), 453 (BK), 2382 (BK); *Suvaranasara* 43 (BKF); *TDBS* 1307 (BKF), 2642 (BKF); *H. Takahashi* T-62654 (AAU, L); *Thammaburt* 3 (BKF-2 sheets); *S. Thaworn* 171 (BKF); *Tippan* 253 (BK); *P. Trisarasri* 217 (BCU); *C.F. van Beusekom & C. Phengklai* 1307 (BKF, P); *M. van de Bult* 778 (BKF); *Vanpruk* 102 (BKF), 107 (BKF), 300 (BKF); *S. Vessabutr, S. Saairt & Norsar* 835 (QBG); *S. Wattana* 94 (QBG), 303 (QBG); *Winit* 255 (E); *Th. Wongprasert* 433 (BKF-2 sheets).

9. *Vitex pinnata*: *B.S.* 870 (BKF); *M. Banternsuk* 13 (US); *S. Boongird* 22 (BKF, US); *C. Boonnab* 5 (BKF), 157 (BKF), 251 (BKF), 255 (BKF), 391 (BKF); *S. Boontim* s.n. (KKU-1814); *K. Bunchuai* 1022 (BKF, K, L), 1926 (BKF); *Bunnak* 727 (BKF), 3037 (BKF-2 sheets); *D. Bunpheng* 49 (BKF), 439 (BKF, K), 982 (BKF); *S. Chadchawan* 3 (BCU-3 sheets); *C. Chai-anan* 426 (BKF); *P. Chantaranothai et.al.* 1836 (KKU), s.n. (KKU-8710), s.n. (KKU-9665); *K. Chayamarit, R. Pooma, V. Chamcumrron, K. Phattarahirankanok & D.J. Middleton* 2700 (BKF-2 sheets); *C. Chermsirivathana & Kasem* 1311 (BK); *N. Chintana* 25 (BKF-4 sheets); *D.J. Collins* 186 (BK, E, L); *G. Congdon* 30 (AAU), 211 (AAU), 716 (AAU); *Damrongsak* 15 (BKF, L-3 sheets), 86 (BKF), 403 (BKF), s.n. (BKF); *Dee* 49 (BKF); *N. Fukuoka* & *W. Nanakorn* T-35877 (BKF); *N. Fukuoka, T. Santisuk & W. Nanakorn* T-35928 (BKF, L); *Fung* s.n. (BKF); *S. Gardner* ST0105 (BKF), ST0130a (BKF); *S. Gardner & P. Sidisunthorn* ST0558 (BKF), ST0717 (BKF); *R. Geesink* & *C. Boonnab* 157 (BKF); *R. Geesink, T. Hattink & C.C. Charoenphol* 7294 (AAU, BKF, K, L); *R. Geesink* & *T. Santisuk* 4992 (AAU, BKF, E, L); *R. Geesink et al.* 7294 (BKF, K, P), 7491 (BK); *Hamilton* & *G. Congdon* 211 (BCU, BKF); *B. Hansen & T. Smitinand* 12186 (BKF, K, L-2 sheets); *Herb. Trip* 11 (BCU); *P. Intrasirirak* 4341 (L); *Jaray* 33 (BK); *W. Kasonbua* 93 (KKU); *A.F.G. Kerr* 6893 (BK, BM, E-2 sheets, K), 7491 (BK, BM, E-2 sheets, K), 10885 (BK, BM, E, K), 11132 (AAU, BK, BM, K, L), 11389 (AAU, BK, BM, E, K), 13875 (BK, BM, E, K), 17085 (BK, BM, E, K); *S. Khoomgratok* 97-2 (KKU); *R.M. King* 5422 (US), 5499 (L, US-2 sheets); *M.C. Lakshnakara* 611 (BK, BM, E, K); *K. Larsen* 10029 (BKF); *K. Larsen, S.S. Larsen, A.S. Barford, W. Nanakorn, W. Ueachirakan & P. Sirirugsa* 41029 (AAU), 41262 (AAU); *K. Larsen, S.S. Larsen, C.T. NØrgaard, K. Phasen, P. Puudjaa & W. Ueachirakan* 43926 (AAU); *K. Larsen, T. Smitinad & E. Warncke* 1571 (AAU, BKF, L, P); *K. Larsen, S.S. Larsen, I. Nielsen & T. Santisuk* 30645 (AAU, BKF, E, L, P), 31756 (AAU, BKF, E), s.n. (PSU); *K. Larsen, S.S. Larsen, S.S. Renner, C. Niyomdham, W. Ueachirakan & P. Sirirugsa* 42815 (AAU, P), 43015 (AAU, BKF), 43052 (AAU, P); *S. Mattapha* 248 (KKU); *J.F. Maxwell* 71-273 (AAU, BK), 71-401 (AAU, BK, L), 73-377 (AAU, BK), 73-518 (AAU, BK), 73-686 (AAU, BK), 75-861 (AAU, BK, L), 76-357 (AAU, BK, L), 76-565 (AAU, BK, L), 93-393 (BKF, Herb. Biology, Chiang Mai University), 93-1021 (L, Herb. Biology, Chiang Mai University), 95-393 (BKF, L); *D.J. Middleton & W. Sangkamethawee* 228 (BKF); *D.J. Midleton, S. Suddee & C. Hemrat* 1312 (BKF), 1512 (BKF, K): *Mitri* 13 (BKF); *T. Madsub* 55 (PSU); *G. Murata, N. Fukuoka & C. Phengklai* T-17576 (BKF, L), T-17627 (AAU, BKF, K, L-2 sheets); *G. Murata, C. Phengklai, S. Mitsuta, N. Fukuoka, T. Yahara, H. Nagamasu & N. Nantasan* T-37401 (BKF), T-37450

(AAU, BKF), T-37497 (BKF), T-41838 (BKF), T-49765 (BKF), T-50554 (BKF), T-50558 (BKF), T-50770 (BKF), T-50849 (BKF), T-51147 (BKF), T-51152 (BKF); *D. Nakkan* 170 (BKF-4 sheets); *W. Nanakorn* 628 (BKF-2 sheets); *M. Newman* 46 (BKF, L); *Ng* 1066 (BKF); *P. Nitrasirirak* 431 (BKF, K, P); *C. Niyomdham* 599 (BKF-2 sheets), 576 (BKF-2 sheets); *C. Niyomdham, B. Sangkhachand, M. Suangto & O. Vijitranand* 204 (AAU, BKF, K*)*, 1565 (BKF, E, K); *C. Niyomdham* & *D. Sriboonma* 1565 (AAU, BKF, K, L, P); *A. Paungsaap* 17 (BCU); *C. Phengklai* 941 (BKF); *C. Phengklai et al.* 230 (L), 12081 (BKF), 12378 (BKF), 12408 (BKF), 13074 (BKF-2 sheets), 13245 (BKF), 13731 (BKF), 15388 (BKF), 15678 (BKF); *S. Phengnaren* 400 (BKF, L); *S. Phusomsaeng* 31 (BKF, L, P); *S. Phusomsaeng et al.* 1591 (BKF-2 sheets, K, L); *Ploenchit* 1621 (BKF), 2160 (BKF); *Pochanart* 431 (BKF-2 sheets); *R. Pooma, V. Chamchumroon & K. Phattarahirankanok* 1930 (BKF-2 sheets); *R. Pooma, W.J.J.O. de Wilde, B.B.E. Dyfjes, V. Chamchumroon & K. Phattarahirankanok* 2369 (BKF-2 sheets), 2426 (BKF-2 sheets); *R. Pooma, K. Phattarahirankanok & S. Sirimongkol* 4718 (BKF-2 sheets); *R. Pooma, N. Pattharahirantricin & S. Sirimongkol* 6504 (BKF); *Pradit* 63 (BK), 223 (BK), 478 (BK), 509 (BK); *D. Prapat* 15 (L); *C. Promdej, Samruay & Sakarin* 230 (BKF-2 sheets, K, P); *Put 56* (BKF-2 sheets), 249 (BKF-2 sheets), 338 (BKF), 854 (BK, BM, E, K), 894 (AAU, L), 1258 (BK, BM, E, K), 4273 (BK, BM, E, K); *P.N. & S.S.