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A revision of the genus *Litsea* Lam. (Lauraceae) in Thailand

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ABSTRACT. A taxonomic revision of the genus *Litsea* in Thailand is presented. Thirty-five species of Thai *Litsea* are included in this treatment. A key to the species is presented, nomenclatural information is provided, all names are typified, and all species are described. Distribution and ecological data as available are provided.

INTRODUCTION

Litsea is one of the largest genera in the family Lauraceae, the species of which form an important component of tropical forests. It is estimated that there are over 300 species, mostly in tropical Asia but with a few species in the islands of the Pacific, Australia and in North and Central America (Van der Werff, 2001). The most significant recently published regional revisions are for China with 74 species (Huang et al., 2008) and Nepal with 11 species (Pendry, 2011).

In Thailand, there are few references on this genus and a taxonomic revision of the genus has not been done. In the previous studies *Smitinand* (1980) listed botanical and vernacular names of 19 species of *Litsea* in Thailand and the Forest Herbarium, Royal Forest Department (2001) listed 22 species in an update of the same publication. Five new records for Thailand were published by Ngernsaengsaruay et al. (2005). However, for the most part *Litsea* in Thailand is still poorly known and the actual number of species in Thailand has not been properly documented. Therefore, we present a taxonomic revision of the genus *Litsea* in Thailand.

GENERAL MORPHOLOGY

1. Habit

Thai *Litsea* species are mostly small to medium-sized trees, or occasionally shrubs. The trees can be divided by height into 3 groups as follows: small trees (3–10 m), medium-sized trees (10–20 m) and large trees (20–30 m).

A shrubby habit is found in *Litsea phuwuaensis* (0.5–2.5 m). *Litsea hirsutissima* (1–5 m), *L. lancifolia* (2–8 m), *L. mollis* (1.5–6 m) and *L. nuculanea* (2–5 m) can be shrubs or small trees. *Litsea umbellata* (1–13 m) ranges from being a shrub to a medium-sized tree.

Litsea hookeri (8 m), *L. johorensis* (3–8 m), *L. kerrii* (8 m), *L. kurzii* (5–8 m), *L. pseudo-umbellata* (4–8 m), *L. tomentosa* (8 m) and *L. variabilis* (3–8 m) are all small trees.

Litsea beusekomii (3–12 m), *L. cubeba* (4–15 m), *L. glutinosa* (4–15 m), *L. laeta* (3–15 m), *L. martabanica* (3–12 m), *L. membranifolia* (6–15 m), *L. monopetala* (5–20 m), *L. myristicaefolia* (6–20 m), *L. pseudo-elongata* (3–12 m), *L. semecarpifolia* (5–12 m) and *L. verticillata* (3–12 m) are small to medium-sized trees.

Litsea cordata (15–20 m), *L. firma* (15–20 m), *L. ochracea* (10–20 m) and *L. resinosa* (10–20 m) are medium-sized trees.

Litsea elliptica (10–30 m), *L. grandis* (10–25 m), *L. khasyana* (12–30 m), *L. pierrei* (15–30 m) and *L. punctulata* (15–25 m) are medium to large-sized trees.

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Litsea castanea (20–30 m) and *L. machilifolia* (20–30 m) are large trees.

In Malaysia, Kochummen (1989) reported that *Litsea elliptica*, *L. firma*, *L. cordata* and *L. castanea* are large trees reaching 45, 42, 36 and 33 m tall, respectively and that *Litsea grandis*, *L. resinosa*, *L. ochracea*, *L. myristicaefolia* and *L. tomentosa* are medium-sized trees reaching 30, 30, 28, 27 and 27 m tall, respectively. All of these records are taller than Thai *Litsea* of the same species.

In Malaysia, *Litsea tomentosa* is reported to be a medium-sized tree to 27 m tall (Kochummen, 1989). During a field trip in May 2004, the first author found this species in Khao Luang National Park, Nakhon Si Thammarat Province, with only one male plant. It is a small tree 8 m tall.

In Malaysia, *Litsea johorensis* is a shrub or small to medium-sized tree to 18 m tall (Kochummen, 1989), but in Thailand, it is a small tree 3–8 m tall.

In Thong Pha Phum, Kanchanaburi Province, *Litsea kurzii* is a small tree 5–8 m tall, usually growing along streams and with stilt roots.

2. Bark

The bark of *Litsea* species is usually smooth, lenticellate or not (bark smooth to cracking and scaly in *L. grandis*), greyish brown, grey, reddish brown, dark brown, brown, whitish (*L. johorensis*), green turning greyish brown or grey (*L. cubeba*).

3. Terminal buds

The terminal buds are usually eperulate, except in *Litsea* khasyana, *L. pseudo-elongata* and *L. verticillata* which have perulate buds (terminal buds bearing scales). The scales usually fall off when the buds elongate.

4. Leaves

The leaves are simple, spirally arranged (some species crowded towards the apex of branchlets, e.g. *Litsea grandis*, *L. johorensis*, *L. membranifolia* and *L. tomentosa*), rarely opposite or subopposite (*L. lancifolia*), or subverticillate (*L. verticillata*), and usually aromatic when crushed.

Large variation in leaf size and shape is commonly seen in *Litsea glutinosa*, *L. lancifolia*, *L. umbellata* and *L. variabilis*. The blade is obovate, obovate-oblong, obovate-lanceolate, elliptic, broadly elliptic, oblong, lanceolate, elliptic-oblong, oblong-lanceolate, ovate, broadly ovate, ovate-oblong or ovate-lanceolate, with definitions based on ratio (length:width) from The Royal Institute (1998). The apex is acuminate, acute, caudate, obtuse, cuspidate or retuse. The base is cuneate, oblique, slightly oblique, obtuse, or rarely cordate (*L. cordata*). The margin is usually entire and some species always have a ciliate margin (i.e. *L. hirsutissima*, *L. kurzii*, *L. phuwuaensis* and *L. tomentosa*). In some species the margin is ciliate but becoming glabrous (i.e. *L. membranifolia* and *L. mollis*), and in some the margin is ciliolate, partly ciliolate, or sometimes glabrous (*L. glutinosa*). The texture is chartaceous to coriaceous, or thinly chartaceous (*L. membranifolia*) or thickly coriaceous (*L. grandis*). The leaves are green or dark green usually turning yellow before falling off, usually glaucous, slightly glaucous or not glaucous beneath, glabrous, glabrescent or sparsely hairy above or hairy on midrib and secondary veins above, hairy, glabrescent or glabrous beneath, glabrous or hairy on both surfaces, some species lepidote beneath (covered with small, scurfy scales, i.e. *L. castanea* and *L. firma*). Leaves which turn black when dry can be seen in *L. cubeba*, *L. mollis* and *L. machilifolia*.

A petiole is always present, 0.2–3(–4.5) cm in length. In some species it can be quite long, up to 4.5 cm (i.e. *Litsea grandis* 2–4.5 cm), while in others it can be quite short, usually not more than 1 cm (e.g. *L. verticillata* 0.2–1 cm, *L. phuwuaensis* 0.3–1 cm, *L. pseudo-elongata* 0.3–1 cm, *L. variabilis* 0.5–1 cm, *L. hirsutissima* 0.5–1 cm, *L. lancifolia* 0.2–1(–1.5) and *L. umbellata* 0.3–1(–1.5)). The petiole is hairy, glabrescent or glabrous. The petiole of *L. johorensis* is usually swollen at the base and densely reddish brown pubescent.

The midrib is sunken, shallowly sunken or flattened above. It is always raised beneath. The midrib of *Litsea glutinosa* and *L. mollis* is flattened or slightly prominent above. The secondary veins consist of (3–)4–16(–22) pairs. In *L. johorensis* there are 12–22 pairs whilst in *L. mollis* there are only 3–7 pairs and in *L. elliptica* 4–7 pairs. The tertiary veins are scalariform-reticulate, reticulate, scalariform-finely reticulate, and finely reticulate.

5. Inflorescences

The inflorescences are umbellate, consisting of umbel-bearing reduced branchlets, a cluster of umbels, or with the appearance of a short or long raceme of umbels, or sometimes the umbel is solitary. They are in the axils of leaves or along branchlets. Sometimes they are at the apex of branchlets or rarely they are cauliflorous (*L. johorensis*). The male inflorescences are often longer than the female of the same species.

The stalked umbels are attached to short, reduced branchlets on which the leaves are reduced to scales; towards the top of the branches these flower-bearing branchlets may be reduced almost completely and the stalked umbels appear to be clustered in the leaf-axils; further down the branches the flower-bearing branchlets become gradually longer (Kostermans, 1995).

Van der Werff (2001) reported that the shortshoots bearing the inflorescences can be quite long (up to 10 cm, thereby making the term shortshoot illogical) and in some species the umbel-bearing shoot looks more like a raceme of umbels; however, there is always a vegetative terminal bud indicating the 'raceme' is a twig bearing umbels.

The type of inflorescence can be divided into four groups as follows:

(1) The inflorescences are umbel-bearing reduced branchlets in clusters of umbels 1–2.5(–4) cm long. This type of inflorescence is present in 16 species: *Litsea castanea*, *L. elliptica*, *L. firma*, *L. grandis*, *L. hookeri*, *L. johorensis* (1.5–4 cm), *L. kurzii*, *L. laeta*, *L. membranifolia* (3–4 cm), *L. monopetala*, *L. myristicaefolia*, *L. nuculanea*, *L. ochracea*, *L. resinosa*, *L. tomentosa* and *L. verticillata* (1.5–3(–4) cm).

(2) The inflorescences are umbel-bearing reduced branchlets in short clusters of umbels 0.5–1 cm long. This type of inflorescence is present in 6 species: *Litsea hirsutissima*, *L. lancifolia*, *L. phuwuaensis*, *L. pseudo-umbellata*, *L. umbellata* and *L. variabilis*.

(3) The inflorescences are in short clusters of umbels and are sessile. This type of inflorescence is present in 2 species: *Litsea khasyana* and *L. pseudo-elongata*.

(4) The inflorescences are umbel-bearing short or long reduced branchlets with the appearance of a short or long raceme of umbels 1–16 cm long. This type of inflorescence is present in 11 species: *Litsea beusekomii* ((2–)3–6 cm), *L. cordata* ((3–)4.5–16 cm), *L. cubeba*, *L. glutinosa* (2–6 cm) *L. kerrii*, *L. machilifolia* (2.5–10 cm), *L. martabanica*, *L. mollis*, *L. pierrei* (2–4 cm), *L. punctulata* and *L. semecarpifolia* ((2–)3–8 cm).

The umbels consist of several flowers, 0.3–1.5 cm in diam. (up to 2 cm diam. in *Litsea membranifolia* and *L. tomentosa*). The umbels are pedunculate or sometimes sessile (sessile umbels in *L. khasyana* and *L. pseudo-elongata*), or subsessile (to 0.5 cm long in *L. lancifolia*). The peduncles are usually 0.2–2 cm long although in some species they may reach 2.5–3.5 cm (i.e. *L. verticillata* 0.8–2(–3.5) cm, *L. membranifolia* 1.5–3.2 cm, *L. johorensis* 0.5–3 cm, *L. tomentosa* 1.2–2.5 cm and *L. beusekomii* 0.5–2(–2.5) cm). The peduncles are usually hairy, sometimes glabrescent or glabrous.

The umbels are surrounded by 4–5(–6) involucral bracts. The bracts are decussate or imbricate in arrangement and are usually sub-orbicular, broadly ovate or ovate and concave. The texture is coriaceous or membranaceous. The surface is usually hairy, sometimes glabrescent or glabrous outside, and with some species densely covered with brown scurfy scales outside (i.e. *L. castanea* and *L. grandis*).

Young umbels enclosed in involucral bracts can easily be mistaken for flower buds.

6. Flowers

The flowers are unisexual on dioecious trees or shrubs. There are usually 3–8 flowers in each umbel (although occasionaly more such as in *Litsea glutinosa* with 9–15 flowers and *L. membranifolia* with 12–16 flowers). The pedicels are 1–4(–6) mm long and usually hairy. There are usually 6 membranaceous tepals, in (1–)2(–4) whorls of 3, although there are occasionally up to 12 tepals (e.g. in *L. tomentosa* there are 8–12, *L. membranifolia* 6–9, *L. semecarpifolia* 6–8, *L. beusekomii* 6–8 and *L. verticillata* 6–7) and sometimes there are fewer or they may be absent (e.g. in *L. firma* there are 5–6, *L. phuwuaensis* 4–6 and *L. glutinosa* 0–3).

Male flowers: There are (6–)9–12(–30) stamens in (2–)3–4(–10) whorls of 3. Sometimes there may be more than 12 stamens up to maximum of 30 stamens in species such as *Litsea tomentosa* (24–30), *L. grandis* (15–18), *L. glutinosa* (10–18), *L. castanea* (12–16), *L. membranifolia* (12–16), *L. resinosa* (9–16), *L. ochracea* (9–15) and *L. verticillata* (9–14). The anthers are 4-celled, all introrse; mostly 0.5–2 mm long but 2–4 mm in *L. johorensis*; the pollen is dispersed through pores that open by a flap. The filaments are 1–7 mm long, usually villose, the outer 2 whorls without glands, the third and inner whorls (when present) with 2 glands at or near the base. A pistillode is present or absent in male flowers.

Female flowers: The ovary is superior, 1-locular and with 1 ovule. It is ovoid, globose, subglobose or ellipsoid and is free or enclosed in the perianth tube. The style is 1–2.5(–4) mm long and the stigma is peltate. The staminodes are equal in number (or almost so) to the number of stamens in male flowers. They are usually hairy, the outer 2 whorls have no glands and the third and inner whorls (when present) have 2 glands at or near the base.

Female flowers are unknown in *Litsea castanea*, *L. hirsutissima*, *L. hookeri*, *L. kerrii*, *L. membranifolia*, *L. pierrei*, *L. punctulata*, *L. resinosa* and *L. variabilis*.

As in most unisexual flowers rudimentary parts of the other sex are usually present. In the male flowers a pistillode with or without a small stigma may be present. Occasionaly the pistillode is absent altogether. In the female flowers the staminodes are always present. They are linear, long or short, and have no trace of an anther.

7. Fruits

The fruits are 1-seeded berries, seated on a more or less enlarged perianth tube and supported by more or less enlarged pedicels. The fruits are ovoid, broadly ovoid, globose, subglobose, depressed globose (*Litsea ochracea*, *L. semecarpifolia*), ellipsoid, cylindrical or ellipsoid-cylindrical. The apex is apiculate, persistent or deciduous. The fruits are green or dark green with white dots, turning red, dark red, dark pink, dark purple to black when ripe. The surface is glabrous, glossy, and sometimes glaucous. The fruits are usually aromatic when crushed.

The enlarged perianth tube is cup-shaped, the cup being either shallow or deep and partly or greatly enclosing the fruits. Sometimes the enlarged perianth is small and flat or nearly flat. It is hairy, glabrescent or glabrous outside and in some species the outside is warty (i.e. in *Litsea nuculanea*, *L. ochracea*, *L. pierrei* and *L. semecarpifolia*). The fruiting pedicels are more or less thickened and usually 0.2–1.2 cm long but may be longer in *L. cordata*, with a fruiting pedicel 0.6–1.8 cm long, or the fruits may be sessile or subsessile in *L. lancifolia* and *L. johorensis*. The infructescence stalks are 0.2–1.5 cm in length, but *L. khasyana* and *L. pseudo-elongata* can be sessile or subsessile.

Fruits are unknown in *L. hookeri*, *L. kerrii*, *L. membranifolia*, *L. punctulata* and *L. tomentosa*.

The differences between *Litsea*, *Lindera* and *Neolitsea*

The characters of several unisexual flowers arranged in umbels enclosed within involucral bracts are also found in *Lindera* and *Neolitsea*.

Litsea is similar to *Lindera* in vegetative characters and specimens with female flowers or in fruit are sometimes difficult to place to genus. *Litsea* differs from *Lindera* in its 4-celled anthers (*Lindera* has 2-celled anthers).

Neolitsea has dimerous flowers although in others characters it is close to *Litsea*. Vegetative characters can also be used to separate the two genera: *Litsea* usually has spirally arranged (rarely opposite, subopposite, or subverticillate) pinnately veined leaves which are sometimes crowded toward the apex of branchlets, the umbels are usually stalked, or only occasionaly sessile, these usually along branchlets or in the axils of leaves, or sometimes at the apex of branchlets or rarely cauliflorous, while in *Neolitsea* the leaves are usually clustered and triplinerved and the umbels are sessile and usually distributed along the branchlets.

The differences between *Litsea*, *Lindera* and *Neolitsea* are shown in Table 1. The characters for *Lindera* and *Neolitsea* in Table 1 are from Van der Werff (2001).

Table 1. The differences between *Litsea*, *Lindera* and *Neolitsea*

Characters	Genera		
	Litsea	*Lindera*	*Neolitsea*
Inflorescences	usually stalked umbels, sometimes sessile, along branchlets or in the axils of leaves, sometimes at apex of branchlets or rarely cauliflorous	along shortshoot or in axils of leaves	sessile umbels, single or several close together along a shortshoot
Flowers	trimerous	trimerous	dimerous
Number of stamens	(6–)9–12 (–30)	9 or more	6
Anthers	4-locular (= 4-celled)	2-locular	4-locular
Terminal buds	eperulate or sometimes perulate	perulate or not	perulate
Leaves arrangement	usually spiral, rarely opposite, subopposite or subverticillate	alternate	generally clustered
Venation	pinnately veined	pinnately veined or tripliveined	tripliveined
Fruits	seated on the more or less enlarged perianth tube, shallow or deep cup-shaped, partly to greatly enclosing the fruits, sometimes small and flattened or nearly flattened	with or without a small cupule	seated on a small, plate-like cupule

LITSEA

Lam., Encycl. Méth. Bot. 3: 574. 1792, nom. cons.; Juss., Ann. Mus. Hist. Nat. 6: 207. 1805; Pers., Syn. 2: 4. 1807 (Litsaea); Blume, Mus. Bot. Lugd. Bat. 1(22): 345. 1851 (Litsaea); Meisn. in DC., Prodr. 15(1): 220. 1864; Drury, Handbook Ind. Fl. 3: 71. 1869 (Litsaea); Kurz, Forest Fl. Burma 2: 304. 1877 (Litsaea); Bentham & Hook.f., Gen. Pl. 3: 161. 1880; Hook.f., Fl. Brit. India 5: 155. 1886 (Litsaea); Boerl., Handl. Fl. Ned. Ind. 3: 129. 1900; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 123. 1904; Brandis, Ind. Trees: 535. 1906 (Litsaea); Gamble, J. Asiat. Soc. Bengal 75(1): 123. 1912; Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 82. 1913; Fl. Indo-Chine 5: 130. 1914; Ridl., Fl. Malay Penins. 3: 112. 1924; Liou Ho, Laurac. Chine & Indochine: 162. 1932; Corner, Ways. Trees Malaya 1: 347. 1940, 3rd ed. 384. 1988; Kanjilal et al., Fl. Assam 4: 78. 1940 (Litsaea); Allen, J. Arnold Arbor. 26: 406. 1945; Gamble, Fl. Madras 2: 862. 1957; Kosterm., Reinwardtia 4(2): 240. 1957; Backer & Bakh.f., Fl. Java 1: 125. 1963; Li, Woody Fl. Taiwan: 213. 1963; Hutchinson, Gen. Fl. Pl. 1: 141. 1964; Kosterm., Bibliogr. Laur. 782. 1964; Merr., Fl. Manila: 210. 1968; Chang, Fl. Taiwan 2: 434. 1976; Gandhi in Saldanha & Nicolson, Fl. Hassan District: 47. 1976; Walker, Fl. Okinawa S. Ryukyu I.: 483. 1976; D.G.Long, Fl. Bhutan 1(2): 271. 1984; Malla et al., Fl. Kathmandu Valley: 62. 1986; Kochummen in Ng, Tree Fl. Malaya 4: 149. 1989; Rohwer in Kubitzki, Fam. Gen. Vasc. Pl. 2: 388. 1993; Kosterm., Rev. Hanbook Fl. Ceylon 9: 145. 1995; Lemmens et al., Pl. Resources SE Asia 5(2): 306. 1995; Liao, Tax. Rev. Laurac. Taiwan: 80. 1995; van der Werff, Blumea 46: 137. 2001. Type species: *Litsea chinensis* Lam. = *Litsea glutinosa* C.B. Rob.