* 410 (BKF-2 sheets); *QBG staff* 5 (QBG); *Rabil* 21 (AAU, BK, BM, E, K), 80 (BK, BM, K), 243 (AAU, BK, BM, E, K, L); *Sa-ard* 22 (BKF); *Sanan* 347 (BKF), 582 (BKF), 647 (BKF); *B. Sangkhachand* 7 (BKF), 35 (BKF), 140 (BKF, K, L), 290 (BKF, K), 331 (BKF, K), 478 (BK), 654 (BK), 727 (BKF); 870 (AAU, BKF, K, L), 962 (BKF-2 sheets, K), 1049 (BKF, K, L, P), 1125 (BKF, K-2 sheets, P), 1371 (BK), 1377 (BKF, E, K, L, P), 1559 (AAU, BKF, E, K, L, P), 1743 (BK), 1971 (BK), 2160 (BKF), 3037 (L, P); *B. Sangkhachand* 3037 (E); *B. Sangkhachand* & *B. Nimonong* 1233 (BKF, L); *Sanoh* 582 (BKF), s.n. (BKF); *T. Santisuk* 1252 (BKF-2 sheets); *T. Santisuk* & *B. Nimanong* 376 (BKF, E, K, L, P); *T. Shimizu, T. Toyokuni, H. Koyama, T. Yahara & T. Santisuk* T-18006 (AAU, BKF, P); *T. Shimizu* & *A. Nalampoon* T-14663 (AAU, BKF, L); *A. Sinbumroong & S. Davies* 54 (BKF); *Sindniphona* 70 (BKF); *E. Smith* 304 (BK); *T. Smitinand* 807 (BKF), 1414 (BKF), 2818 (BKF), 2968 (BKF), s.n. (BKF); *D.D. Soejarto, T. Santisuk, K. Taylor & N. Nantassan* 5885 (BKF, L), 5888 (BKF); *T. Sriburi* 7 (BKF); *F. Srisanit* s.n. (BKF); *BGO Satff* 68 (QBG), 1580 (QBG), 3383 (QBG), 8413 (QBG); *Students* s.n. (PSU); *S. Suddee, A. Paton, T. Jonganurak & V. Chamchumroon* 981 (K), 993 (K), 996 (K); *B. Sukkri* 7 (BCU); *A. Suksamran* s.n. (BKF); *S. Sutheesorn* 581 (BK), 685 (BK), 1053 (BK), 1216 (BK), 3389 (BK); *S.N.* 400 (BKF); *S.P. et al.* 1591 (BKF); *S. Thaworn* s.n. (BKF); *W. Thephuttee et al.* 82 (BCU-2 sheets); *P. Tippayasri* ST0949 (BKF); *Thoen* 29 (BKF); *P. Trisarasri* 337 (BCU), 362 (BCU); *TDBS* 10029 (BKF), 42186 (BKF); *Th. Wongprasert et al.* s.n. (BKF-124620-2 sheets), s.n. (BKF-124541-2 sheets), s.n. (BKF-124680-2 sheets); *Vacharee* 68 (BK); *C.F. van Beusekom* s.n. (BKF); *C.F. van Beusekom* & *C. Phengklai* 651 (AAU-2 sheets, BKF, E, K, L, P); *C.F. van Beusekom* & *T. Santisuk* 2781 (AAU, BKF, E, L, P); *Vanpruk* 607 (BKF, K); *Yasothorn* 46 (BKF).