Small to large trees or shrubs. *Bark* usually smooth, lenticellate or not, rarely cracking and scaly, greyish brown, grey, reddish brown, dark brown or brown, rarely whitish, green or yellowish green turning grey, greyish brown or dark brown. *Terminal buds* perulate (terminal buds bearing scales) or not, most frequently not perulate, the scales usually falling off after the buds elongate. *Leaves* simple, usually aromatic when crushed, spirally arranged, sometimes crowded toward the apex of branchlets, rarely opposite, subopposite, or subverticillate; blade obovate, oblong, lanceolate, elliptic or ovate or variations and combinations of these, apex acuminate, acute, caudate, obtuse, cuspidate or retuse, base cuneate, oblique, slightly oblique, obtuse, or rarely cordate, margin usually entire, sometimes ciliate, ciliate and becoming eciliate or ciliolate or partly ciliolate, chartaceous to coriaceous, green or dark green usually turning yellow before falling off, sometimes turning black when dry, glaucous, slightly glaucous or not glaucous beneath, glabrous, glabrescent or sparsely hairy above or hairy on midrib and secondary veins above, hairy, glabrescent or glabrous beneath, rarely lepidote beneath (covered with small, scurfy scales); petiole always present, 0.2–3(–4.5) cm long, hairy, glabrescent or glabrous, rarely swollen at base; midrib sunken, shallowly sunken or flattened above, always raised beneath, secondary veins (3–)4–16(–22) pairs, tertiary veins scalariform-reticulate, reticulate, scalariform-finely reticulate or finely reticulate. *Inflorescences* umbellate, on umbel-bearing short or long reduced branchlets, usually in clusters of umbels, 0.5–2.5(–4) cm long, or sometimes with the appearance of a short or long raceme of umbels, 1–16 cm long, or sometimes umbels solitary, in the axils of leaves or along branchlets, sometimes at apex of branchlets or rarely cauliflorous (inflorescences along main stem); umbels 0.3–1.5(–2) cm in diam.; peduncles 0.2–2(–3.5) cm long, sometimes sessile or subsessile, usually hairy, sometimes glabrescent or glabrous; involucral bracts surrounding flowers arranged in umbels, 4–5(–6) in number, decussate or imbricate, suborbicular, broadly ovate or ovate, concave, coriaceous or membranaceous, usually hairy, sometimes glabrescent or glabrous outside, rarely with densely brown scurfy scales outside. *Flowers* dioecious, 3–8(–16) in each umbel; pedicels 1–4(–6) mm long, usually hairy; tepals (0–)6(–12), in (1–)2(–4) whorls of 3, membranaceous. *Male flowers*: stamens (6–)9–12(–30) in (2–)3–4(–10) whorls of 3; anthers 4-celled, all introrse, 0.5–2(–4) mm long, anthers with 4 chambers of pollen which open with 4 flaps; filaments 1–7 mm long, usually villose, the outer 2 whorls without glands, the third and inner whorls (when present) with 2 glands at or near base; pistillode present or absent. *Female flowers*: ovary superior, 1-locular and with 1 ovule, ovoid, globose, subglobose or ellipsoid, enclosed in the perianth tube or free; style 1–2.5(–4) mm long; stigma peltate; staminodes equal in number to the stamens in male flowers or almost so, usually hairy, the outer 2 whorls without glands, the third and inner whorls (when present) with 2 glands at or near base. *Fruits* berries, seated on the more or less enlarged perianth tube and supported by more or less enlarged pedicels, ovoid, broadly ovoid, globose, subglobose, depressed globose, ellipsoid, cylindrical or ellipsoid-cylindrical, apex apiculate, persistent or deciduous, green or dark green with white dots, turning red, dark red, dark pink, dark purple to black when ripe, glabrous, glossy, sometimes glaucous, usually aromatic when crushed; enlarged perianth tube shallow or deep cup-shaped, partly enclosing the fruits, half or more enclosing the fruits, sometimes small and flattened or nearly flattened, hairy, glabrescent or glabrous outside, sometimes warty outside; fruiting pedicels more or less thickened, usually 0.2–1.2(–1.8) cm long, rarely subsessile or sessile; infructescence stalks 0.2–1.5 cm long, rarely subsessile or sessile. *Seed* one.

Litsea comprises more than 300 species in tropical Asia and the islands of the Pacific, Australia and in North and Central America. It is a large genus in the Flora Malesiana area (Van der Werff, 2001).

Thirty-five species of *Litsea* are known from Thailand making it the largest genus in the family in Thailand. One species, *Litsea phuwuaensis* Ngerns. has already been described and published as a new species from north-eastern Thailand (*Ngernsaengsaruay*, 2004). Five species, *Litsea castanea*, *L. cordata*, *L. firma*, *L. hirsutissima* and *L. tomentosa* have previously been described and published as new records from peninsular Thailand. Lectotypes or neotypes have been designated for all names as necessary.

KEY TO THE SPECIES

1. Inflorescences along main stem (cauliflorous) **11. L. johorensis**
1. Inflorescences in axils of leaves, along branchlets or at apex of branchlets
 2. Umbels sessile
  3. Leaves glabrous beneath; petiole 1–2.5 cm long, glabrous; medium-sized to large tree 12–30 m tall **13. L. khasyana**
  3. Leaves tomentose beneath; petiole 0.3–1 cm long, tomentose; small to medium-sized tree 3–12 m tall **27. L. pseudo-elongata**
 2. Umbels pedunculate
  4. Flowers 9–16 in each umbel
   5. Tepals 0–3; umbels 0.7–1.5 cm in diam.; peduncles 0.5–1.5 cm long; leaves chartaceous to coriaceous **7. L. glutinosa**
   5. Tepals 6–9; umbels 1.5–2 cm in diam.; peduncles 1.5–3.2 cm long; leaves thinly chartaceous **19. L. membranifolia**
  4. Flowers usually 3–8, rarely up to 9 in each umbel
   6. Umbel-bearing reduced branchlets in clusters
    7. Clusters of umbels short, 0.5–1 cm long
     8. Leaves opposite or subopposite **16. L. lancifolia**
     8. Leaves spiral
      9. Leaves villose beneath, margin ciliate
       10. Leaves usually elliptic or broadly elliptic, sometimes obovate, 6.5–12 cm wide; fruits ovoid or broadly ovoid, 1.2–1.4 cm long **9. L. hirsutissima**
       10. Leaves obovate-oblong, obovate-lanceolate, oblong, elliptic-oblong or oblong-lanceolate, 2.5–5.5(–7) wide; fruits ovoid, 0.8–1 cm long **25. L. phuwuaensis**
      9. Leaves tomentose, tomentulose, pubescent or glabrous beneath, margin eciliate
       11. Tertiary veins reticulate **34. L. variabilis**
       11. Tertiary veins scalariform-reticulate
        12. Leaves sparsely pubescent on midrib and secondary veins beneath; fruits ellipsoid or ovoid, 1–1.5 by 0.5–0.9 cm **28. L. pseudo-umbellata**
        12. Leaves reddish brown tomentose or tomentulose beneath; fruits globose or subglobose, 0.6–1 cm in diam. **33. L. umbellata**
    7. Clusters of umbels 1–2.5(–4) cm long
     13. Leaves subverticillate **35. L. verticillata**
     13. Leaves spiral
      14. Tertiary veins reticulate
       15. Leaves oblong, oblong-lanceolate, or lanceolate, glaucous beneath; peduncles and bracts puberulous; fruits ellipsoid or ovoid **15. L. laeta**
       15. Leaves obovate-oblong or obovate, not glaucous beneath; peduncles and bracts glabrous; fruits globose or subglobose **22. L. myristicaefolia**
      14. Tertiary veins scalariform-reticulate or indistinct
       16. Scalariform-reticulate venation faint beneath
        17. Leaves tomentose or tomentulose beneath; shrub or small tree 2–5 m tall **23. L. nuculanea**
        17. Leaves glabrous, glabrescent or sparsely hairy especially on midrib and secondary veins beneath; medium-sized to large tree 10–30 m tall
         18. Leaves elliptic or elliptic-oblong; only bases of fruits seated on enlarged, shallow cup-shaped perianth
          19. Secondary veins 4–7 pairs; fruits globose or subglobose, 0.8–1.1 cm in diam. **5. L. elliptica**
          19. Secondary veins 7–13 pairs; fruits ellipsoid, 1.8–2.4 by 1–1.2 cm **30. L. resinosa**
         18. Leaves oblong, oblong-lanceolate, obovate-oblong or obovate-lanceolate; half of depressed globose fruits in the deep cup-shaped **24. L. ochracea**
       16. Scalariform-reticulate venation distinct or prominent beneath
        20. Bracts with densely reddish brown scurfy scales or densely reddish brown tomentose outside
         21. Leaves elliptic-oblong or oblong, chartaceous; (small tree 8 m tall) **10. L. hookeri**
         21. Leaves obovate, elliptic or broadly ovate, coriaceous; (medium-sized to large tree 10–30 m tall)
          22. Leaves 5–15 by 3–8 cm, coriaceous, lepidote on midrib and secondary veins beneath **2. L. castanea**
          22. Leaves 13–27(–36) by 8.5–15.5(–18.5) cm, thickly coriaceous, not lepidote on midrib and secondary veins beneath **8. L. grandis**
        20. Bracts pale green, hairy outside
         23. Leaves coriaceous, not glaucous, lepidote beneath **6. L. firma**
         23. Leaves chartaceous, glaucous, not lepidote beneath
          24. Leaf margin eciliate; secondary veins 6–11 pairs **21. L. monopetala**
          24. Leaf margin ciliate or partly ciliate; secondary veins 11–16 pairs
           25. Leaves spiral, along branchlets toward the apex of branchlets, not closely spaced, pubescent beneath; umbels 0.5–1 cm in diam.; peduncles 0.3–0.8 cm long; tepals 6; stamens 9 **14. L. kurzii**
           25. Leaves spiral, crowded toward the apex of branchlets, closely spaced, densely tomentose beneath; umbels 1.2–2 cm in diam.; peduncles 1.2–2.5 cm long; tepals 8–12; stamens 24–30 **32. L. tomentosa**
6. Umbel-bearing reduced branchlets with the appearance of a raceme of umbels (1–16 cm long)

26. Tertiary venation reticulate
  27. Leaves chartaceous; branchlets often green or yellowish green
    28. Leaves ovate-lanceolate or lanceolate, glabrous on both surfaces, sometimes sparsely pubescent on midrib beneath; secondary veins 7–14 pairs; (small to medium-sized tree 4–15 m tall) **4. L. cubeba**
    28. Leaves ovate or ovate oblong, sometimes ovate-lanceolate, densely pubescent becoming pubescent beneath; secondary veins 3–7 pairs; (shrub or small tree 1.5–6 m tall) **20. L. mollis**
  27. Leaves thinly coriaceous or coriaceous; branchlets not green or yellowish green
    29. Raceme of umbels short, 1–2 cm long, (small tree 8 m tall) **12. L. kerrii**
    29. Raceme of umbels up to 4–10 cm long, (medium-sized to large tree 15–30 m tall
      30. Leaves lanceolate or ovate-lanceolate; secondary veins 9–14 pairs; fruits globose, 1.2–1.5 cm in diam.; enlarged perianth tube cup-shaped, 0.5–0.8 cm high, 1.2–1.5 cm in diam. **17. L. machilifolia**
      30. Leaves obovate, obovate-oblong or oblong; secondary veins 5–8 pairs; fruits cylindrical or ovoid, 1.8–2.4 by 1–1.3 cm, half or more enclosed in the cup-shaped enlarged perianth tube; enlarged perianth tube deep cup, 1.2–1.5 cm high, 1.5–2 cm in diam. **26. L. pierrei**
26. Tertiary venation scalariform-reticulate
  31. Leaves oblong or obovate-oblong; venation faint beneath **29. L. punctulata**
  31. Leaves obovate, elliptic-oblong, ovate-oblong or broadly ovate; venation distinct or prominent beneath
    32. Leaf base cordate **3. L. cordata**
    32. Leaf base cuneate or slightly oblique
      33. Leaves elliptic-oblong or ovate-oblong **18. L. martabanica**
      33. Leaves obovate
        34. Leaves chartaceous, apex acuminate or caudate; fruits ovoid **1. L. beusekomii**
        34. Leaves coriaceous, apex obtuse or acute; fruits depressed globose **31. L. semecarpifolia**

1. Litsea beusekomii Kosterm., Nat. Hist. Bull. Siam Soc. 25(3–4): 36. 1975. Type: Thailand, Chiang Mai, Doi Chiang Dao, *Beusekom & Phengklai 1363* (holotype **L!**; isotypes **AAU**!, **BKF!**, **E!**, **K!**).

Small to medium-sized tree 3–12 m tall; bark smooth, lenticellate, pale brown or reddish brown; young branchlets densely brown pubescent. *Leaves* spiral; blade obovate, 9–22.5 by 4–11.5 cm, apex acuminate or caudate, base cuneate, margin entire, chartaceous, dark green, sparsely hairs, becoming glabrous above, glaucous, pubescent or sparsely pubescent beneath; petiole 1–2 cm long, pubescent or glabrescent; midrib shallowly sunken or flattened above, raised beneath, secondary veins 6–11 pairs, shallowly sunken or flattened above, raised beneath, curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves or along branchlets, raceme of umbels (2–)3–6 cm long; umbels 0.7–1.2(–1.5) cm in diam.; peduncles 0.5–2(–2.5) cm long, densely pubescent; bracts 4, decussate, suborbicular or broadly ovate, concave, 4–6 by 4–6 mm, densely pubescent outside. *Male flowers* 4–5 in each umbel; tepals 6, ovate, ovate-oblong or oblong, subequal, 3–4 by 1–2 mm, membranaceous, pubescent; pedicels 2–4 mm long, densely pubescent; stamens 7–11, unequal; anthers 1.5–2 mm long; filaments slender, 2–6 mm long, villose, 2 glands at base or without glands; pistillode 2.5 mm long, glabrous. *Female flowers* 4–5 in each umbel; tepals 6–8, ovate, ovate-oblong or oblong, subequal, 2–2.5 by 0.8–1 mm, membranaceous, pubescent; pedicels 2–4 mm long, densely pubescent; ovary ellipsoid, 1.5–2 by 1–1.2 mm, glabrous; style 1.5–3 mm long; stigma peltate; staminodes 7–9, linear, 1–2.5 mm long, hairy. *Fruits* ovoid, 1.5–2 by 0.9–1.2 cm, green with white dots, turning red, dark purple and black when ripe, glabrous, glossy; enlarged perianth tube a shallow cup 0.5–0.7 cm in diam., pubescent; fruiting pedicels thickened, 0.5–1 cm long, pubescent; infructescence stalks 0.7–1.5 cm long, pubescent.

Thailand.— NORTHERN: Chiang Mai (Doi Chiang Dao, Doi Inthanon, Doi Phahom Pok, Doi Suthep-Pui), Chiang Rai (Doi Tung), Nan (Doi Phu Kha, Doi Phu Wae), Kamphaeng Phet (Mae Wong).

Distribution.— Endemic.

Ecology.— In lower montane forest, 1300–2000 m. Flowering: September–February. Fruiting: February–July.

Vernacular.— Ka thang doi (กะทังดอย).

Notes.— The specific epithet is given in honour of C.F. van Beusekom who found and collected the type specimens.

Litsea beusekomii is endemic to Thailand but is also expected to occur in Myanmar which is very undercollected.

2. Litsea castanea Hook.f., Fl. Brit. India 5: 171. 1886; Boerl., Handl. Fl. Ned. Ind. 3: 145. 1900; Gamble, J. Asiat. Soc. Bengal 75(1): 155. 1912; Burkill & Holttum, Gard. Bull. Straits Settlem. 3: 69. 1923; Ridl., Fl. Malay Penins. 3: 121. 1924; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 415. 1925; Kosterm., Bibliogr. Laur.: 797. 1964; Corner, Ways. Trees Malaya 1, 3rd ed. 384. 1988; Kochummen in Ng, Tree Fl. Malaya 4: 152. fig. 9. 1989; Lemmens et al., Pl. Resources SE Asia 5(2): 311. 1995; Ngernsaengsaruay et al., Thai Forest Bull. (Bot.) 33: 81. fig. 1. 2005. Type: Malaysia, Malacca, *Maingay 1269* (lectotype **K!**, designated by Ngernsaengsaruay et al. (2005); isolectotype **K!**).

Large tree 20–30 m tall; bark smooth, lenticellate, reddish brown; branchlets puberulous, with densely reddish brown scurfy scales. *Leaves* spiral; blade obovate or elliptic, 5–15 by 3–8 cm, apex acute, obtuse or retuse, base cuneate or oblique, margin entire, coriaceous, brown or dark brown when dry, glabrous on both surfaces or sparsely puberulous, lepidote on midrib and secondary veins beneath; petiole 1–3 cm long, sparsely puberulous, with reddish brown scurfy scales; midrib sunken above, raised beneath, secondary veins 7–12 pairs, sunken above, raised beneath, curving or curving and looping near margin, tertiary veins scalariform-finely reticulate, distinct beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets or in axils of leaves, clusters of umbels 1–2 cm long; umbels 1–1.2 cm in diam.; peduncles 0.6–1.2 cm long, puberulous, with reddish brown scurfy scales; bracts (4–)5, usually imbricate, suborbicular, broadly ovate or ovate, concave, 5–7 by 3–4.5 mm, coriaceous, puberulous, with densely reddish brown scurfy scales outside. *Male flowers* 6–8 in each umbel; tepals 6, linear-oblong or oblong, subequal, 2.5–3.5 by 0.8–1 mm, membranaceous, pubescent; pedicels 2–3 mm long, densely pubescent; stamens 12–16, unequal; anthers 0.8–1.5 mm long; filaments slender, 3–6 mm long, villose, 2 glands nearly at base or without glands; pistillode none. *Female flowers* not known. *Fruits* ovoid, sometimes cylindrical, 1.8–2.6 by 1–1.2 cm, glabrous; enlarged perianth tube cup-shaped, 0.7–1 cm high, 1–1.3 cm in diam., puberulous, margin entire; fruiting pedicels 0.4–1 cm long, puberulous; young fruits completely enclosed in turbinate enlarged perianth tube with a circular hollow at the top; infructescence stalks 0.5–1.5 cm long, puberulous, with densely reddish brown scurfy scales.

Thailand.— PENINSULAR: Yala (Betong, Khao 1490), Narathiwat (Sirindhorn Waterfall, Hala-Bala Wildlife Research Station, Hala-Bala Wildlife Sanctuary).

Distribution.— Malay Peninsula, Singapore, Sumatra, Borneo.

Ecology.— In tropical rain forest and lower montane forest, 100–1400 m. Flowering: June–November. Fruiting: August–September.

Vernacular.— Ka thang bai lek (กะทังใบเล็ก).

Note.— The description of fruiting material is based on non-Thai material (see Ngernsaengsaruay et al. (2005)).

3. Litsea cordata (Jack) Hook.f., Fl. Brit. India 5: 177. 1886; Boerl., Handl. Fl. Ned. Ind. 3: 145. 1900; Gamble, J. Asiat. Soc. Bengal 75(1): 144. 1912; Burkill, J. Straits Branch Roy. Asiat. Soc. 73: 263. 1916; Ridl., Fl. Malay Penins. 3: 118. 1924; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 415. 1925; Kosterm., Bibliogr. Laur. 807. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 154. 1989; Lemmens et al., Pl. Resources SE Asia 5(2): 312. 1995; Ngernsaengsaruay et al., Thai Forest Bull. (Bot.) 33: 82. figs. 2, 6: A-B. 2005.— *Tetranthera cordata* Jack, Malayan Misc. 2(7): 34. 1822; Meisn. in DC., Prodr. 15(1): 196. 1864; Merr., J. Arnold Arbor. 33: 248. 1952; Kosterm., Bibliogr. Laur. 1387. 1964. Type: Thailand, Narathiwat, Sirindhorn Peat Swamp Forest, *Ngernsaengsaruay & Chantarasuwan 373* (neotype **BKF!**, designated by Ngernsaengsaruay et al. (2005); isoneotypes **BK!**, Herb. of the Department of Botany, Kasetsart University!).— *Tetranthera cordifolia* Meisn. in DC., Prodr. 15(1): 196. 1864; Drury, Handbook Ind. Fl. 3: 67. 1869; Kosterm., Bibliogr. Laur. 1387. 1964.— *Litsea cordifolia* (Meisn.) Fern.-Vill. in Blanco, Fl. Philipp. 3: 181. 1880; Kosterm., Bibliogr. Laur. 807. 1964. Type: Malaysia, Malacca, Wight Herbarium, *Griffith s.n.* (holotype **K!**).