10. ***Vitex quinata***: *Adisai* 481 (BK); *K. Bunchuai* 76 (BKF, K); *K. Chayamarit et al.* 161 (BKF); *D.J. Middleton, P. Karaket, S. Lindsay, T. Phutthai & S. Suddee* 4708 (K); *H.H.*

Chung 8 (BK), 298 (BK); *G. Congdon* 1145 (AAU, PSU); *W. Foreh* 373 (BK); *S. Garner* 5162 (Herb. Biology, Chiang Mai University), 5163 (Herb. Biology, Chiang Mai University); *H. Hoe* 201 (BK); *Jaray* 14 (BK); *B. Jittahmmah* 154 (Herb. Biology, Chiang Mai University); *Kasem* 357 (BK); *A.F.G. Kerr* 4752 (BK, BM, E), 8612 (BK, BM), 19115 (BK), 20503 (BK, BM), 21441 (BK, BM), s.n. (BK); *KK* 483 (BCU), 985 (BCU); *S. Kopachon* 5162 (Herb. Biology, Chiang Mai University); *M.C. Lakshnakara* 886 (BK, BM), 1304 (BK); *K. Larsen* & *S.S. Larsen* 33443 (AAU, BKF, K, P); *K. Larsen, S.S. Larsen, I. Nielsen & T. Santisuk* 31186 (AAU, BKF, L, P); 31220 (AAU, BKF, E, L, P), s.n. (PSU); *K. Larsen, S.S. Larsen, C. Niyomdham, P. Sirirugsa, D.D. Tirvengadum & C.T. NØrgaard* 43217 (AAU); *K. Larsen, S.S. Larsen, C. Tange & D. Sookchaloem* 46558 (AAU); *J.F. Maxwell* 73-720 (AAU, BK), 74-697 (AAU, BK), 76-318 (BK), 85-469 (BKF, E), 85-796 (L), 89-1189 (E), 89-1378 (E, L-2 sheets), 90-877 (AAU), 91-637 (E, L), 93-783 (BKF-2 sheets, L-2 sheets, Herb. Biology, Chiang Mai University), 94-405 (L, Herb. Biology, Chiang Mai University), 96-598 (BKF, Herb. Biology, Chiang Mai University), 96-628 (BKF, Herb. Biology, Chiang Mai University), 96-1001 (BKF, Herb. Biology, Chiang Mai University), 96-1170 (BKF, Herb. Biology, Chiang Mai University), 97-1288 (BKF), 98-678 (BKF, L); *G. Murata, C. Phengklai, S. Mitsuta, T. Yahara, H. Nagamasu & N. Nantasan* T-51200 (BKF); *P. Nitrasirirak 431* (AAU, E); *C. Niyomdham, P. Phudjaa & S. Chonkunjana* 6299 (BKF-2 sheets); *C. Niyomdham, B. Sangkhachand, M. Suangto & O. Vijitranand* 193 (AAU, BKF, E, K, L, P); *Pochanart* 431 (BKF-2 sheets), 831 (BKF); *R. Pooma* 478 (BKF, Herb. Biology, Chiang Mai University); *Pradit* 381 (BK); *Put* 118 (BK, BM), 992 (BK, BM, E, K), 1507 (BK, BM, E, K), 3803 (BK, BM, E); *P. Puudjaa* 1395 (BKF-2 sheets), 1190 (BKF-2 sheets); *B. Sangkhachand* 458 (BKF), 1037 (BKF, L); *B. Sangkhachand, S. Phusomsaeng & B. Nimanong* 1108 (BKF); *T. Santisuk* 6862 (BKF); *T. Smitinand* 1653 (BKF), 2295 (BKF), 2551 (BKF), 2819 (BKF), 90-261 (BKF-2 sheets), s.n. (BKF-111009-2 sheets); *W. Sidajium* 15 (BKF); *T. Smitinand & H. Sleumer* 8372 (K, L), 1030 (BKF, K), s.n. (BKF); *T. Smitinand* 1653 (BKF), 2295 (BKF), 2819 (BKF), 90-261 (BKF), s.n. (BKF); *BGO. Satff* 4470 (QBG), 7019 (QBG); *S. Thaworn* 452 (BKF); *Tippan* 133 (BK); *C.F. van Busekom* & *C. Phengklai* 1320 (BKF, E, K, L, P); *C. Vorakit* 1 (BKF); *Winit* 1378 (BK, BKF).

11. ***Vitex rotundifolia***: *Adisai* 991 (BK); *D. Bourcke* s.n. (BK, E, K); *P. Chantaranothai et al.* s.n. (KKU-8729); *C.C. Charoenphol, K. Larsen & E. Warncke* 3427 (AAU); *CN. Fukuoka* T-14654 (BKF, K); *N. Fukuoka* & *H. Koyama* T-62026 (BKF); *Hamilton* & *G. Congdon* 119 (AAU, BCU, BKF); *Jaray* 116 (BK); *A.F.G. Kerr* 16127 (BK, BM); *S. Khoomgratok* 99-7 (KKU); *M.C. Lakshnakara* 78 (BK-2 sheets, BM, E-2 sheets); *K. Larsen, T. Smitinand & E. Warncke* 1246 (AAU), 1321 (BKF); *K. Larsen & S.S. Larsen* 33723 (AAU, P); *A. Marcan* 2262 (E); *D.J. Middleton, M. Phupat, R. Pooma & K. Williams* 3220 (BKF); *C. Niyomdham et al.* 274 (AAU, BKF, E, K, P); *S. Phengharen* 201 (BKF, K); *C. Phengklai* 801 (BKF); *P. Rungsiyanonda* 8 (BCU); *B. Sangkhachand* 1118 (BKF, K, P); *T. Smitinand* 1458 (BKF); *BGO. Satff* 3595 (QBG), 3620 (QBG); *A. Suksamrarn* 8 (BKF); *S. Surawakin* 6 (BCU); *S. Sutheesorn* 220 (BK), 2023 (BK-2 sheets); *O. Thaithong* 1044 (BCU); *Umpai* 42 (BK); *Viroj* s.n. (PSU); *Winit* 142 (BKF); *Th. Wongprasert et al.* s.n. (BKF-123082-2 sheets).