Medium-sized tree 15–20 m tall; bark smooth, lenticellate, greyish brown or grey; young parts densely reddish brown tomentose; branchlets tomentose. *Leaves* spiral; blade broadly ovate, 8.5–20.5 by 5.5–14 cm, apex acute or acuminate, base cordate, sometimes unequal, margin entire, thinly coriaceous, dark green, glabrous above, except tomentose on midrib and secondary veins above, tomentose beneath; petiole 1.5–2.5 cm long, tomentose; midrib distinctly sunken above, raised beneath, secondary veins 6–12 pairs, distinctly sunken above, raised beneath, curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in the axils of leaves or along branchlets, raceme of umbels (3–)4.5–16 cm long; umbels 0.6–1.2 cm in diam.; peduncles 0.4–1 cm long, tomentose; bracts (4–)6, usually imbricate, suborbicular, broadly ovate or ovate, concave, 3–7 by 3–5 mm, tomentose outside. *Male flowers* 6–8(–9) in each umbel; tepals 6, ovate-oblong or ovate-lanceolate, subequal, 2–4 by 0.5–1 mm, membranaceous, hairy; pedicels 1.5–4 mm long, densely tomentose; stamens 9–12, unequal; anthers 0.8–1.2 mm long; filaments slender, 2–4 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 6–8 in each umbel; tepals 6, ovate-oblong or ovate-lanceolate, subequal, 1.5–2.5 by 0.5–0.8 mm, membranaceous, hairy; pedicels 1.5–2 mm long, densely tomentose; ovary ellipsoid, 1–1.5 by 0.5–0.8 mm, glabrous; style 1–1.5 mm long; stigma peltate; staminodes 9–12, linear, 1–1.5 mm long, hairy, 2 glands or without glands. *Fruits* ellipsoid, 1.5–2.5 by 0.7–1 cm, glabrous; enlarged perianth tube a shallow cup or nearly flattened, 0.3–0.4 cm in diam., sparsely tomentose; fruiting pedicels 0.6–1.8 cm long, sparsely tomentose; infructescence stalks 0.5–1.5 cm long, sparsely tomentose.

Thailand.— PENINSULAR: Narathiwat (Sirindhorn Peat Swamp Forest).

Distribution.— Malay Peninsula, Singapore, Sumatra, Borneo, Philippines.

Ecology.— In peat swamp forest, 0–10 m. Flowering: May–July.

Vernacular.— Ka thang phru bai hua chai (กะทังพรุใบหัวใจ).

Notes.— *Litsea cordata* is characterized by the broadly ovate leaf blade, 8.5–20.5 by 5.5–14 cm and the cordate leaf base. The inflorescences on umbel-bearing reduced branchlets have the appearance of a raceme of umbels (3–)4.5–16 cm long.

The description of flowering (female flowers) and fruiting material is based on non-Thai material (see Ngernsaengsaruay et al. (2005)).

4. Litsea cubeba (Lour.) Pers., Syn. 2: 4. 1807; Hemsl., J. Linn. Soc. Bot. 26: 380. 1891; Merr., Philipp. J. Sci. 15(3): 235. 1919; Rehder, J. Arnold Arbor. 11: 157. 1930; Liou Ho, Laurac. Chine & Indochine: 184. 1932; Merr., Contributions Arnold Arbor. 8: 62. 1934; Allen, Ann. Missouri Bot. Gard. 25: 368. 1938; Backer & Bakh.f., Fl. Java 1: 125. 1963; Li, Woody Fl. Taiwan: 216. fig. 79. 1963; Kosterm., Bibliogr. Laur. 808. 1964; Chang, Fl. Taiwan 2: 439. fig. 366. 1976; D.G.Long, Fl. Bhutan 1(2): 274. 1984; Malla et al., Fl. Kathmandu Valley: 602. 1986; Liao, Tax. Rev. Laurac. Taiwan: 96. fig. 44. 1995; Pendry in Watson et al., Fl. Nepal 3: 42. 2011.— *Laurus cubeba* Lour., Fl. Cochinch. 252. 1790.— *Persea cubeba* (Lour.) Spreng. Syst. Veg. 2: 269. 1825.— *Daphnidium cubeba* (Lour.) Nees, Syst. Laurin 615. 1836; Dietrich, Syn. 2: 1364. 1840.— *Tetranthera cubeba* (Lour.) Meisn. in DC., Prodr. 15(1): 199. 1864. Type: Cochinchina, *Loureiro s.n.* (holotype **BM**!).— *Litsea citrata* Blume, Bijdr. 565. 1825; Hook.f., Fl. Brit. India 5: 155. 1886; Hemsl., J. Linn. Soc. Bot. 26: 379. 1891; Boerl., Handl. Fl. Ned. Ind. 3: 141. 1900; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 142. 1904; Brandis, Ind. Trees: 535. 1906; Diels, Notes Roy. Bot. Gard. Edinburgh 7(34): 289. 1912; Gamble, J. Asiat. Soc. Bengal 75(1): 146. 1912; Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 89. 1913; Gibbs, J. Linn. Soc. Bot. 42: 130. 1914; Lecomte, Fl. Indo-Chine 5: 138. 1914; Lace, List Trees, Shrubs and Climbers Burma: 139. 1922; Burkill & Holttum, Gard. Bull. Straits Settlem. 3: 68. 1923; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 415. 1925; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928; W.W. Sm., Notes Roy. Bot. Gard. Edinburgh 17: 250. 1930; Kanjilal et al., Fl. Assam 4: 81. 1940; Kosterm., Bibliogr. Laur. 803. 1964.— *Tetranthera citrata* (Blume) Nees, Syst. Laurin. 560. 1836; Dietrich, Syn. 2:

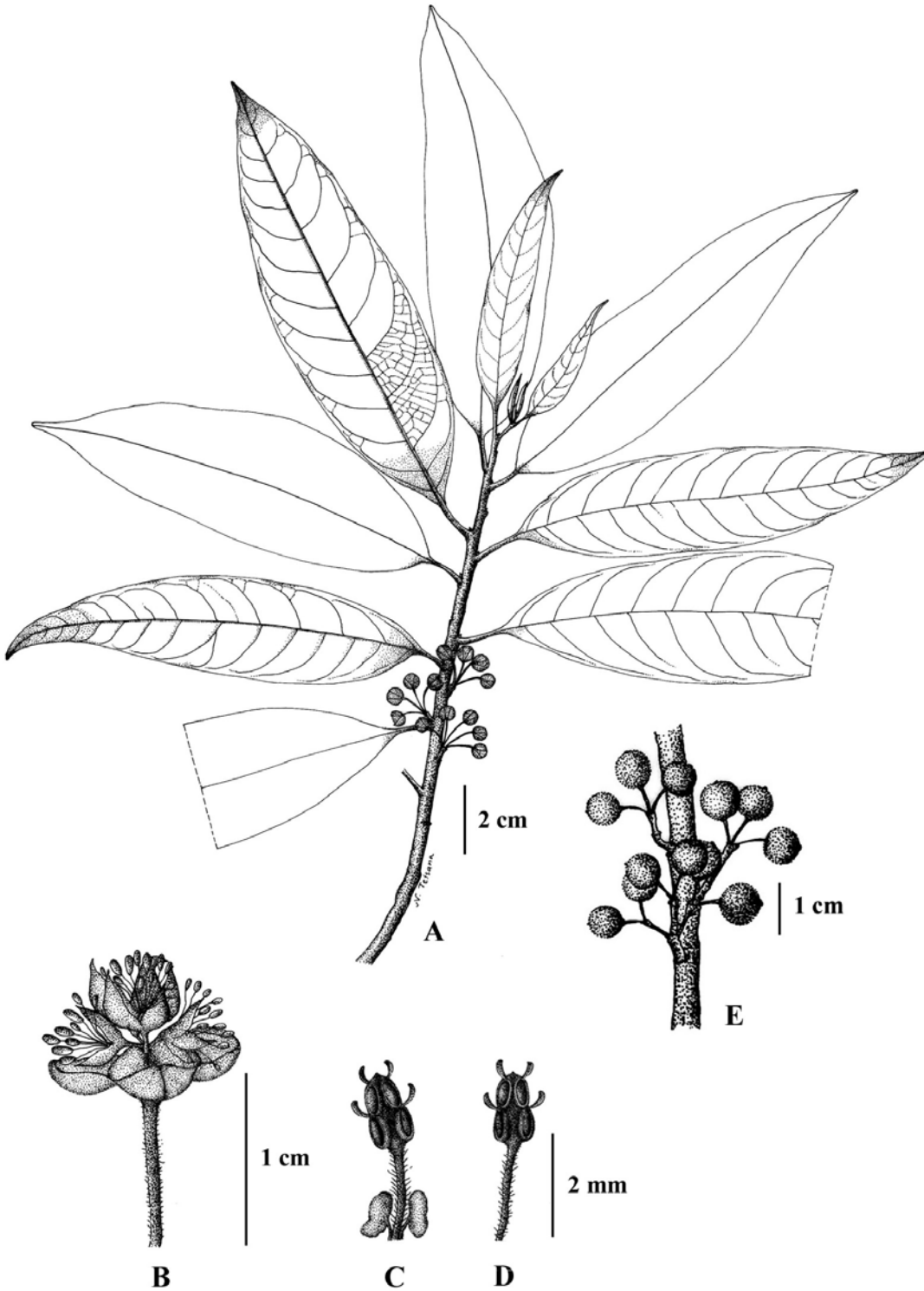

Figure 1. *Litsea cubeba* (Lour.) Pers.: A. flowering branch with inflorescence buds; B. male inflorescence; C. inner whorled stamen with 2 glands; D. outer whorled stamen without gland; E. fruiting branch. Drawn by N. Tetsana.

1361. 1840; Blume, Mus. Bot. Lugd. Bat. 1(24): 385. 1851. Type: not seen. — *Tetranthera polyantha* Wall. [Numer. List 2538. 1830, nom. nud.] ex Nees in Wall., Pl. Asiat. Rar. 2: 67. 1831; Syst. Laurin. 545. 1836; Dietrich, Syn. 2: 1360. 1840; Meisn. in DC., Prodr. 15(1): 182. 1864; Drury, Handbook Ind. Fl. 3: 64. 1869; Kurz, Forest Fl. Burma 2: 301. 1877. Type: without locality, *Wallich Cat. no. 2538* (syntypes **BM**!, **K!**). Figs. 1, 24: A–C.

Small to medium-sized tree 4–15 m tall; bark smooth, lenticellate, green turning greyish brown or grey; branchlets green or yellowish green, glabrous or glabrescent. *Leaves* spiral; blade ovate-lanceolate or lanceolate, 8–18(–23) by 2–4 cm, apex acuminate or caudate, base cuneate, margin entire, chartaceous, dark green, glabrous on both surfaces, sometimes sparsely pubescent on midrib beneath, glaucous beneath; petiole 0.8–1.5 cm long, glabrous; midrib shallowly sunken or flattened above, raised beneath, secondary veins 7–14 pairs, slightly prominent above, raised beneath, curving or curving and looping near margin, tertiary veins reticulate, distinct on both surfaces. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves or along branchlets, raceme of umbels 1–3 cm long; umbels 0.5–1 cm in diam.; peduncles 0.6–1.2 cm long, glabrous or glabrescent; bracts 4, decussate, suborbicular, broadly ovate or ovate, concave, 3.5–7 by 3–5 mm, membranaceous, with veins, glabrous or glabrescent outside. *Male flowers* 5–6 in each umbel; tepals 6, obovate, subequal, 3–3.5 by 2–3 mm, membranaceous, pubescent; pedicels 1–2 mm long, pubescent; stamens 8–11, unequal; anthers 1.5–2 mm long; filaments 1.5–2 mm long, villose, 2 glands at base or without glands; pistillode 1–1.5 mm long, glabrous. *Female flowers* 5–7 in each umbel; tepals 6, obovate, subequal, 1.5–2 by 1–1.5 mm, membranaceous, pubescent; pedicels 1.5–2.5 mm long, pubescent; ovary globose, 0.8–1 mm in diam., glabrous; style 1–1.5 mm long; stigma peltate; staminodes 8–9, linear, 1–1.5 mm long, hairy. *Fruits* globose, 0.6–0.8 cm in diam., dark green with white dots, turning dark purple and black when ripe, glabrous, glossy; enlarged perianth tube small, flattened, 0.2–0.3 cm in diam., sparsely pubescent or glabrous; fruiting pedicels 0.3–0.7 cm long, sparsely pubescent or glabrous; infructescence stalks 0.3–1 cm long, sparsely pubescent or glabrous.

Thailand.— NORTHERN: Mae Hong Son (Doi Chong), Chiang Mai (Doi Inthanon, Doi Phahom Pok, San Pa Tong), Chiang Rai (Phu Chi Fa), Nan (Doi Phu Kha, Doi Khun Sathan), Lampang (Chae Son National Park, Mae Chaem Yao village area), Uttaradit (Phu Miang), Phitsanulok (Phu Hin Rong Kla), Kamphaeng Phet (Mae Wong); NORTH-EASTERN: Loei (Phu Luang); SOUTH-WESTERN: Uthai Thani (Huai Kha Khaeng), Kanchanaburi (Thong Pha Phum); PENINSULAR: Yala (Than To, Betong, Hala-Bala Wildlife Sanctuary), Narathiwat.

Distribution.— China, Taiwan, Japan, India, Nepal, Bhutan, Myanmar, Laos, Vietnam, Malay Peninsula, Sumatra, Java, Borneo.

Ecology.— A fast growing pioneer species, usually gregarious in open areas, along the edge of lower and upper montane forests, 900–2000 m. It is also found along the edge of tropical rain forest in the Peninsula at lower elevations of 300–500 m. In the Malay Peninsula it is reportedly found at elevations up to 900 m. Oyen & Dung (1999) reported that Litsea cubeba is found in hilly areas and grows well at altitudes of 700–2300 m, in East Kalimantan it occurs at 400–600 m. Flowering: October–February. Fruiting: March–August.

Vernacular.— Ta khrai ton (ตะไคร้ต้น) (Nan, Loei); cha khai ton (จะไค้ต้น) (Chiang Mai); ta khrai (ตะไคร้) (Kanchanaburi).

Uses.— In northern Thailand, the fruit, bark and leaves are often used by the Karen people as a curry ingredient in 'Kaeng Nuea'.

Notes.— Bark, leaves and fruits are aromatic when crushed resembling the smell of lemon grass (*Cymbopogon citratus* Stapf). Leaves often turning black when dry.

5. Litsea elliptica Blume, Bijdr. 563. 1825; Boerl., Handl. Fl. Ned. Ind. 3: 142. 1900; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 126. 1904; Kosterm., Bibliogr. Laur. 814. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 155. 1989; H. Keng, Concise Fl. Singapore: 19. 1990; Lemmens et al., Pl. Resources SE Asia 5(2): 314. 1995.— *Tetranthera elliptica* (Blume) Nees, Syst. Laurin.: 550. 1836; Dietrich, Syn. 2: 1360. 1840; Miq., Pl. Jungh. 180. 1852; Meisn. in DC., Prodr. 15(1): 188 et 513. 1864; Kosterm., Bibliogr. Laur. 1390. 1964. Type: Indonesia, Java, *Unknown s.n.* (isotype **U**).

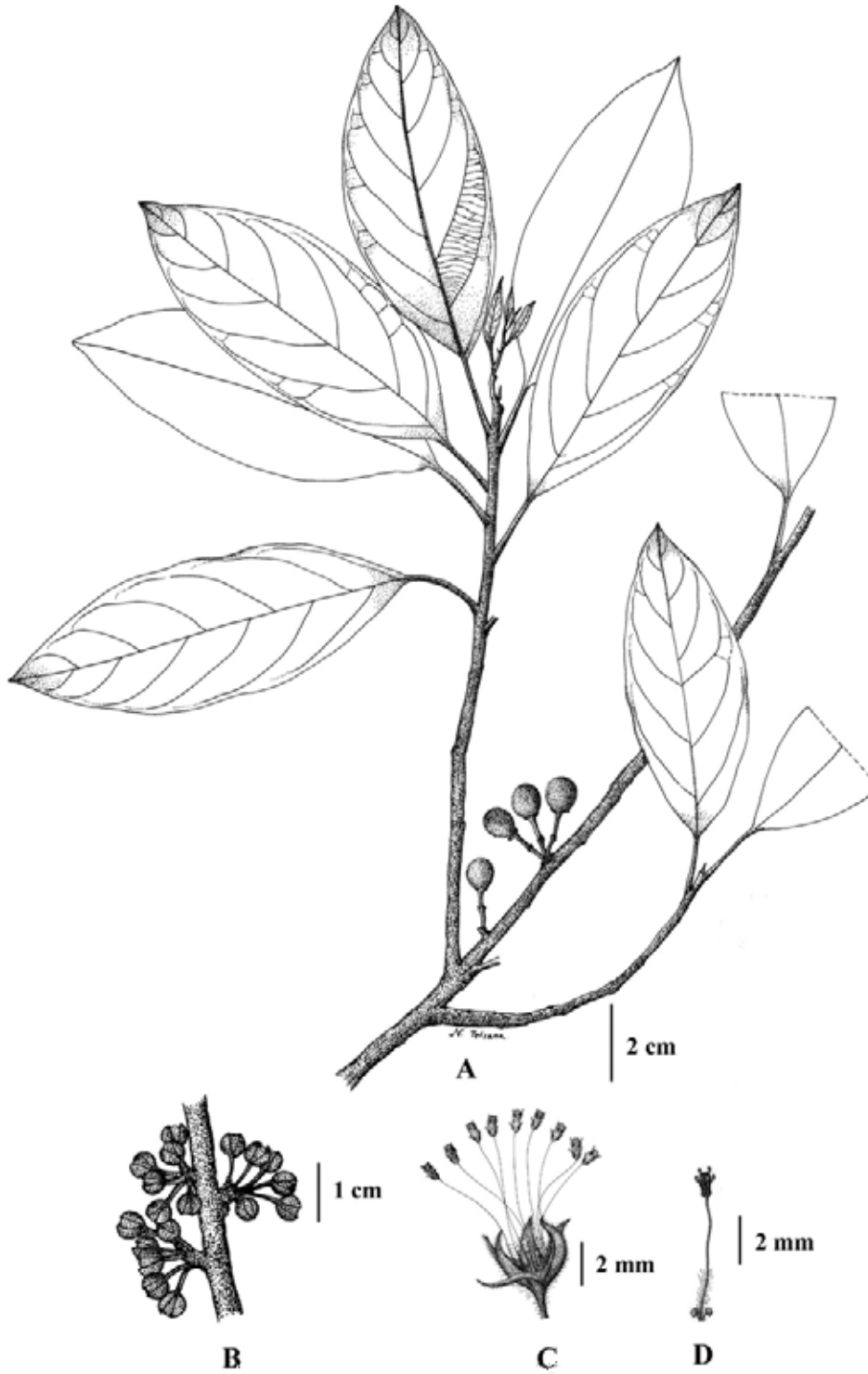

Figure 2. *Litsea elliptica* Blume: A. fruiting branch; B. flowering branch with inflorescence buds; C. male flower; D. inner whorled stamen with 2 glands. Drawn by N. Tetsana.

— *Litsea petiolata* Hook.f., Fl. Brit. India 5: 171. 1886; Boerl., Handl. Fl. Ned. Ind. 3: 145. 1900; Ridl., J. Straits Branch Roy. Asiat. Soc. 33: 132. 1900; Gamble, J. Asiat. Soc. Bengal 75(1): 147. 1912; Ridl., Fl. Malay Penins. 3: 119. 1924; Henderson, Gard. Bull. Straits Settlem. 4: 313. 1928; Kosterm., Bibliogr. Laur. 863. 1964. Type: Malaysia, Malacca, *Maingay 1265* (holotype **K!**). — *Litsea odorifera* Valeton, Icon. Bogor. 3: 199. fig. 276. 1909; Merr., Philipp. J. Sci. 20(4): 386. 1922; J. Straits Branch Roy. Asiat. Soc. 85: 197. 1922; Enum. Philipp. Flowering Plants 2: 196. 1923; Backer & Bakh.f., Fl. Java 1: 128. 1963; Kosterm., Bibliogr. Laur. 858. 1964. Type: Indonesia, Java, *Unknown s.n.* (holotype **K!**). Figs. 2, 24: D–F.

Medium-sized to large tree 10–30 m tall; bark smooth, lenticellate, greyish brown or grey; branchlets glabrous or glabrescent. *Leaves* spiral; blade elliptic or elliptic-oblong, 6–16 by 2.5–7 cm, apex acute, acuminate or obtuse, base oblique or cuneate, margin entire, thinly coriaceous, dark green above, glabrous on both surfaces, sometimes sparsely hairy on veins beneath, glaucous beneath, petiole 1.2–3 cm long, glabrous; midrib sunken above, raised beneath, secondary veins 4–7 pairs, shallowly sunken above, raised beneath, curving near margin, tertiary veins scalariform-reticulate, faint beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets, sometimes in axils of leaves, clusters of umbels 1–2 cm long; umbels 0.7–1 cm in diam.; peduncles 0.6–1.2 cm long, sparsely pubescent; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–5.5 by 3–4 mm, sparsely pubescent outside. *Male flowers* 5–6 in each umbel; tepals 6, obovate, obovate-oblong or oblong, subequal, 3–4 by 1.5 mm, membranaceous, hairy; pedicels 1.5–2.5 mm long, densely pubescent; stamens 9–12, unequal; anthers 1–1.5 mm long; filaments slender 3–7 mm long, villose, 2 glands at base or without glands; pistillode 3–5 mm long, glabrous. *Female flowers* 5–6 in each umbel; tepals 6, obovate, obovate-oblong or oblong, subequal, 2.5–3 by 1–1.5 mm, membranaceous, hairy; pedicels 1.5–3 mm long, densely pubescent; ovary globose, 1 mm in diam., glabrous; style 2–2.5 mm long; stigma peltate; staminodes 6–8, linear, 1.5–3 mm long, hairy. *Fruits* globose or subglobose, 0.8–1.1 cm in diam., green with white dots, turning dark pink, dark purple and black when ripe, glabrous, glossy; enlarged perianth tube shallow cup-shaped or nearly flattened, 0.4–0.5 cm in diam., sparsely pubescent; fruiting pedicels 0.5–0.7 cm long, sparsely pubescent; infructescence stalks 0.5–0.8 cm long, sparsely pubescent.

Thailand.— SOUTH-EASTERN: Chanthaburi (Makham, Khao Sa Bap); PENINSULAR: Chumphon (Thung Tako, Lang Suan), Ranong, Surat Thani (Ban Don, Ban Na), Nakhon Si Thammarat, Phatthalung, Narathiwat (Sukhirin).

Distribution.— Malay Peninsula, Singapore, Java, Borneo, New Guinea.

Ecology.— In tropical rain forest, 50–600 m. Also cultivated. Flowering: September–February. Fruiting: December–May.

Vernacular.— Tham mang (ทำมัง) (Peninsular).

Uses.— In peninsular Thailand, the young leaves are eaten as a vegetable side dish and are used as a flavouring material in Thai 'Nam Prik', a local spicy dip. The wood is locally used for house construction, and used for making mortars and pestles.

Note.— The bark, wood, leaves and fruits are aromatic and reminiscent of the smell of a species of giant water bug (*Lethocerus indicus*) called 'Ma-laeng-da-na' in Thai, a flavouring material in the 'Nam Prik' mentioned above.

6. Litsea firma (Blume) Hook.f., Fl. Brit. India 5: 162. 1886; Boerl., Handl. Fl. Ned. Ind. 3: 142. 1900; Gamble, J. Asiat. Soc. Bengal 75(1): 138. 1912; Ridl., Fl. Malay Penins. 3: 116. 1924; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 416. 1925; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928; Corner, Ways. Trees Malaya 1: 347. 1940, 3rd ed. 385. 1988; Kosterm., Bibliogr. Laur. 817. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 156. 1989; H. Keng, Concise Fl. Singapore: 19. 1990; Lemmens et al., Pl. Resources SE Asia 5(2): 315. 1995; Ngernsaengsaruay et al., Thai Forest Bull. (Bot.) 33: 83. fig. 3. 2005.— *Tetranthera firma* Blume, Mus. Bot. Lugd. Bat. 1(24): 381. 1851; Meisn. in DC., Prodr. 15(1): 190. 1864; Kosterm., Bibliogr. Laur. 1392. 1964. Type: Borneo, *Korthals s.n.* (lectotype **K!**, designated by Ngernsaengsaruay et al. (2005); isolectotype U!).— *Litsea sibuyanensis*

Elmer, Leafl. Philipp. Bot. 2: 724. 1910; Merr., Enum. Philipp. Flowering Plants 2: 197. 1923; Kosterm., Bibliogr. Laur. 880. 1964. Type: Philippines, Island of Sibuyan, *Elmer 12536* (lectotype **K!**, designated by Ngernsaengsaruay et al. (2005); isolectotypes **BM**!, **GH**).

Medium-sized tree 15–20 m tall; bark smooth to scaly, lenticellate, greyish brown; branchlets puberulous, with brown scurfy scales. *Leaves* spiral; blade obovate or elliptic, 6–13 by 2.5–5.5 cm, apex obtuse or acute, base cuneate or oblique, margin entire, coriaceous, reddish brown when dry, glabrous or sparsely puberulous on midrib and secondary veins above, puberulous, finely lepidote beneath; petiole 0.8–2.3 cm long, puberulous or glabrescent; midrib sunken above, raised beneath, secondary veins 7–14 pairs, sunken above, raised beneath, curving or curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets or in axils of leaves, clusters of umbels 1–2 cm long; umbels 0.5–1 cm in diam.; peduncles 0.5–1 cm long, pubescent; bracts (4–)5, usually imbricate, suborbicular or broadly ovate, concave, 3.5–4.5 by 3–4 mm, outer coriaceous, pubescent outside, inner membranaceous, hairy. *Male flowers* 5–8 in each umbel; tepals 5–6, oblong or oblong-lanceolate, subequal, 2–2.5 by 0.5–0.8 mm, membranaceous, hairy; pedicels 1.5–2 mm long, densely pubescent; stamens 9–12(–14), unequal; anthers 0.8–1.5 mm long; filaments slender, 3–5 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 5–6 in each umbel; tepals 5–6, oblong or oblong-lanceolate, subequal, 2–2.5 by 0.5–0.8 mm, membranaceous, hairy; pedicels 1–2 mm long, densely pubescent; ovary ovoid, 1–1.2 by 0.8–1 mm, glabrous; style 1.5–2.5 mm long; stigma peltate; staminodes 9–12, linear, 1.5–2 mm long, hairy, 2 glands or without glands. *Fruits* ovoid, 1–1.4 by 0.5–0.8 cm, glabrous; enlarged perianth tube cup-shaped, 0.4–0.5 cm high, 0.6–0.8 cm in diam., puberulous, margin entire; fruiting pedicels 0.3–0.6 cm long, puberulous; infructescence stalks 0.4–1 cm long, puberulous.

Thailand.— PENINSULAR: Narathiwat (Hala-Bala Wildlife Sanctuary).

Distribution.— Malay Peninsula, Singapore, Sumatra, Borneo, Philippines, New Guinea.

Ecology.— In tropical rain forest, ca. 300 m. Flowering: April–May.

Vernacular.— Ka thang pa ba la (กะทังป่าบาลา).

Note.— The description of flowering (female flowers) and fruiting material is based on non-Thai material (see Ngernsaengsaruay et al. (2005)).

7. Litsea glutinosa (Lour.) C.B. Rob., Philipp. J. Sci. 6: 321. 1911; Merr., Fl. Manila: 210. 1912, reprint 1968; Sp. Blancoanae: 153. 1918; Enum. Philipp. Flowering Plants 2: 194. 1923; Alston in Trimen, Handbook Fl. Ceylon 6: 248. 1931; Allen, Ann. Missouri Bot. Gard. 25: 384. 1938; Backer & Bakh.f., Fl. Java 1: 125. 1963; Kosterm., Bibliogr. Laur. 826. 1964; D.G.Long, Fl. Bhutan 1(2): 277. 1984; Kochummen in Ng, Tree Fl. Malaya 4: 157. 1989; Kosterm. in M.D. Dassanayake, F.R. Fosberg & W.D. Clayton, Rev. Handbook Fl. Ceylon 9: 148. 1995; Lemmens et al., Pl. Resources SE Asia 5(2): 316. 1995; Pendry in Watson et al., Fl. Nepal 3: 43. 2011.— *Sebifera glutinosa* Lour., Fl. Cochinch. 1: 638. 1790; Kosterm., Bibliogr. Laur. 1349. 1964. Type: Cochinchina, *Loureiro s.n.* (holotype **BM**!).— *Litsea chinensis* Lam., Encycl. Méth. Bot. 3: 574. 1792; Juss., Ann. Mus. Hist. Nat. 6: 210. 1805; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 134. 1904; Gamble, J. Asiat. Soc. Bengal 75(1): 131. 1912; Kosterm., Bibliogr. Laur. 799. 1964. Type: not seen.— *Tetranthera laurifolia* Jacq., Pl. Rar. Hort. Schoenbrunn 1: 59. t. 113. 1797; Wall., Numer. List 2555A. 1830; Nees in Wall., Pl. Asiat. Rar. 2: 66. 1831; Syst. Laurin. 519. 1836; Dietrich, Syn. 2: 1358. 1840; Blume, Mus. Bot. Lugd. Bat. 1(24): 372. 1851; Meisn. in DC., Prodr. 15(1): 178. 1864; Drury, Handbook Ind. Fl. 3: 63. 1869; Kurz, Forest Fl. Burma 2: 297. 1877; Kosterm., Bibliogr. Laur. 1403. 1964. Type: not seen.— *Tetranthera apetala* Roxb., Pl. Corom. 2: 25. t. 147. 1798; Wall., Numer. List 2554. 1830; Roxb., Fl. Ind. 3: 819. 1832; Juss., Ann. Mus. Hist. Nat. 6: 211. 1805; Kosterm., Bibliogr. Laur. 1378. 1964. Type: not seen.— *Litsea sebifera* Pers., Syn. 2: 4. 1807; Blume, Bijdr. 560. 1825; Hook.f., Fl. Brit. India 5: 157. 1886; Hemsl., J. Linn. Soc. Bot. 26: 385. 1891; Boerl., Handl. Fl. Ned. Ind. 3: 141. 1900; Brandis, Ind. Trees: 536. 1906; Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 90. 1913; Fl. Indo-Chine 5: 132. 1914; Ridl. Fl. Malay Penins. 3:

128. 1924; Liou Ho, Laurac. Chine & Indochine: 196. 1932; Kanjilal et al., Fl. Assam 4: 82. 1940; Kosterm., Bibliogr. Laur. 876. 1964. Type: not seen. Fig. 3.

Small to medium-sized tree 4–15 m tall; bark smooth, greyish brown or grey; branchlets tomentose. *Leaves* spiral; blade very variable in shape and size, obovate, obovate-oblong, oblong, ovate, broadly ovate or elliptic, 5–20(–25) by 2.5–10(–12) cm, apex obtuse or acute, base cuneate or oblique, margin ciliolate or partly ciliolate, sometimes eciliate, chartaceous to coriaceous, green or dark green, glabrescent above, tomentose on midrib and secondary veins above, glaucous, tomentose or tomentulose beneath; petiole 1–3 cm long, tomentose; midrib flattened or slightly prominent above, raised beneath, secondary veins 6–13 pairs, flattened or slightly prominent above, raised beneath, curving or curving and looping near margin, tertiary veins scalariform-finely reticulate or partly reticulate, distinct beneath, finely areolate and distinct above. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves, along branchlets or at apex of branchlets, raceme of umbels 2–6 cm long; umbels 0.7–1.5 cm in diam.; peduncles 0.5–1.5 cm long, tomentose; bracts 4, decussate, suborbicular or broadly ovate, concave, 3.5–7 by 3–7 mm, outer coriaceous, tomentose outside, inner membranaceous, hairy, margin fimbriate. *Male flowers* 10–15 in each umbel; tepals 0–3, obovate-lanceolate or obovate-oblong, unequal, 2.5–3 by 0.5–1 mm, membranaceous, hairy; pedicels 2–4 mm long, densely tomentose; stamens 10–18, unequal; anthers 0.8–1 mm long; filaments slender, 2–4 mm long, villose, 2 glands at base or without glands; pistillode 1–1.5 mm long, glabrous. *Female flowers* 9–11 in each umbel; tepals none; pedicels 1.5–2 mm long, densely tomentose; ovary globose, 0.8–1 cm in diam., glabrous; style 2–2.5 mm long; stigma peltate; staminodes 10–15, linear, 1.5–2.5 mm long, villose. *Fruits* globose, 0.8–1 cm in diam., dark green with white dots, turning red, dark purple and black when ripe, glabrous, glossy; enlarged perianth tube shallow cup-shaped or nearly flattened, 0.4–0.5 cm in diam., tomentulose; fruiting pedicels 0.2–0.5 cm long, tomentulose; infructescence stalks 0.6–1 cm long, tomentulose.

Thailand.— NORTHERN: Mae Hong Son (Mae Sariang), Chaing Mai (Doi Inthanon, Doi Chiang Dao, Doi Suthep, Chom Thong, Mae Rim, Omkoi, Phrao, Sankamphaeng, Mueang, Huai Kaeo Arboretum, Mae On, Bo Luang,), Chiang Rai (Mueang, Chiang Saen), Phayao (Doi Luang National Park, Champa Thong Waterfall), Nan (Tham Pha Toop Forest Park), Lamphun (Doi Khun Tan National Park, Mae Ao), Lampang (Ngao, Chae Hom), Phrae (Mueang, Huai Mae Sai), Tak (Lan Sang, Phimiphon Dam), Sukhothai (Khiri Mat), Phitsanulok (Thung Salaeng Luang, Phu Hin Rong Kla), Kamphaeng Phet (Mae Wong), Nakhon Sawan; NORTH-EASTERN: Phetchabun (Lom Kao, Nam Nao), Loei (Wang Saphung, Phu Kradueng, Phu Luang), Udon Thani, Nong Khai (Bung Khla, Bueng Kan, Phon Phisai), Sakon Nakhon (Phu Phan), Nakhon Phanom, Maha Sarakham (Phayakkhaphum Phisai), Khon Kaen (Phu Wiang); EASTERN: Chaiyaphum (Chatturat, Phu Khiao Wildlife Sanctuary), Nakhon Ratchasima (Pak Thong Chai, Bua Yai, Sikhio, Ban Chum Saeng), Buri Ram (Lam Plai Mat), Surin (Rattanaburi, Nadi), Roi Et (Mueang Suang) Si Sa Ket (Kanthararom), Ubon Ratchathani (Warin Chamrap, Mueang); SOUTH-WESTERN: Uthai Thani (Huai Kha Khaeng Wildlife Sanctuary, Ban Rai), Kanchanaburi (Dong Yai, Thong Pha Phum, Bo Phloi, Sai Yok, Si Sawat, Chaloem Rattanakosin National Park, Thung Yai Naresuan Wildlife Sanctuary), Ratchaburi, Phetchaburi (Thung Luang, Kaeng Krachan); Prachuap Khiri Khan (Hua Hin, Bang Saphan, Khlong Wan, Thap Sakae, Hat Wanakon, Huai Yang National Park, Kaeng Krachan), Suphanburi (Phu Toei); CENTRAL: Chai Nat, Suphan Buri, Ang Thong (Mueang), Saraburi (Phu Khae Botanic Garden, Phra Phutthachai), Bangkok, Nakhon Nayok; SOUTH-EASTERN: Prachinburi, Chon Buri (Ko Khram, Sattahip, Si Racha, Khao Khiao), Rayong, Chanthaburi (Khao Soi Dao, Pong Nam Ron, Khlung); PENINSULAR: Chumphon (Phato, Lang Suan, Pathio, Thung Tako), Ranong (Ngao Waterfall), Surat Thani (Kanchanadit, Ban Na San, Khao Wong), Phangnga (Khao Phra Mi), Nakhon Si Thammarat (Khao Luang, Lan Saka, Chawang, Mueang, Nam Tok Yong National Park), Trang (Khao Chong), Songkhla (Mueang, Hat Yai, Sathing Phra), Pattani (Thung Yang Daeng), Yala (Sai Khao Waterfall), Narathiwat (Khao Tan Yong).

Distribution.— China, India, Nepal, Bhutan,

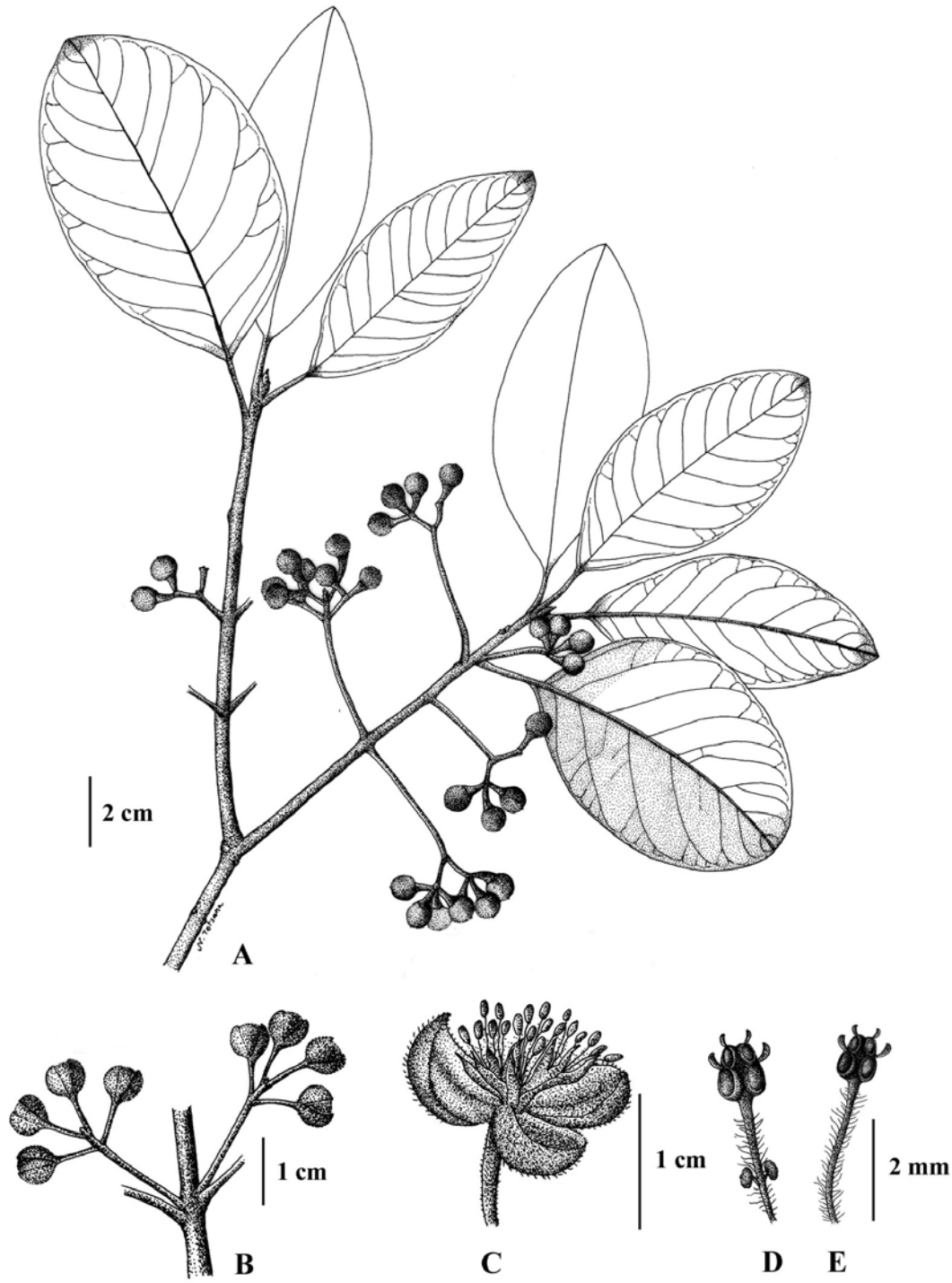

Figure 3. *Litsea glutinosa* (Lour.) C.B. Rob.: A. fruiting branch; B. flowering branch with inflorescence buds; C. male inflorescence; D. inner whorled stamen with 2 glands; E. outer whorled stamen without gland. Drawn by N. Tetsana.