12. ***Vitex scabra***: *Adisai* 481 (BK); *Asa* s.n. (BKF); *BGO Satff* 6521 (QBG); *Bot2537* 19 (BCU):*K. Bunchuai* 1671 (BKF, K, L); *D. Bunpheng* 107 (BKF), 1148 (BKF), s.n. (BKF); *D.J. Middleton, S. Suddee, J.S. Davies & C. Hemrat* 1102 (P); *P. Charoenmayu* 386 (BKF); *V. Chamchumroon & C. Puff* 1177 (BKF-2 sheets); *P. Chantaranothai, D. Middleton, J. Parnell & D. Simpson* 1116 (K, KKU); *P. Chantaranothai et al.* 327 (KKU), 407 (KKU); *Damrongsak* 38 (BKF), 61 (BKF), 95 (BKF), 563 (BKF); *Dee* 107 (BKF), 1148 (BKF); *Din* 35 (BKF); *N. Fukuoka* T-36197 (BKF), s.n. (BKF); *N. Fukuoka & A. Nalampoon* T-7641 (BKF); *M. Greijmans* 56 (BKF); *S. Indrapong, Sakarin & Aditep* 149 (AAU, BKF-2 sheets, K, L, P); *Kasem* 357 (BK); *A.F.G. Kerr* 8612 (BK, BM, E, K), 10637 (BK, BM, E, K), 16211 (BK, BM, E, K), 19519 (BK, BM, E, K), 20503 (BK, BM, E, K), 21441 (BK, E); *S. Khoomgratok* 97-4 (KKU); *A. Kostermans* 1358 (L-2 sheets); *M.C. Lakshnakara* 886 (BK, BM, E), 1304 (BK, BM, K); *K. Larsen* & *S.S. Larsen* 34054 (AAU, BKF, P): *K. Larsen* & *T. Smitinand* 9835 (BKF); *K. Larsen, T. Santisuk & E. Warncke* 1935 (E), 3273 (AAU, BKF, L); *K. Larsen, T. Smitinand & E. Warncke* 1385 (AAU, BKF); *C. Leeratiwong* 04-93 (KKU): *A. Marcan* 736 (BM), 2657 (BM, K); *J.F. Maxwell* 76-318 (AAU, BK, L); *D.J. Middleton, C. Hemrat, S. Lindsay, S. Suddee & S. Suwanachat* 1702 (BKF); *D.J. Middleton, S. Suddee, S.J. Davies & C. Hemrat* 954 (BKF), 1102 (BKF); *D.J. Middleton, S. Suddee & C. Hemrat* 1309 (BKF); *Nai Noe* 201 (BK, BM, E, K); *Narong* s.n. (BKF); *C. Niyomdham* 4930 (BKF-2 sheets), 5089 (BKF); *V. Phadungehevit* 24 (BCU); *C. Phengklai* s.n. (BKF); *C. Phengklai et al.* 12247 (BKF-2 sheets); *S. Phengnaren* 153 (BKF), 437 (BKF), 478 (BKF, K), s.n. (BKF); *R. Pooma* 1543 (BKF-2 sheets), 1661 (BKF); *R. Pooma, V. Chamchumroon, N. Koonkhunthod & P. Chantaboon* 3492 (BKF-2 sheets); *R. Pooma, K. Phattarahirankanok, S. Sirimongkol & M. Popath* 4087 (BKF, K); *R. Pooma, W.J.J.O. de Wilde, B.B.E. Dyfjes, V. Chamchumroon & K. Phattarahirankanok* 2467 (BKF-2 sheets), 2529 (BKF-2 sheets), 2768 (BKF-2 