Sri Lanka, Myanmar, Laos, Cambodia, Vietnam, Malay Peninsula, Java, Celebes, Moluccas, Lesser Sunda Islands, Borneo, New Guinea, Philippines, Australia.

Ecology.— In a wide variety of habitats, in deciduous dipterocarp forest, pine-deciduous dipterocarp forest, mixed deciduous forest, dry evergreen forest, along the edge of tropical rain forest, lower montane forest, beach forest, scrub by the sea, secondary forest, disturbed open areas, 0–1450 m. Flowering: February–July. Fruiting: June–November.

Vernacular.— Mi men (หมีเหม็น), yup yao (ยุบเหยา) (Chon Buri, Northern); dok chum (ดอกจุ่ม) (Lampang); mi (หมี่) (Chiang Mai, Lampang, Nakhon Ratchasima); mu men (หมูเหม็น), ma yoe (มะเย้อ), (Phrae); tang si phrai (ตังสีไพร) (Phitsanulok); se-pui-ya-khu (เส่ปียขู้) (Karen-Mae Hong Son); mi (หมี) (Udon Thani); mi klang (หมี่กลาง) (Nakhon Phanom); i men (อีเหม็น) (Kanchanaburi, Ratchaburi); mu tha luang (หมูทะลวง) (Chanthaburi); kam-pron-bai (กำปรนบาย) (Chong-Chanthaburi); thang mon (ทังมน), mon yai (มนใหญ่), cha thang (ช้าทัง) (Chumphon); ka mun (กะหมุน) (Surat Thani); thang buan (ทังบวน) (Pattani); mue-bo (มือเบาะ) (Malay-Yala); mon (ม้น) (Trang).

8. Litsea grandis (Nees) Hook.f., Fl. Brit. India 5: 162. 1886; Boerl., Handl. Fl. Ned. Ind. 3: 142. 1900; Brandis, Ind. Trees: 537. 1906; Gamble, J. Asiat. Soc. Bengal 75(1): 136. 1912; Lace, List Trees, Shrubs and Climbers Burma: 139. 1922; Ridl., Fl. Malay Penins. 3: 115. fig. 145. 1924; Merr., J. Straits Branch Roy. Asiat. Soc. 85: 196. 1922; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928; Liou Ho, Laurac. Chine & Indochine: 191. 1932; Corner, Ways. Trees Malaya 1: 347. fig. 119. 1940, 3rd ed. 385. fig. 123. 1988; Kosterm., Bibliogr. Laur. 828. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 158. 1989; H. Keng, Concise Fl. Singapore: 19. 1990; Lemmens et al., Pl. Resources SE Asia 5(2): 316. 1995.— *Tetranthera grandis* Wall. [Numer. List 2552. 1830, nom. nud.] ex Meisn. in DC., Prodr. 15(1): 188. 1864; Kurz, Forest Fl. Burma 2: 299. 1877; Mason, Burma, its people and productions 2: 285. 1883; Kosterm., Bibliogr. Laur. 1398. 1964.— *Polyadenia grandis* Nees in Wall., Pl. Asiat. Rar. 2: 62. 1831; Syst. Laurin.: 574. 1836; Dietrich, Syn. 2: 1362. 1840; Kosterm., Bibliogr. Laur. 1310. 1964, non. Hassk. Type: Malaysia, Penang, *Wallich Cat. no. 2552* (lectotype **K-W!**, designated here; isolectotypes **E!**, **K!**). Figs. 4, 24: G–H.

Medium-sized to large tree 10–25 m tall; bark smooth to cracking and scaly, lenticellate, greyish brown; branchlets reddish brown puberulous. *Leaves* spiral, crowded toward the apex of branchlets; blade broadly ovate, elliptic or obovate, 13–27(–36) by 8.5–15.5(–18.5) cm, apex obtuse, retuse, sometimes acute, base cuneate, obtuse or oblique, margin entire, thickly coriaceous, green or dark green, glabrous, glabrescent above or pubescent on midrib and secondary veins above, glaucous, pubescent beneath; petiole 2–4.5 cm long, puberulous; midrib sunken above, raised beneath, secondary veins 7–14 pairs, sunken above, raised beneath, curving or curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets or in axils of leaves, clusters of umbels 1.5–2.5 cm long; umbels 0.7–1.2 cm in diam.; peduncles 0.5–1.8 cm long, puberulous, with reddish brown scurfy scales; bracts 4, decussate, suborbicular or broadly ovate, concave, 4–7 by 3–5 mm, coriaceous, puberulous, with densely reddish brown scurfy scales outside. *Male flowers* 5–7 in each umbel; tepals 6, linear-oblong or oblong, subequal, 3.5–4 by 0.5–0.8 mm, membranaceous, pubescent; pedicels 1.5–2 mm long, densely pubescent; stamens 15–18, unequal; anthers 1–1.5 mm long; filaments slender, 2–5 mm long, villose, 2 glands nearly at base or without glands; pistillode none. *Female flowers* 5–6 in each umbel; tepals 6, ovate or ovate-oblong, subequal, 1.5–3 by 0.8–1 mm, membranaceous, pubescent; pedicels 1–3 mm long, densely pubescent; ovary ovoid, 1–1.2 by 0.8–1 mm, glabrous; style 1.5–2.5 mm long; stigma peltate; staminodes 6–9, linear, 1–2 mm long, hairy. *Fruits* ovoid, 1–1.2 (–2.2) by 0.7–0.8(–1.3) cm, green with white dots, turning dark red, dark purple and black when ripe, glabrous, glossy; enlarged perianth tube cup-shaped, 0.4–0.5 (–0.8) cm high, 0.6–0.7(–1.1) cm in diam., sparsely pubescent, margin entire or wavy; fruiting pedicels 0.5–1 cm long, sparsely pubescent; infructescence stalks 0.7–1(–1.4) cm long, puberulous.

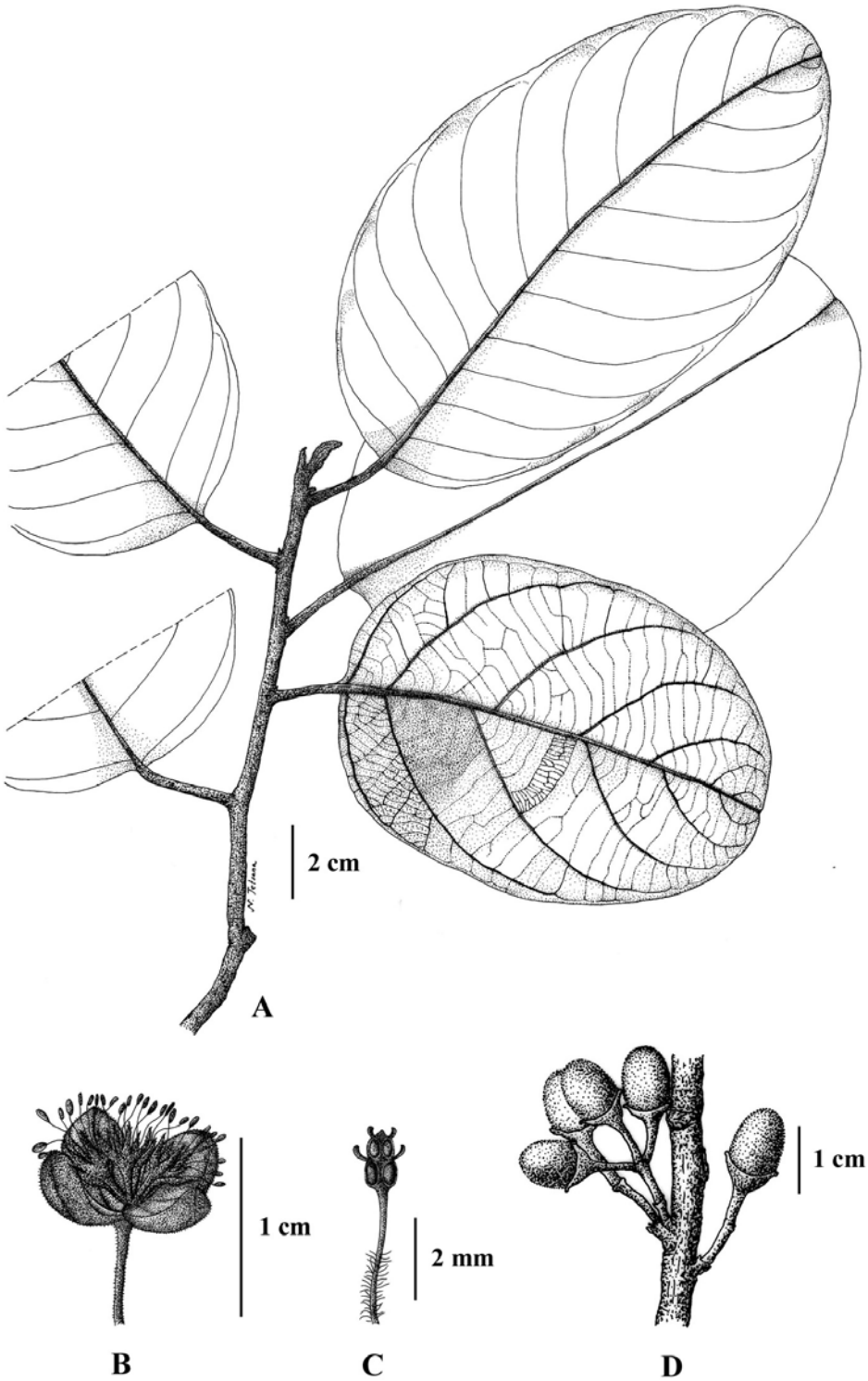

Figure 4. *Litsea grandis* (Nees) Hook.f.: A. branchlet with leaves; B. male inflorescence; C. outer whorled stamen without gland; D. fruiting branch. Drawn by N. Tetsana.

Thailand.— NORTH-EASTERN: Nong Khai (Phu Wua Wildlife Sanctuary, Bung Khla, Bueng Kan), Nakhon Phanom (Phu Langka National Park); SOUTH-WESTERN: Kanchanaburi (Tham Pha); SOUTH-EASTERN: Trat (Ko Chang); PENINSULAR: Chumphon (Thung Tako, Phato, Lang Suan, Sawi), Ranong (Ngao Water Fall), Surat Thani (Phanom, Tha Chang, Ban Don, Tha Khanon), Phangnga (Thap Put), Krabi (Khao Pra Bang Khram Wildlife Sanctuary), Nakhon Si Thammarat (Thung Song, Phrom Khiri), Phatthalung, Trang (Khao Chong, Thung Khai, Kantang), Satun (Tarutao, Khuan Po), Songkhla (Hat Yai, Khao Kho Hong), Pattani (Ban Sai Khao, Sai Buri), Yala (Yaha), Narathiwat (Tak Bai, Bacho, Sukhirin, Su-ngai Kolok, Su-ngai Padi, Waeng).

Distribution.— Myanmar, Malay Peninsula, Singapore, Sumatra, Celebes, Borneo, Brunei, Philippines.

Ecology.— In or along the edge of tropical rain forest, peat swamp forest, mixed deciduous forest, secondary forest, disturbed open areas, 0–350 m. Flowering: November–March. Fruiting: February–June.

Vernacular.— Ka thang bai yai (กะทังใบใหญ่), thang bai yai (ทังใบใหญ่), thang (ทัง), ka thang (กะทัง) (Peninsular); thang thong (ทังทอง) (Surat Thani); pho man da (พอมันดะ) (Pattani); sang tang (สังตั้ง) (Yala); ma dang (มะดัง) (Narathiwat); ka-ta (กะตา), ka-yu-ka-ta (กายูกะตา), mue-dae (มือแด), mue-dang (มือแด็ง) (Malay-Narathiwat); ka-yu-mue-dae (กายูมือแด) mue-tae (มือแต) (Malay-Peninsular); yang dong (ยางดง) (Nong Khai).

Uses.— In peninsular Thailand the wood is used for house construction.

Note.— The fruits on specimens from Nong Khai and Nakhon Phanom Provinces are larger than those from other areas. Fruits are ovoid or cylindrical, 1.8–2.2 by 0.9–1.3 cm, seated on enlarged cup-shaped perianth tube, 0.4–0.8 cm high, 0.8–1.1 cm in diam. Fruiting pedicels are 0.8–1 cm long; infructescence stalks are 1–1.4 cm long.

9. Litsea hirsutissima Gamble, Bull. Misc. Inform. Kew: 357. 1910; J. Asiat. Soc. Bengal 75(1): 142. 1912; Ridl., Fl. Malay. Penins. 3: 118. 1924; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 416. 1925; Calder & Ramaswami, Records Bot. Survey India 11(1): 82. 1926; Kosterm., Bibliogr. Laur. 831. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 158. 1989; Ngernsaengsaruay et al., Thai Forest Bull. (Bot.) 33: 85. figs. 4, 6: C–D. 2005. Type: Malaysia, Perak, Goping, *King's Collector 404* (lectotype **K!**, designated by Ngernsaengsaruay et al. (2005)).

Shrub or small tree 1–5 m tall; young parts very densely brown or reddish brown villose; branchlets densely villose; *Leaves* spiral; blade usually elliptic or broadly elliptic, sometimes obovate, 11–21 by 6.5–12 cm, apex acuminate or caudate, base cuneate, sometimes obtuse, margin ciliate, chartaceous, dark green, sparsely villose above, villose on midrib and secondary veins above, glaucous, densely villose beneath; petiole 0.5–1 cm long, villose; midrib shallowly sunken above, raised beneath, secondary veins 9–14 pairs, shallowly sunken or flattened above, raised beneath, curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels, in axils of leaves or along branchlets, rarely cauliflorous, clusters of umbels 0.8–1 cm long; umbels 0.5–0.7 cm in diam.; peduncles 0.3–0.7 cm long, villose; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–5 by 3–4 mm, villose outside. *Male flowers* 5 in each umbel; tepals 6, linear-oblong or oblong, subequal, 3–3.5 by 0.5–1 mm, membranaceous, hairy; pedicels 1–2.5 mm long, villose; stamens 7–10, unequal; anthers 0.5–1 mm long; filaments slender, 2.5–4 mm long, villose, 2 glands nearly at base or without glands; pistillode none. *Female flowers* not known. *Fruits* ovoid or broadly ovoid, 1.2–1.4 by 0.8–1 cm, green with white dots, glabrous, glossy; enlarged perianth tube a shallow cup, 0.5–0.7 cm in diam., fruiting pedicels thickened, 0.6–0.8 cm long, sparsely villose; infructescence stalks 0.5–0.7 cm long, villose.

Thailand.— PENINSULAR: Chumphon (Phato), Ranong (Khlong Na Kha Wildlife Sanctuary, Wang Kum Protection Unit, Khao Phota Luang Kaeo), Phangnga (Khao Phra Mi, Khao Nang Hong, between Thap Put and Phangnga).

Distribution.— Malay Peninsula.

Ecology.— In tropical rain forest, 50–400 m. Flowering: April–September. Fruiting: July–October.

Vernacular.— Thang bai khon khlong na kha (ทังใบขนคลองนาคา).

10. Litsea hookeri (Meisn.) D.G.Long, Notes Roy. Bot. Gard. Edinburgh 41(3): 510. 1984; in A.J.C. Grierson & D.G. Long, Fl. Bhutan 1(2): 276. 1984; Pendry in Watson et al., Fl. Nepal 3: 41. 2011.— *Cylicodaphne hookeri* Meisn. in DC., Prodr. 15(1): 209. 1864; Kosterm., Bibliogr. Laur. 449. 1964.— *Litsea khasyana* (Meisn.) Hook.f. var. hookeri (Meisn.) Hook.f., Fl. Brit. India 5: 164. 1886. Type: India, Khasia, *Hooker & Thomson s.n.* (lectotype **G-DC**, microfiche).— *Tetranthera khasyana* Meisn. in DC., Prodr. 15(1): 185. 1864; Drury, Handbook Ind. Fl. 3: 65. 1869; Kosterm., Bibliogr. Laur. 1401. 1964.— *Litsea khasyana* (Meisn.) Hook.f., Fl. Brit. India 5: 164. 1886, Brandis, Ind. Trees: 537. 1906; Kanjilal et al., Fl. Assam 4: 85. 1940, hom. illeg., non *L. khasyana* Meisn. in DC., Prodr. 15(1): 227. 1864. Type: India, Khasia, *Hooker & Thomson s.n.* (holotype **G-DC**, microfiche; isotypes **K!**). Fig. 5.

Small tree 8 m tall; branchlets tomentose. *Leaves* spiral; blade elliptic-oblong, or oblong 17.5–31 by 6–11 cm, apex acute or acuminate, base cuneate, margin entire, chartaceous, glabrous above or tomentose on midrib and secondary veins above, glaucous, tomentose or tomentulose beneath; petiole 1.5–2.8 cm long, tomentose; midrib sunken above, raised beneath, secondary veins 12–16 pairs, shallowly sunken or flattened above, raised beneath, curving near margin, tertiary veins scalariform-reticulate, slightly prominent beneath, finely areolate and distinct above. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, in axils of leaves or along branchlets, clusters of umbels 1–2 cm long; umbels 0.8–1.2 cm in diam.; peduncles 0.8–1.2 cm long, densely reddish brown tomentose; bracts 4–5, decussate or imbricate, suborbicular or broadly ovate, concave, 5–8 by 5–8 mm, densely reddish brown tomentose outside. *Male flowers* 5–7 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 3–4 by 1.5–2 mm, membranaceous, hairy; pedicels 2–3 mm long, densely tomentose; stamens 9–12, unequal; anthers 1–1.5 mm long; filaments slender, 2–5 mm long, villose, 2 glands nearly at base or without glands; pistillode 2–2.5 mm long. *Female flowers* not known. *Fruits* not known.

Thailand.— NORTHERN: Chiang Mai (Doi Chiang Dao, Pang Ton).

Distribution.— India, Eastern Nepal.

Ecology.— In dry evergreen forest along streamlets, 500–600 m. Flowering: May–June.

Vernacular.— Ka thang nai hooker (กะทังนายฮุคเกอร์).

Notes.— Long (1984) treated *Litsea hookeri* (Meisn.) D.G. Long as a new combination based on three syntypes [*Griffith 4286* (**K!**), East Bengal; *Griffith 4287* (**K!**), East Bengal, Mishmee; *Hooker & Thomson s.n.* (**G-DC**, microfiche), Khasia]. The third one was designated as the lectotype.

The specific epithet is given in honour of J.D. Hooker who found and collected the type specimens.

The name *Litsea khasyana* has been applied to two different species of *Litsea*. The earlier legitimate name, *Litsea khasyana* Meisn., must be retained, with *Litsea meissneri* Hook.f. as a synonym. The second plant, *Litsea hookeri* (Meisn.) D.G.Long was originally described twice by Meisner (1864) as *Cylicodaphne*? *hookeri* and *Tetranthera khasyana*. Hooker, unfortunately, transferred *Tetranthera khasyana* Meisn. to *Litsea khasyana* (Meisn.) Hook.f., possibly not realising they were heterotypic. He probably rejected the epithet hookeri due to the existence of the name *Litsea hookeriana* (Meisn.) Hook.f. for a third plant from Sri Lanka. Hence, Hooker's *Litsea khasyana* (Meisn.) Hook.f. is an illegitimate homonym and must be replaced by *Litsea hookeri* (Meisn.) D.G.Long.

11. Litsea johorensis Gamble, Bull. Misc. Inform. Kew: 315. 1910; J. Asiat. Soc. Bengal 75(1): 133. 1912; Ridl., Fl. Malay Penins. 3: 114. 1924; Calder & Ramaswami, Records Bot. Survey India 11(1): 82. 1926; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928; Kosterm., Bibliogr. Laur. 834. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 159. 1989. Lemmens et al., Pl. Resources SE Asia 5(2): 317. 1995. Type: Malaysia, Johore, Tanjong Bunga, *Ridley 6458* (lectotype **K!**, designated here).— *Litsea trunciflora* Gamble, Bull. Misc. Inform. Kew: 316. 1910; J. Asiat. Soc. Bengal 75(1): 135.

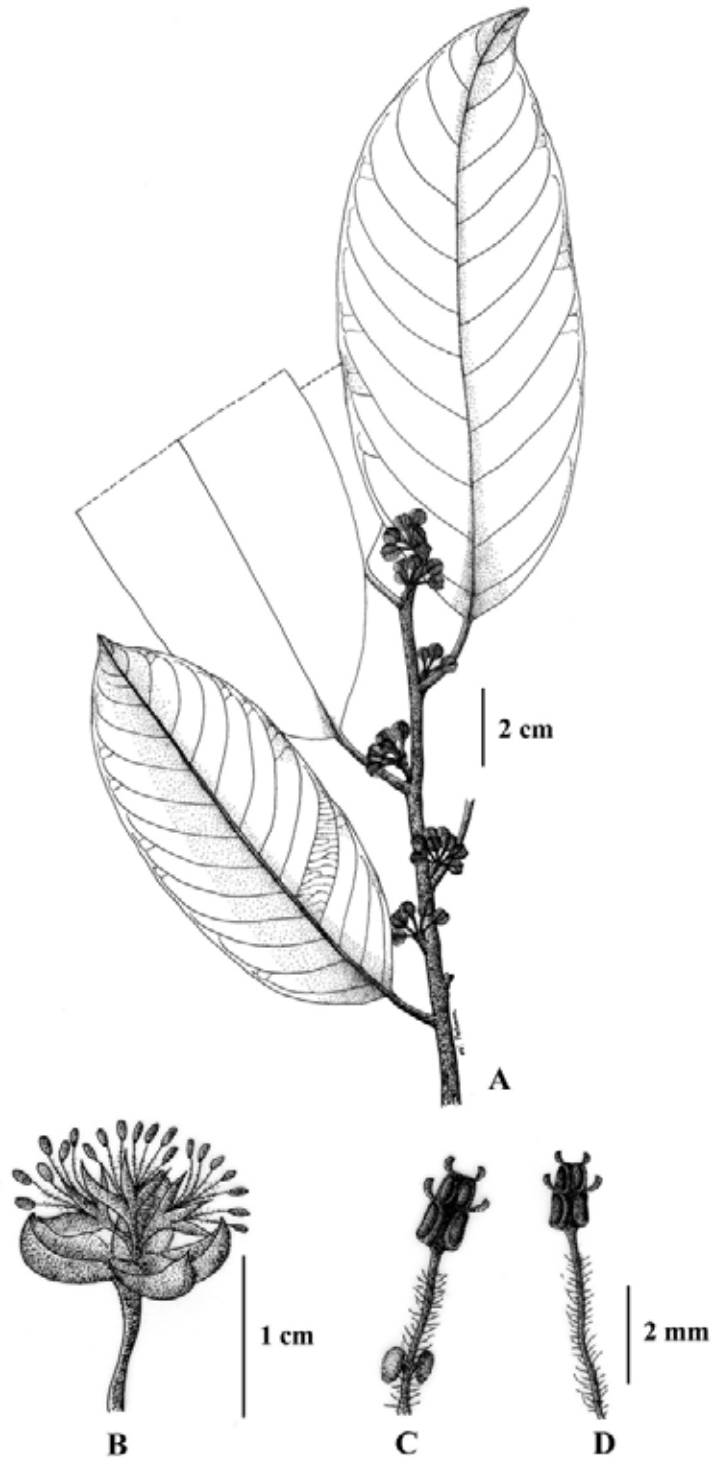

Figure 5. *Litsea hookeri* (Meisn.) D.G. Long: A. flowering branch with inflorescence buds; B. male inflorescence; C. inner whorled stamen with 2 glands; D. outer whorled stamen without gland. Drawn by N. Tetsana.

1912; Ridl., Fl. Malay Penins. 3: 114. 1924; Kosterm., Bibliogr. Laur. 888. 1964. Type: Malaysia, Perak, Goping, *King's Collector 4582* (lectotype **K!**, designated here; isolectotype **BM**!).

Small tree 3–8 m tall; bark smooth, whitish; young branchlets densely reddish brown pubescent. *Leaves* spiral, crowded toward the apex of branchlets, closely spaced; blade obovate-oblong or obovate-lanceolate, 18–45 by 6–18 cm, apex acuminate or cuspidate, base cuneate, margin entire, coriaceous, dark green, grabrous above, except pubescent on midrib and secondary veins above, glaucous, pubescent beneath; petiole 1.5–3 cm long, usually swollen at base, densely reddish brown pubescent; midrib sunken above, raised beneath, secondary veins 12–22 pairs, sunken above, raised beneath, curving or curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, cauliflorous (along main stem), clusters of umbels 1.5–4 cm long; umbels 1–1.5 cm in diam.; peduncles 0.5–3 cm long, densely puberulous; bracts 4, decussate, suborbicular or broadly ovate, concave, 9–12 by 5–10 mm, puberulous outside. *Male flowers* 6–8 in each umbel; tepals 6, obovate-lanceolate, ovate-oblong or oblong, subequal, 3.5–5 by 1–1.5 mm, membranaceous, hairy; pedicels 1–2 mm long, densely puberulous; stamens 9–12, unequal; anthers 2–4 mm long; filaments slender, 2.5–5 mm long, villose, 2 glands at base or without glands; pistillode 2.5–4 mm long, glabrous. *Female flowers* 7–8 in each umbel; tepals 6, obovate-lanceolate, ovate-oblong or oblong, subequal, 3.5–5 by 1–1.5 mm, membranaceous, hairy; pedicels 1–2 mm long, densely puberulous; ovary ovoid, 1–1.5 by 0.5–1 mm, glabrous; style 2.5–4 mm long; stigma peltate; staminodes 9–12, linear, 2–4.5 mm long, hairy, 2 glands or without glands. *Fruits* ovoid, 1.2–1.5 by 1–1.2 cm, green with white dots, turning red, dark purple and black when ripe, glabrous, glossy; enlarged perianth tube cup-shaped, 0.4–0.7 cm high, 0.7–1 cm in diam., puberulous, margin wavy; fruiting pedicels very short, subsessile or sessile; infructescence stalks 0.5–1.5 cm long, puberulous.

Thailand.— PENINSULAR: Narathiwat (Hala-Bala Wildlife Sanctuary, Waeng, Sukhirin, Bacho, Su-ngai Kolok).

Distribution.— Malay Peninsula.

Ecology.— In tropical rain forest and peat swamp forest, 0–850 m. Flowering: March–July. Fruiting: June–November.

Vernacular.— Pae ngu (แปงู) (Narathiwat).

Notes.— The specific epithet is named after Johore in Peninsular Malaysia where H.N. Ridley found and collected the type specimens.

Gamble (1910a) described *Litsea johorensis* based on four syntypes [*Ridley 6458* (**K!**), Johore, Tanjong Bunga; *Ridley 9163* (**K!**), Johore, near Castlewood; *Ridley 11995* (**K!**), Johore, Mount Austen; *Ridley 13479* (**K!**), Johore, Seduah]. The first one is designated here as the lectotype.

Gamble (1910a) described *Litsea trunciflora* based on two syntypes [*King's Collector 4582* (**BM**!, **K!**), Perak, Goping; *King's Collector 8211* (**K!**), Perak, Goping]. The first one is designated here as the lectotype and isolectotype.

12. Litsea kerrii Kosterm., Nat. Hist. Bull. Siam Soc. 25(3–4): 37. 1975. Type: Thailand, Chiang Mai, Doi Phahom Pok, *Kerr 5202* (holotype **K!**; isotypes **BK!**, **BM**!).

Small tree 8 m tall; branchlets glabrescent. *Leaves* spiral; blade oblong or oblong-lanceolate, 7–12 by 2–3 cm, apex acuminate, base cuneate, margin entire, thinly coriaceous, glabrous on both surfaces; petiole 1–1.5 cm long, glabrous; midrib flattened above, raised beneath, secondary veins 6–11 pairs, flattened above, slightly raised beneath, curving near margin, tertiary veins reticulate, distinct on both surfaces. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves or along branchlets, raceme of umbels 1–2 cm long; umbels 0.8–1.2 cm in diam.; peduncles 0.4–0.7 cm long, sparsely puberulous; bracts 4, decussate, suborbicular, concave, 5–6 by 5–6 mm, sparsely puberulous outside. *Male flowers* 5 in each umbel; tepals 6, obovate, obovate-oblong, subequal, 3.5–5 by 1.5–2.5 mm, membranaceous, puberulous; pedicels 2–3 mm long, puberulous; stamens 9–11, unequal; anthers 1.5–2 mm long; filaments slender, 2.5–4 mm long, villose, 2 glands at base or without glands; pistillode 2–2.5 mm long, glabrous. *Female flowers* not known. *Fruits* not known.

Thailand.— NORTHERN: Chiang Mai (Doi Phahom Pok).

Distribution.— Endemic.

Ecology.— In upper montane forest, ca. 2000 m. Flowering: April.

Vernacular.— Ka thang mo kha (กะทังหมอคาร์).

Notes.— The specific epithet is given in honour of A.F.G. Kerr who found and collected the type specimens.

The description is based only on the type specimens. Poor flowering specimens were collected from a fallen twig by A.F.G. Kerr.

13. Litsea khasyana Meisn. in DC., Prodr. 15(1): 227. 1864; D.G. Long, Notes Roy. Bot. Gard. Edinburgh 41(3): 510. 1984. Type: India, Khasia, *Hooker & Thomson s.n.* (holotype **G-DC**, microfiche; isotypes **BM**!, C!, **E!**, **K!**).— *L. meissneri* Hook.f., Fl. Brit. India 5: 169. 1886; Brandis, Ind. Trees: 538. 1906; Kanjilal et al., Fl. Assam 4: 89. 1940; Kosterm., Bibliogr. Laur. 847. 1964. Type: as for *L. khasyana* Meisn. Figs. 6, 25: A–B.

Medium-sized to large tree 12–30 m tall; bark smooth, lenticellate, reddish brown; terminal buds perulate; branchlets glabrous. *Leaves* spiral; blade ovate-oblong, ovate-lanceolate or lanceolate, 7–20 by 2–5 cm, apex acuminate or caudate, base cuneate, margin entire, thinly coriaceous, dark green above, glabrous on both surfaces, glaucous beneath; petiole 1–2.5 cm long, glabrous; midrib sunken above, raised beneath, secondary veins 7–14 pairs, flattened above, raised beneath, curving and looping near margin, tertiary veins reticulate, distinct on both surfaces. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels, in axils of leaves, along branchlets or at apex of branchlets; umbels 0.7–1 cm in diam.; sessile; bracts 4–5, decussate or imbricate, suborbicular or broadly ovate, concave, 4–5 by 3–5 mm, pubescent outside, margin fimbriate. *Male flowers* 4–7 in each umbel; tepals 6, elliptic-oblong or oblong, subequal, 3.5–4 by 1–1.5 mm, membranaceous, pubescent; pedicels 2–4 mm long, pubescent; stamens 9–12, unequal; anthers 1.5–2 mm long; filaments slender, 4–6 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 4–5 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2–3.5 by 1 mm, membranaceous, pubescent; pedicels 1.5–2 mm long, pubescent; ovary ellipsoid, 1–1.5 by 0.8–1 mm, glabrous; style 2–2.5 mm long; stigma peltate; staminodes 6–9, linear, 1–2 mm long, hairy, 2 glands or without glands. *Fruits* ellipsoid or cylindrical, 1.5–2.8 by 1.1–1.4 cm, green with white dots, turning dark purple and black when ripe, glabrous, glossy; enlarged perianth tube cup-shaped, 0.5–0.8 cm high, 0.9–1 cm in diam., sparsely pubescent; fruiting pedicels 0.3–1 cm long, sparsely pubescent; infructescence stalks sessile or subsessile.

Thailand.— NORTHERN: Chiang Mai (Doi Inthanon) Phitsanulok (Phu Hin Rong Kla); NORTH-EASTERN: Phetchabun (Nam Nao); EASTERN: Chaiyaphum (Phu Khiao Wildlife Sanctuary).

Distribution.— India.

Ecology.— In lower and upper montane forests, 800–2550 m. Flowering: April–September. Fruiting: September–February.

Vernacular.— Cha khai doi (จะไค้ดอย).

Note.— The specific epithet is named after the Khasia mountains in India where J.D. Hooker found and collected the type specimens.

14. Litsea kurzii King ex Hook.f., Fl. Brit. India 5: 164. 1886; Brandis, Ind. Trees: 537. 1906; Parkinson, Forest Fl. Andaman Islands: 226. 1923; Kosterm., Bibliogr. Laur. 836. 1964. Type: Andaman Islands, *Kurz s.n.* (lectotype **K!**, designated here). Figs. 7, 25: C–F.

Small tree 5–8 m tall, often with stilt roots; bark smooth, lenticellate, brown; young branchlets densely pubescent. *Leaves* spiral, along branchlets toward the terminal of branchlets, not closely spaced; blade obovate, sometimes elliptic-oblong, 14–25(–30.5) by 7–14 (–16.5) cm, apex acuminate, sometimes cuspidate or obtuse, base cuneate or slightly oblique, margin ciliate or partly ciliate, chartaceous, green or dark green, glabrous above, except pubescent on midrib and secondary veins above, glaucous, pubescent beneath; petiole 1–3(–4) cm long, densely reddish brown pubescent; midrib shallowly sunken above, raised beneath, secondary veins 11–15 pairs, shallowly sunken above, raised beneath, curving or curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets

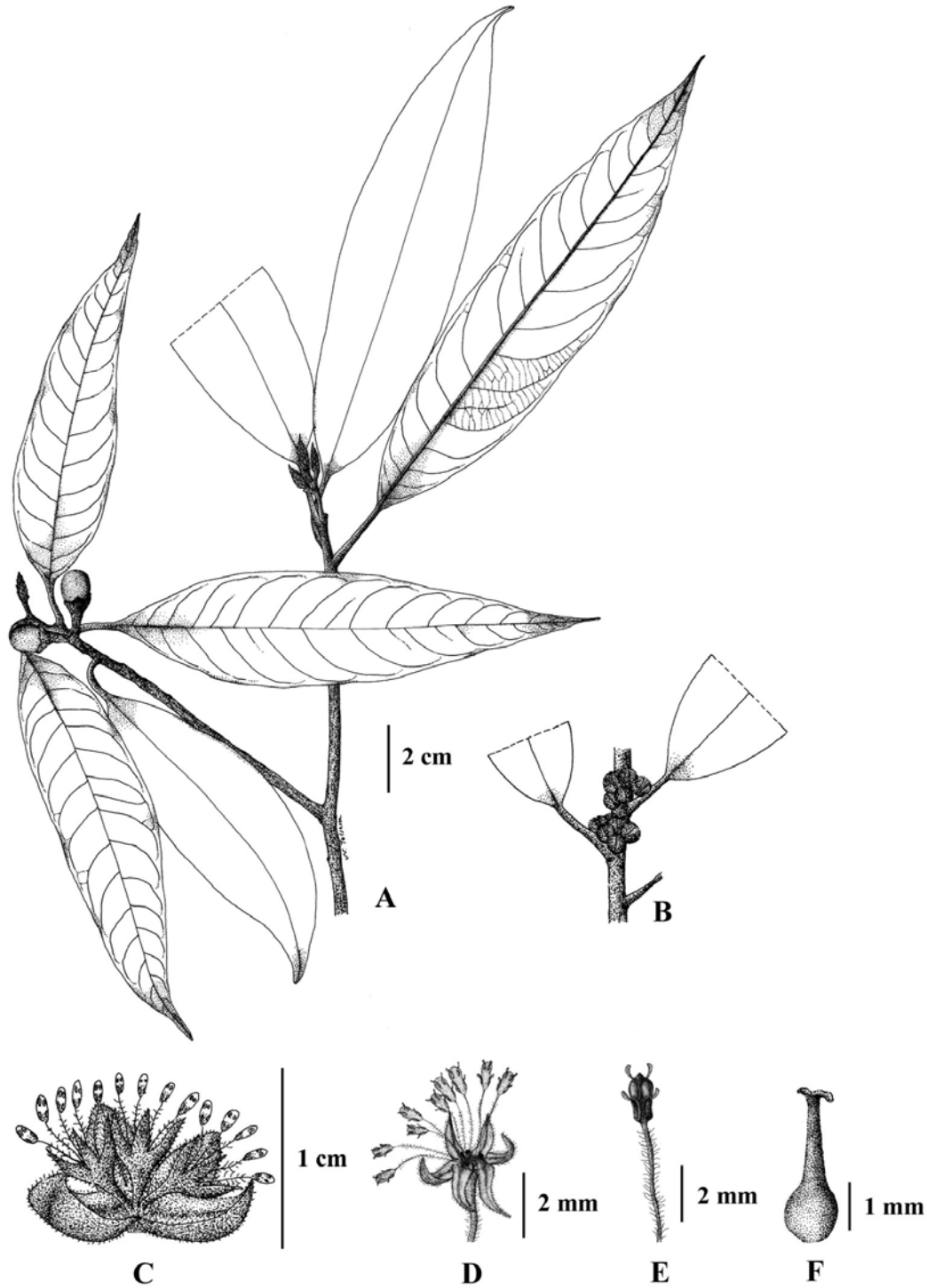

Figure 6. *Litsea khasyana* Meisn.: A. fruiting branch; B. flowering branch with inflorescence buds; C. male inflorescence; D. male flower; E. outer whorled stamen without gland; F. pistil. Drawn by N. Tetsana.

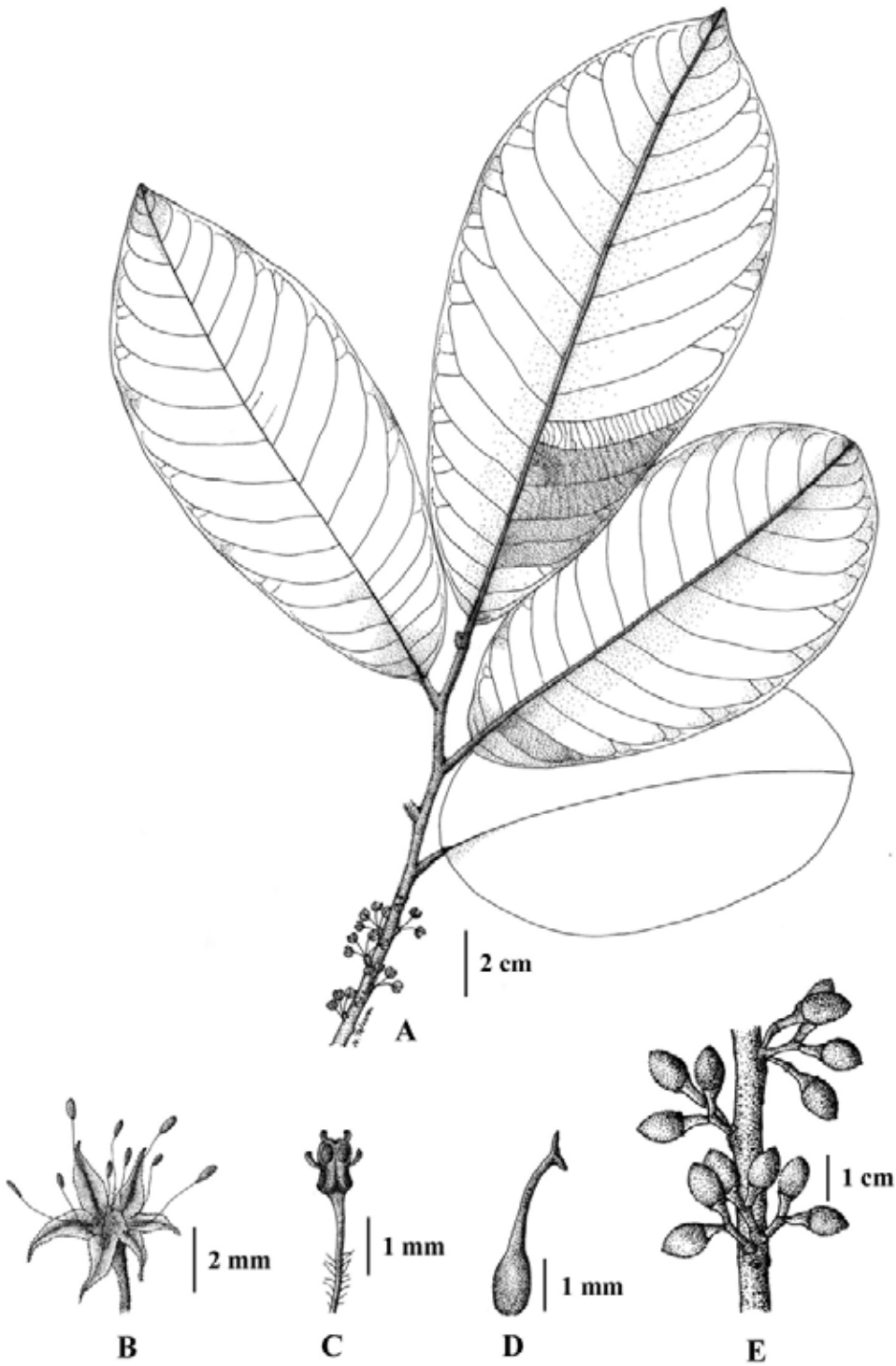

Figure 7. *Litsea kurzii* King ex Hook.f.: A. flowering branch with inflorescence buds; B. male flower; C. outer whorled stamen without gland; D. pistil; E. fruiting branch. Drawn by N. Tetsana.

or in axils of leaves, clusters of umbels 1–1.5 cm long; umbels 0.5–1 cm in diam.; peduncles 0.3–0.8 cm long, pubescent; bracts 4–5 decussate or imbricate, suborbicular or broadly ovate, concave, 3–5 by 3–4 mm, outer coriaceous, pubescent outside, inner membranaceous, hairy, margin fimbriate. *Male flowers* 6–7 in each umbel; tepals 6, ovate, subequal, 2.5–4 by 1.5–2 mm, membranaceous, pubescent; pedicels 1.5–3 mm long, densely pubescent; stamens 9, unequal; anthers 0.5–1 mm long; filaments slender, 2–4 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 4–6 in each umbel; tepals 6, ovate, subequal, 2–3 by 1–1.5 mm, membranaceous, pubescent; pedicels 1.5–2.5 mm long, densely pubescent; ovary ovoid, 1–1.5 by 0.8–1 mm, glabrous; style 2–3 mm long; stigma peltate; staminodes 9, linear, 1.5–2 mm long, villose, 2 glands or without glands. *Fruits* ovoid, 1–1.2 by 0.7–0.9 cm, green with white dots, turning dark purple and black when ripe, glabrous, glaucous; enlarged perianth tube shallow cup-shaped, 0.4–0.5 cm in diam., pubescent; fruiting pedicels thickened, 0.3–0.5 cm long, pubescent; infructescence stalks 0.5–0.6 cm long, pubescent.