sheets); *C. Promsakha* 5 (BCU); *Put* 118 (BK, E, K), 2841 (BK, BM, E, K); *B. Sangkhachand* 53 (BKF, K), 964 (BKF, L); *T. Santisuk* s.n. (BKF); *T. Shimizu, N. Fukuoka & A. Nalampoon* T-7598 (AAU, BKF, L), T-7641 (BKF, L); *T. Smitinand* 1478 (BKF), 2551 (BKF, K), 4859 (BKF, K), s.n. (BKF); *T. Smitinand & C. Phengklai* 8829 (AAU, BKF); *T. Smitinand & T. Santisuk* s.n. (BKF-71090-2 sheets); *Somruay, Sakern & Aditep* 149 (BKF); *D.D. Soejarto & N. Nantasan* 6058 (AAU, L); *Th. SØrensen et al.* s.n. 118 (BKF-2 sheets); *V. Sudthsathien* 137 (BCU); *A. Suksamrarn* 7 (BKF); *S. Sutheesorn* 453 (BK); *P. Suvarnakoses* 1430 (BKF, K); *S. Thaworn et al.* s.n. (BKF); *P. Trisarasri* 253 (BCU); *Vanpruk* 941 (BKF); *Winit* 546 (E), 566 (BKF, E, K); *Th. Wongprasert* s.n. (BKF-99404-2 sheets).

13. ***Vitex siamica***: *Adisai* 950 (BK); *P. Chantaranothai et al.* s.n. (KKU-9590); *G. Congdon* 733 (AAU); *N. Fukuoka* T-35842 (BKF); *S. Gardner & P. Tippayasri* ST1190 (BKF-2 sheets); *A.F.G. Kerr* 10948 (BK, BM, E, K), 13175 (BK, BM, E, K), 16948 (BK), 17317 (BK, BM, E, K), 18775 (BK, BM, E, K), 18923 (BK, BM, E, K); *K. Larsen, T. Smitinand & E. Warncke* 1238 (AAU, BKF); *K. Larsen & S.S Larsen* 33677 (BK, K); *J.F. Maxwell* 86-398 (AAU, BKF, L, PSU); *D.J. Middleton, S. Suddee, S.J. Davies & C. Hemrat* 1163 (K); *C. Niyomdham* 1258 (AAU, BKF, E, K, P), 3000 (BKF-2 sheets); *C. Phengklai* 1258

(L); *Put* 1025 (BK, BM, E), 1378 (BK, BM, E), 1507 (K), 1643 (BM, E), 4149 (BK, BM, E); *R. Pooma, C. Chaemchumroon, N. Konkhunthod & P. Chantaboon* 3608 (BKF); *Rabil* 307 (BK, BM, E, K); *B. Sangkhachand* 1073 (BKF, K, L); *T. Shimizu, N. Fukuoka & A. Nalampoon* T-8053 (AAU, BKF, L), T-8106 (L), T-8121 (L); *P. Sidisunthorn* ST1784 (BKF-2 sheets); *P. Sidisunthorn & S. Setsin* ST0770 (BKF-2 sheets); *T. Smitinand & H. Sleumer* 1157 (BKF, K); *S. Sutheesorn* 1121 (BK); *Tippan* 253 (BK); *UNESCO* 1157 (BKF).

14. *Vitex thailandica*: *H.-J. Esser, K. Chayamarit, C. Ngernsangsaruay, K. Phattarahirankanok & P.C. van Welzen*98-19 (K); *A.F.G.Kerr* 7002 (K), 19329 (K); *A. Marcan* 1004 (K); *Put* 2573 (K).