Thailand.— SOUTH-WESTERN: Kanchanaburi (Thong Pha Phum, Sangkhla Buri, Khao Ngi Yai, Khao Lio Long); PENINSULAR: Ranong (Kapoe, Khao Phota Luang Kaeo), Phangnga (Khao Phra Mi, Khao Bang To).

Distribution.— Myanmar, Andaman Islands.

Ecology.— Often by streams in tropical rain forest, dry evergreen forest, and lower montane forest, 400–1000 m. Flowering: January–May. Fruiting: March–May.

Vernacular.— Ka thang nam (กะทังนำ้).

Note.— The specific epithet is given in honour of S. Kurz who found and collected the type specimens.

15. Litsea laeta (Wall. ex Nees) Hook.f., Fl. Brit. India 5: 169. 1886; Brandis, Ind. Trees: 538. 1906; Kanjilal et al., Fl. Assam 4: 88. 1940; Gamble, Fl. Madras 2: 865. 1957; Kosterm., Bibliogr. Laur. 836. 1964; D.G.Long, Fl. Bhutan 1(2): 275. 1984.— *Tetranthera laeta* Wall. [Numer. List 2541. 1830, nom. nud.] ex Nees in Wall., Pl. Asiat. Rar. 2: 67. 1831; Syst. Laurin. 548 et 677. 1836; Dietrich, Syn. 2: 1360. 1840; Meisn. in DC., Prodr. 15(1): 186. 1864; Drury, Handbook Ind. Fl. 3: 66. 1869. Type: India, Sikkim, *Wallich Cat. no. 2541* (leclotype **K-W!**, designated here; isolectotypes **BM!**, **E!**, **K!**). Figs. 8, 25: G–H.

Small to medium-sized tree 3–15 m tall; bark smooth, dark brown; branchlets sparsely puberulous or glabrous. *Leaves* spiral; blade oblong, oblong-lanceolate or lanceolate, 12–28 by 2.5–7 cm, apex acute, acuminate or caudate, base cuneate or slightly oblique, margin entire, thinly coriaceous, dark green, glabrous on both surfaces, sometimes sparsely puberulous beneath, glaucous beneath; petiole 0.8–1.8 cm long, sparsely puberulous or glabrous; midrib shallowly sunken or flattened above, raised beneath, secondary veins 6–11 pairs, flattened above, raised beneath, curving or curving and looping near margin, tertiary veins reticulate, distinct on both surfaces, finely areolate and distinct above. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, in axils of leaves or along branchlets, clusters of umbels 1–1.5 cm long; umbels 0.4–0.7 cm in diam.; peduncles 0.4–1.2 cm long, puberulous; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–4 by 2–4 mm, puberulous outside. *Male flowers* 5–7 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2–3 by 1–1.5 mm, membranaceous, hairy; pedicels 1.5–2.5 mm long, pubescent; stamens 9–12, unequal; anthers 1–1.5 mm long; filaments slender, 1.5–3 mm long, villose, 2 glands nearly at base or without glands; pistillode 2–2.5 mm long, glabrous. *Female flowers* 4–5 in each umbel; tepals 6, obovate or obovate-oblong, subequal, 1–2 by 0.5–1 mm, membranaceous, hairy; pedicels 1.5–2 mm long, puberulous; ovary ovoid, 0.8–1 by 0.5–0.8 mm, glabrous; style 1–2 mm long; stigma peltate; staminodes 8–12, linear, 1–1.5 mm long, hairy, 2 glands or without glands. *Fruits* ovoid or ellipsoid, 1.2–1.6 by 0.8–1.2 cm, green with white dots, glabrous, glossy; enlarged perianth tube cup-shaped, 0.8–1.5 cm in diam., sparsely puberulous or glabrous, warty or without warts; fruiting pedicels 0.5–1.2 cm long, sparsely puberulous or glabrous; infructescence stalks 0.5–1.5 cm long, sparsely puberulous.

Thailand.— NORTHERN: Chiang Mai (Doi Inthanon, Doi Suthep-Pui, Fang), Chiang Rai (Khun Kon Waterfall), Nan, Uttaradit (Phu Soi Dao), Tak (Doi Mu Soe); NORTH-EASTERN: Phetchabun

Figure 8. *Litsea laeta* (Wall. ex Nees) Hook.f.: A. fruiting branch; B. male inflorescence; C. outer whorled stamen without gland. Drawn by N. Tetsana.

(Nam Nao), Loei (Phu Luang, Phu Kradueng); SOUTH-WESTERN: Uthai Thani (Huai Kha Khaeng Wildlife Sanctuary); SOUTH-EASTERN: Trat (Khao Kuap); PENINSULAR: Pattani (Khao Kala Khiri).

Distribution.— Pakistan, India, Bhutan, Myanmar.

Ecology.— In lower montane forest, dry evergreen forest and tropical rain forest, 100–1700 m. Flowering and fruiting nearly throughout the year.

Vernacular.— Ham ao (ห้ำอาว) (Phetchabun).

Note.— Specimens of Litsea laeta were previously often misidentified as *Litsea variabilis*.

16. Litsea lancifolia (Roxb. ex Nees) Fern.-Vill. in Blanco, Fl. Philipp. 3: 181. 1880; Hook.f., Fl. Brit. India 5: 159. 1886; Hemsl., J. Linn. Soc. Bot. 26: 382. 1891; Boerl., Handl. Fl. Ned. Ind. 3: 143. 1900; Brandis, Ind. Trees: 537. 1906; Gamble, J. Asiat. Soc. Bengal 75(1): 182. 1912; Lace, List Trees, Shrubs and Climbers Burma: 139. 1922; Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 90. 1913; Fl. Indo-Chine 5: 134. 1914; Ridl., Fl. Malay. Penins. 3: 130. 1924; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 416. 1925; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928; Liou Ho, Laurac. Chine & Indochine: 198. 1932; Allen, Ann. Missouri Bot. Gard. 25: 395. 1938; Kanjilal et al., Fl. Assam 4: 84. 1940; Kosterm., Bibliogr. Laur. 837. 1964; S.B. Malla et al., Fl. Kathmandu Valley: 602. 1986; Kochummen in Ng, Tree Fl. Malaya 4: 160. 1989; H. Keng, Concise Fl. Singapore: 19. 1990.— *Tetranthera lancifolia* Roxb. [in Wall., Numer. List 2532. 1830, nom. nud.] ex Nees in Wall., Pl. Asiat. Rar. 2: 65. 1831; Syst. Laurin. 509. 1836; Dietrich, Syn. 2: 1358. 1840; Meisn. in DC., Prodr. 15(1): 194. 1864; Drury, Handbook Ind. Fl. 3: 67. 1869; Kurz, Forest Fl. Burma 2: 300. 1877; Kosterm., Bibliogr. Laur. 1402. 1964. Type: India, *Wallich Cat. no. 2532* (lectotype **K-W!**, designated here; isolectotypes **BM**!, **E!**, **K!**).— *Litsea hansenii* Kosterm., Nat. Hist. Bull. Siam Soc. 25(3–4): 37. 1975. Type: Thailand, Tak, Doi Pae Poe, *Hansen & Smitinand 12916* (holotype **C!**), **syn. nov.** Figs. 9, 26: A–B.

Shrub or small tree 2–8 m tall; bark smooth, greyish brown or dark brown; young branchlets tomentose or tomentulose. *Leaves* opposite or subopposite; blade variable in shape and size, lanceolate, obovate-lanceolate, obovate-oblong or obovate, 6.5–23.5 by 2.5–7 cm, apex acute, acuminate or cuspidate, base cuneate, margin usually entire, chartaceous, dark green, glabrous above or tomentulose on midrib and secondary veins above, glaucous, tomentose, tomentulose or glabrescent beneath; petiole 0.2–1(–1.5) cm long, tomentulose or glabrescent; midrib shallowly sunken or flattened above, raised beneath, secondary veins 5–13 pairs, shallowly sunken or flattened above, raised beneath, curving or curving and looping near margin, tertiary veins, scalariform-reticulate or reticulate, distinct beneath. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels, in axils of leaves or along branchlets, clusters of umbels 0.5–1 cm long; umbels 0.3–0.6 cm in diam.; peduncles 0.2–0.5 cm long, or subsessile, tomentose; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–4.5 by 2–3 mm, outer coriaceous, tomentose outside, inner membranaceous, hairy. *Male flowers* 3–5 in each umbel; tepals 6, elliptic, elliptic-oblong or oblong, subequal, 1.5–2.5 by 0.5–1 mm, membranaceous, hairy; pedicels 1–2.5 mm long, tomentose; stamens 7–9, unequal; anthers 0.5–1 mm long; filaments 1–2 mm long, villose, 2 glands at base or without glands; pistillode 1.5–2 mm long, glabrous. *Female flowers* 3–5 in each umbel; tepals 6, elliptic, elliptic-oblong, subequal, 1.5–2 by 0.5–0.8 mm, membranaceous, hairy; pedicels 1–2 mm long, tomentose; ovary ovoid, 0.8–1.5 by 0.5–0.8 mm, glabrous; style 1–1.5 mm long; stigma peltate; staminodes 7–9, linear, 1–1.5 mm long, hairy, 2 glands or without glands. *Fruits* variable in shape and size, ovoid, ellipsoid or ellipsoid-cylindrical, 1–2.4 by 0.8–1.2 cm, green with white dots, turning dark purple and black when ripe, glabrous, glossy; enlarged perianth tube shallow cup-shaped, 0.3–0.6 cm in diam., tomentulose; fruiting pedicels 0.2–0.8 cm long or subsessile, tomentulose; infructescence stalks 0.2–1.2 cm long, tomentulose.

Thailand.— NORTHERN: Chiang Mai (Doi Inthanon), Chiang Rai (Khun Kon Waterfall), Nan (Doi Phu Kha), Phrae, Tak (Doi Pae Poe) Kamphaengphet (Mae Wong); SOUTH-WESTERN: Kanchanaburi (Sangkhla Buri, Khao Lio Long); PENINSULAR: Ranong (Khlong Na Kha Wildlife Sanctuary, Khao Phota Luang Kaeo Kra Buri), Nakhon Si Thammarat (Khao Luang, Krung Ching

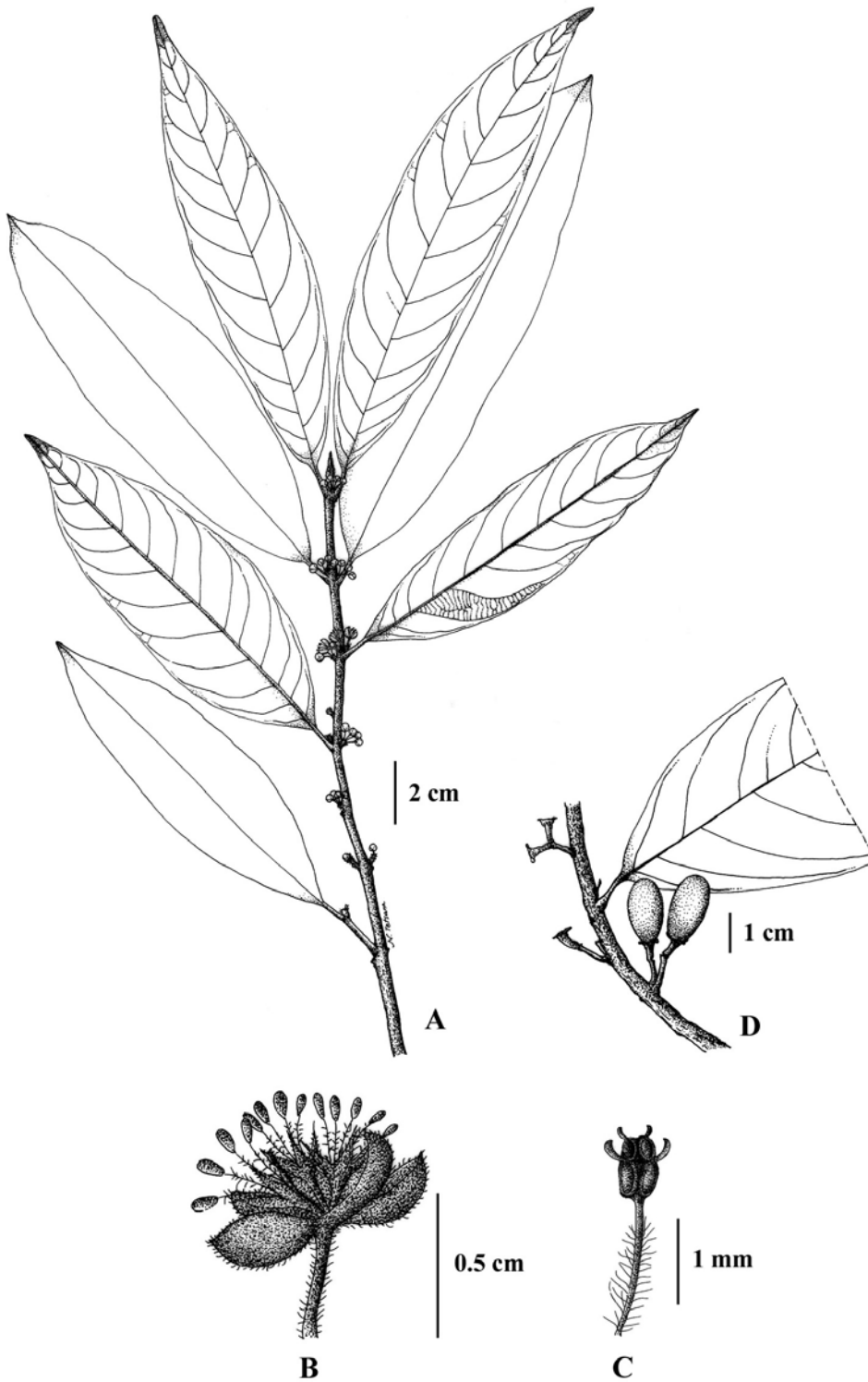

Figure 9. *Litsea lancifolia* (Roxb. ex Nees) Fern.-Vill.: A. flowering branch with male inflorescences; B. male inflorescence; C. outer whorled stamen without gland; D. fruiting branch. Drawn by N. Tetsana.

Waterfall), Trang (Sai Rung Waterfall) Satun (Khuan Kalong), Yala (Betong), Narathiwat (Hala-Bala Wildlife Sanctuary, Waeng).

Distribution.— China, India, Nepal, Myanmar, Laos, Vietnam, Malay Peninsula, Singapore, Sumatra, Borneo, Brunei.

Ecology.— In lower montane, dry evergreen forest, and tropical rain forest, occasionally by streams, 100–1700 m. Flowering and fruiting nearly throughout the year.

Vernacular.— Thang bai khao (ทังใบขาว) (Narathiwat); khamin (ขมิ้น) (Phrae); mue-dae-dao-hong (มือแดดาวฮง) (Malay-Narathiwat).

Notes.— Hooker is often credited as the author of the combination *Litsea lancifolia* but Fernandez-Villar published the name several years before Hooker published the combination.

Litsea hansenii Kosterm. shares essential characters with *Litsea lancifolia* and is treated here as a new synonym.

The vernacular name of *Litsea lancifolia* is not mo rat (หมอรัด) as stated by The Forest Herbarium, Royal Forest Department (2001). This vernacular name belongs to *Litsea umbellata* which is often confused with *Litsea lancifolia*.

17. Litsea machilifolia Gamble, Bull. Misc. Inform. Kew: 320. 1910; J. Asiat. Soc. Bengal 75(1): 171. 1912; Burkill & Holttum, Gard. Bull. Straits Settlem. 3: 69. 1923; Ridl., Fl. Malay Penins. 3: 126. 1924; Calder, Records Bot. Survey Ind. 11(1): 83. 1926; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928; Kosterm., Bibliogr. Laur. 844. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 160. 1989; H. Keng, Concise Fl. Singapore: 19. 1990. Type: Singapore, *Ridley 4706* (lectotype **K!**, designated here). Fig. 10.

Large tree 20–30 m tall; branchlets sparsely puberulous or glabrous. *Leaves* spiral; often turning black when dry; blade lanceolate or ovate-lanceolate, 9–16 by 2–4 cm, apex acuminate or caudate, base cuneate or oblique, margin entire, thinly coriaceous, glabrous on both surfaces; petiole 1–2 cm long, sparsely puberulous or glabrous; midrib shallowly sunken or flattened above, raised beneath, secondary veins 9–14 pairs, flattened above, raised beneath, curving near margin, tertiary veins finely reticulate, distinct beneath. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves, along branchlets or at apex of branchlets, raceme of umbels 2.5–10 cm long; umbels 0.5–0.7 cm in diam.; peduncles 0.3–0.8 cm long, sparsely puberulous; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–5 by 3–4 mm, sparsely puberulous outside. *Male flowers* 5–6 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2–3 by 1 mm, membranaceous, glabrous; pedicels 1–1.5 mm long, sparsely puberulous; stamens 9–12, unequal; anthers 1–1.5 mm long; filaments slender, 2.5–6 mm long, glabrous, 2 glands at base or without glands; pistillode 1.5 mm long, glabrous. *Female flowers* 5 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 0.5–0.8 by 1.5–2 mm, membranaceous, glabrous; pedicels 1–1.5 mm long, sparsely puberulous; ovary globose, 0.8–1 mm in diam., glabrous; style 1.5–2 mm long; stigma peltate; staminodes 10–12, linear, 1–1.5 mm long, glabrous, 2 glands or without glands. *Fruits* globose, 1.2–1.5 cm in diam., glabrous; enlarged perianth tube cup-shaped, 0.5–0.8 cm high, 1.2–1.5 cm in diam., glabrescent; fruiting pedicels 0.6–0.8 cm long, glabrescent; infructescence stalks 0.5–0.7 cm long, sparsely puberulous (only immature fruiting specimens found).

Thailand.— PENINSULAR: Surat Thani (Ko Samui), Phangnga (Takua Pa).

Distribution.— Malay Peninsula, Singapore.

Ecology.— In tropical rain forest, 50–300 m. Flowering: February–May.

Vernacular.— Cha khai (จะไค้), cha kai (ช้าก้าย) (Phangnga).