15. *Vitex trifolia*: *Adisai* 991 (BK); *Asa* s.n. (BKF); *P. Boonma* s.n. (BKF); *Bunnag* 538 (BK); *D. Bunpheng* 1134 (BKF, K); *Chit* 275 (BKF); *D.J. Collins* s.n. (BK); *G. Congdon* 1005 (AAU), s.n. (PSU); *Din* 149 (BKF), 287 (BKF); *J.K. Jackson* 6113 (BKF); *Jaray* 116 (BK); *Khantchai* 85 (BKF), 122 (BKF); *A.F.G. Kerr* 4662 (BK); *S. Khoomgratok* 97-5 (KKU); *Lung Ai* s.n. (BK); *Noi Mao* s.n. (BK); *A. Marcan* 1907 (E), 2109 (E); *D. Nakkan* 2 (BKF), 287 (L); *W. Nanakorn* 218 (BKF); *B. Nasongkhla et al.* 203 (BCU-2 sheets), 224 (BCU-2 sheets); *C. Niyomdham* 2012 (BKF); *C. Phengklai* 801 (BKF, K); *C. Phengklai et al.* 11961 (BKF), 15193 (BKF); *S. Phengnaren* 201 (BKF); *R. Pooma* 120 (BKF), s.n. (BKF); *Rabil* 55 (BK, BM, E, K); *Singhatsathai* 163 (BKF); *T. Smitinand* s.n. (BKF); *Somnuk-Nipawan* s.n. (BCU); *BGO. Satff* 6882 (QBG); *A. Suksamran* 9 (BKF); *P. Suvarnakoses* 1056 (BKF, K); *Umpai* 42 (BK); *Vanpruk* 448 (BKF); *M. Widmer* 0086 (BKF).

16. *Vitex vestita*: *BGO. Satff* 1851 (QBG), *4763* (QBG); *Bunnak* 20 (BKF); *D. Bunpheng* 864 (BKF, K); *V. Chamchumroon & C. Puff 1092* (BKF); *K. Chayamarit et al.* 1681 (BKF); *B. Hansen, G. Seidenfaden & T. Smitinand* 10808 (AAU, BKF); *Herb. Trip* 560 (BCU); *K. Iwatsuki & N. Fukuoka* T-3565 (BKF); *A.F.G. Kerr* 6238 (BK, BM, E, K); *K. Larsen & B. Hansen* 5209 (BKF); *K. Larsen, S.S. Laren, I. Nielsen & T. Santisuk* 31575 (AAU); *K. Larsen, T. Santisuk & E. Warncke* 1935 (AAU, L); *C. Leeratiwong* 2001-11 (PSU); *Loei* s.n. (BKF-2003); *J.F. Maxwell* 72-514 (AAU, BK), 73-232 (AAU, BK), 91-697 (AAU, E), 93-1129 (L, Herb. Biology, Chiang Mai University), 93-1189 (BKF), 98-653 (BKF), 98-1422 (BKF); *G. Murata, N. Fukuoka & C. Phengklai* T-17428 (AAU, BKF, K, L), T-17429 (AAU, BKF, K, L-2 sheets), T-17473 (AAU, BKF, K, L); *S. Nilphanit* 35 (BKF); *Y. Paisooksantiwatana & T. Chuaycharoen* 646-81 (BK); *O. Petrmitr* 462 (BKF); *R. Pooma, K. Phattarahirankanok, S. Sirimongkol & M. Popath* 4600 (BKF), 4627 (BKF, K); *Sawai* 1036 (KKU); *J. Schmidt* 434 (K); *T. Shimizu, H. Toyokuni, H. Koyama, T. Yahara & C. Niyomdham* T-22100 (BKF); *T. Smitinand* 2645 (BKF); *T. Smitinand & H. Sleumer* 1019 (BKF); *Th. SØrensen, K. Larsen & B. Hansen* 5209 (BKF, K); *M. Tagawa, K. Iwatsuki, H. Koyama, N. Fukuoka, A. Nalampoon & A. Chintayungkun* T-9094 (AAU, BKF, K, L), T-9130 (BKF, L), T-9295 (AAU, BKF, K. L-2 sheets); *M. Tagawa, T. Shimisu, M. Hutoh, H. Koyama & A. Nalampoon* T-9933 (BKF); *TDBS* 5209 (BKF), 10808 (BKF); *B. Sangkhachand* 348 (BKF, E, K, L, P); *K. Suvatabhandhu* 346 (L-2

sheets, P); *S. Suddee, A. Paton, T. Jonganurak & V. Chamchumroon* 943 (K); *S. Suddee & P. Puujaa* 1100 (K); *C.F. van Beusekom, R. Geesink, C. Phengklai & B. Wongwan* 4320 (BKF, K, L, P); *Th. Wongprasert* 997-153 (BKF-130026-2 sheets), s.n. (BKF-128942-2 sheets); *U. Yindee* 1 (KKU).