Notes.— Gamble (1910a) described Litsea machilifolia based on four syntypes [*Curtis 795* (**K!**), Penang, Moniot's road; *Ridley 3458* (**K!**), 4706 (**K!**), Singapore; *Scortechini s.n.* (**K!**), Perak]. The third one is designated here as the lectotype.

The description of flowering material (female flowers) and fruiting material is based on non-Thai material.

18. Litsea martabanica (Kurz) Hook.f., Fl. Brit. India 5: 164. 1886; Brandis, Ind. Trees: 537. 1906; Lace, List Trees, Shrubs and Climbers Burma: 139.

Figure 10. *Litsea machilifolia* Gamble: A. flowering branch with inflorescence buds; B. inner whorled stamen with 2 glands; C. infructescences. Drawn by N. Tetsana.

1922; Kosterm., Bibliogr. Laur. 846. 1964.— *Tetranthera martabanica* Kurz, Forest Fl. Burma 2: 301. 1877; Mason, Burma, its people and productions 2: 286. 1883; Kosterm., Bibliogr. Laur. 1409. 1964.— *T. calophylla* Kurz, J. Asiat. Soc. Beng. 42(2): 102. 1873; Kosterm., Bibliogr. Laur. 1383. 1964, non Miq. Type: Myanmar, Martaban, *Kurz 955* (lectotype **K!**, designated here).— *Litsea garrettii* Gamble, Bull. Misc. Inform. Kew: 204. 1913; Allen, Ann. Missouri Bot. Gard. 25: 388. 1938; Kosterm., Bibliogr. Laur. 821. 1964. Type: Thailand, Chiang Mai, Doi Inthanon, *Garrett* 63 (holotype **K!**, isotypes **BKF!**, **E!**, **L!**). Figs. 11, 26: C–D.

Small to medium-sized tree 3–12 m tall; bark smooth, lenticellate, greyish brown; branchlets pubescent. *Leaves* spiral; blade elliptic-oblong or ovate-oblong, 5.5–20 by 2.5–6.5 cm, apex acuminate or caudate, base cuneate or slightly oblique, margin entire, coriaceous, dark green, glabrous above or pubescent on midrib and secondary veins above, glaucous, pubescent or sparsely pubescent beneath; petiole 0.8–2.5 cm long, pubescent; midrib shallowly sunken or flattened above, raised beneath, secondary veins 4–9 pairs, shallowly sunken or flattened above, raised beneath, curving and looping near margin, tertiary veins scalariform-reticulate (partly reticulate), distinct beneath. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves or along branchlets, raceme of umbels 1.5–3 cm long; umbels 0.6–1 cm in diam.; peduncles 0.3–1 cm long, pubescent; bracts 4, decussate, suborbicular or broadly ovate, concave, 4–6 by 4–5 mm, pubescent outside. *Male flowers* 4 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 4–5 by 1–2 mm, membranaceous, pubescent; pedicels 1–2 mm long, densely pubescent; stamens 9–12, unequal; anthers 0.8–1 mm long; filaments slender, 2.5–4 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 4 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2–3 by 1 mm, membranaceous, pubescent; pedicels 1–2 mm long, densely pubescent; ovary ellipsoid, 1.5–2 by 0.8–1 mm, glabrous; style 2 mm long; stigma peltate; staminodes 9–12, linear, 1–2 mm long, hairy, 2 glands or without glands. *Fruits* cylindrical, ellipsoid-cylindrical or ovoid, 1–1.8 by 0.6–0.8 cm, green with white dots, turning dark purple and black when ripe, glabrous, glossy; enlarged perianth tube cup-shaped, 0.3–0.5 cm high, 0.5–0.8 cm in diam., sparsely pubescent, margin entire; fruiting pedicels 0.5–1 cm long, sparsely pubescent; infructescence stalks 0.5–1 cm long, pubescent.

Thailand.– NORTHERN: Mae Hong Son (Doi Huai Pu Ling), Chiang Mai (Doi Inthanon, Pha Ngaem, Doi Suthep-Pui, Doi Chiang Dao, San Kamphaeng, Samoeng, Mae Rim), Chiang Rai (Doi Tung, Doi Luang National Park), Nan, Lamphun (Doi Khun Tan, Mae Tha), Lampang (Chae Son National Park); Uttaradit (Phu Miang), Phitsanulok (Phu Hin Rong Kla); NORTH-EASTERN: Phetchabun (Nam Nao), Loei (Phu Kradueng); EASTERN: Chaiyaphum (Phu Khiao Wildlife Sanctuary); SOUTH-WESTERN: Kanchanaburi (Thong Pha Phum, Sangkhla Buri, Khao Ngi Yai, Khao Lio Long); CENTRAL: Nakhon Nayok (Khao Yai National Park); SOUTH-EASTERN: Chanthaburi (Khao Khitchakut National Park, Phra Bat); PENINSULAR: Ranong (Khao Phota Luang Kaeo), Krabi (Khao Phanom Bencha).

Distribution.— China, Myanmar.

Ecology.— In lower montane forest, dry evergreen forest and tropical rain forest, 600–1650 m. Flowering: June–November. Fruiting: November –April.

Vernacular.— Miat ton (เมียดต้น) (Loei); khi nok (ขี้นก), kham pang (คำป้าง), chao ha pra ong (เจ้าห้าพระองค์), tong khaeng (ตองแข็ง), ta khrai ton (ตะไคร้ต้น), nom maeo (นมแมว), bang son (บางซอน) (Chiang Mai).

Notes.— The specific epithet is named after Martaban in Myanmar where S. Kurz found and collected the type specimens.

There are two syntypes of *Tetranthera martabanica* [*Kurz 955* (**K!**), *956* (**K!**), Myanmar, Martaban]. The first one is designated here as the lectotype.

19. Litsea membranifolia Hook.f., Fl. Brit. India 5: 159. 1886; Brandis, Ind. Trees: 536. 1906; Kanjilal et al., Fl. Assam 4: 83. 1940; Kosterm., Bibliogr. Laur.: 847. 1964. Type: India, East Bengal, *Griffith 4310* (holotype **K!**). Fig. 12.

Small to medium-sized tree 6–15 m tall; branchlets with lenticels and leaf scars, densely tomentose at apex of branchlets. *Leaves* spiral,

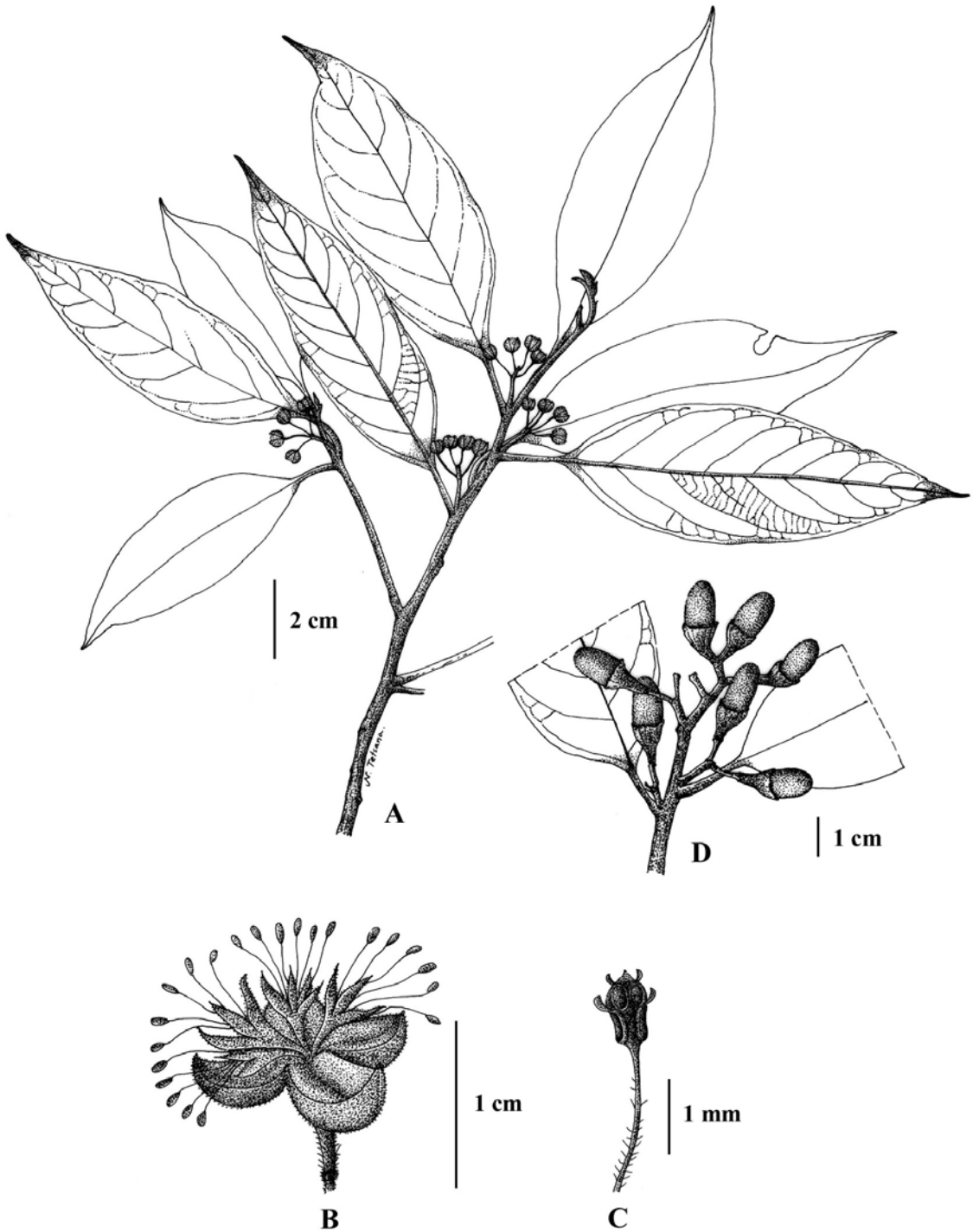

Figure 11. *Litsea martabanica* (Kurz) Hook.f.: A. flowering branch with inflorescence buds; B. male inflorescence; C. outer whorled stamen without gland; D. fruiting branch. Drawn by N. Tetsana.

crowded toward the apex of branchlets; blade obovate, 11.5–25 by 6.5–13 cm, apex acute, base cuneate, margin ciliate, becoming eciliate, thinly chartaceous, glabrous above, except tomentose on midrib and secondary veins above, tomentose beneath; petiole 0.5–1.5 cm long, tomentose; midrib shallowly sunken above, raised beneath, secondary veins 9–15 pairs, flattened or slightly prominent above, raised beneath, curving and looping near margin, tertiary veins scalariform-finely reticulate, distinct beneath, finely areolate and distinct above. *Inflorescences* usually in clusters of umbels, along branchlets, clusters of umbels 3–4 cm long; umbels 1.5–2 cm in diam.; peduncles 1.5–3.2 cm long, tomentose; bracts 4–5, decussate or imbricate, suborbicular or broadly ovate, concave, 7–11 by 4–8 mm, tomentose outside. *Male flowers* 12–16 in each umbel; tepals 6–9, elliptic, elliptic-oblong or oblong, unequal, 3–5 by 1–2 mm, membranaceous, hairy; pedicels 2–6 mm long, densely tomentose;

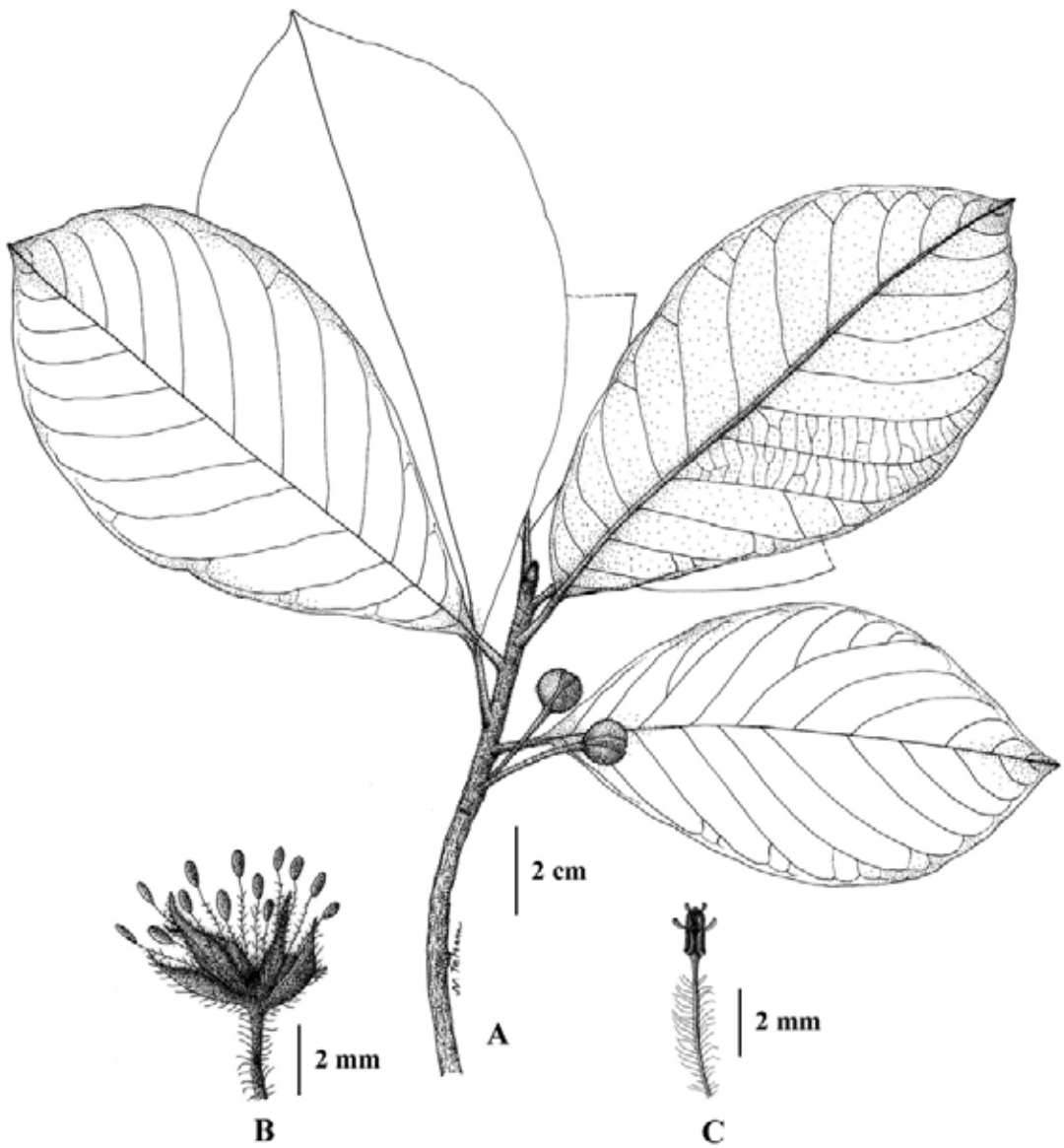

Figure 12. *Litsea membranifolia* Hook.f.: A. flowering branch with inflorescence buds; B. outer whorled stamen without gland. Drawn by N. Tetsana.

stamens 12–16, unequal; anthers 1.5–2 mm long; filaments slender, 2–7 mm long, villose, 2 glands at base or without glands; pistillode 2 mm long, glabrous. *Female flowers* not known. *Fruits* not known.

Thailand.— NORTHERN: Chiang Mai (Doi Chiang Dao, Doi Inthanon).

Distribution.— India.

Ecology.— In lower montane forest, 1400–1700 m. Flowering: October–December.

Vernacular.— Mi men bai bang (หมีเหม็นใบบาง).

Note.— Specimens of *Litsea membranifolia* were previously often misidentified as *L. glutinosa*.

20. Litsea mollis Hemsl., J. Linn. Soc. Bot. 26: 383. 1891; Liou Ho, Laurac. Chine & Indochine: 186. 1932; Rehder, J. Arnold Arbor. 17(4): 330. 1936; Kosterm., Bibliogr. Laur. 848. 1964, non *Litsea mollis* (Blume) Boerl. Type: China, Patung District, *A. Henry 5035* (lectotype **K!**, designated here).— *Litsea euosma* W.W. Sm., Notes Roy. Bot. Gard. Edinburgh 13: 166. 1921; Liou Ho, Laurac. Chine & Indochine: 187. 1932; Allen, Ann. Missouri Bot. Gard. 25: 368. 1938; Merr., J. Arnold Arbor. 19(1): 31. 1938; Kosterm., Bibliogr. Laur. 815. 1964. Type: China, Yunnan, *Forrest 9333* (holotype **E!**; isotype **BM**!). Fig. 13.

Shrub or small tree 1.5–6 m tall; bark smooth, green or yellowish green turning dark brown; branchlets green or yellowish green, puberulous. *Leaves* spiral; blade ovate, ovate-oblong, sometimes ovate-lanceolate, 5–10(–13) by 1.5–4 cm, apex acuminate, caudate or acute, base cuneate, margin ciliate, becoming eciliate, chartaceous, green or dark green, pubescent, becoming glabrescent above, pubescent on midrib and secondary veins above, glaucous, densely pubescent, becoming pubescent beneath; petiole 0.5–1.5 cm long, pubescent; midrib slightly prominent or flattened above, raised beneath, secondary veins 3–7 pairs, slightly prominent or flattened above, raised beneath, curving or curving and looping near margin, tertiary veins reticulate, slightly prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves or along branchlets, raceme of umbels 1–2.5 cm long; umbels 0.5–0.8 cm in diam.; peduncles 0.4–1 cm long, pubescent; bracts 4–5, decussate or imbricate, suborbicular, broadly ovate or ovate, concave, 3–6 by 3–5 mm, membranaceous, with veins, glabrous or glabrescent outside, densely pubescent inside. *Male flowers* 5–6 in each umbel; tepals 6, obovate, subequal, 2.5–3 by 1–2 mm, membranaceous, pubescent; pedicels 1.5–2 mm long, pubescent; stamens 8–9, unequal; anthers 1–1.5 mm long; filaments 1–2 mm long, villose, 2 glands at base or without glands; pistillode 1–2 mm long, glabrous. *Female flowers* 5–6 in each umbel; tepals 6, obovate, subequal, 1.2–1.5 by 0.8–1 mm, membranaceous, pubescent; pedicels 1.5–2 mm long, pubescent; ovary globose or subglobose, 0.5–1 mm in diam., glabrous; style 1–1.5 mm long; stigma peltate; staminodes 8–9, linear, 1–1.5 mm long, hairy, 2 glands or without glands. *Fruits* globose, 0.6–0.8 cm in diam., green or dark green with white dots, glabrous, glossy; enlarged perianth tube small, flattened, 0.2–0.3 cm in diam., slightly pubescent; fruiting pedicels 0.4–0.7 cm long, sparsely pubescent; infructescence stalks 0.5–1 cm long, pubescent.

Thailand.— NORTHERN: Mae Hong Son (Pai), Chiang Mai (Doi Chiang Dao, Doi Suthep-Pui, Doi Inthanon, Doi Pha Mon, Doi Ang Khang, Doi Phahom Pok, Doi Phu Muen, Fang, Huai Nam Dang, Doi Chang, Mae Taeng, Samoeng, Mae On, Mae Kam Pong, Mae Rim), Chiang Rai (Doi Luang National Park, Wiang Pa Pao), Phayao (Doi Luang).

Distribution.— China, Vietnam.

Ecology.— Pioneer species, usually growing in the open areas of lower montane forest, 900–1800 m. Flowering: October–February. Fruiting: March–August.

Vernacular.— Lek chi din (เหล็กชีดิน) (Phetchabun); ta khrai ton (ตะไคร้ต้น), cha khai ton (จะไค้ต้น), sa khrai ton (ชะไคร้ต้น) (Chiang Mai).

Notes.— Hemsley (1891) described *Litsea mollis* based on four syntypes [*A. Henry 1206* (**K!**), China, Ichang; *A. Henry 3177* (**K!**), China, Patung District; *A. Henry 4434* (**K!**), China, Nanto and mountains to the northward; *A. Henry 5035* (**K!**), China, Patung District]. The fourth one is designated here as the lectotype.

The leaves and fruits are aromatic when crushed and resemble the smell of lemon grass (*Cymbopogon citratus* Stapf). The leaves often turn black when dry.

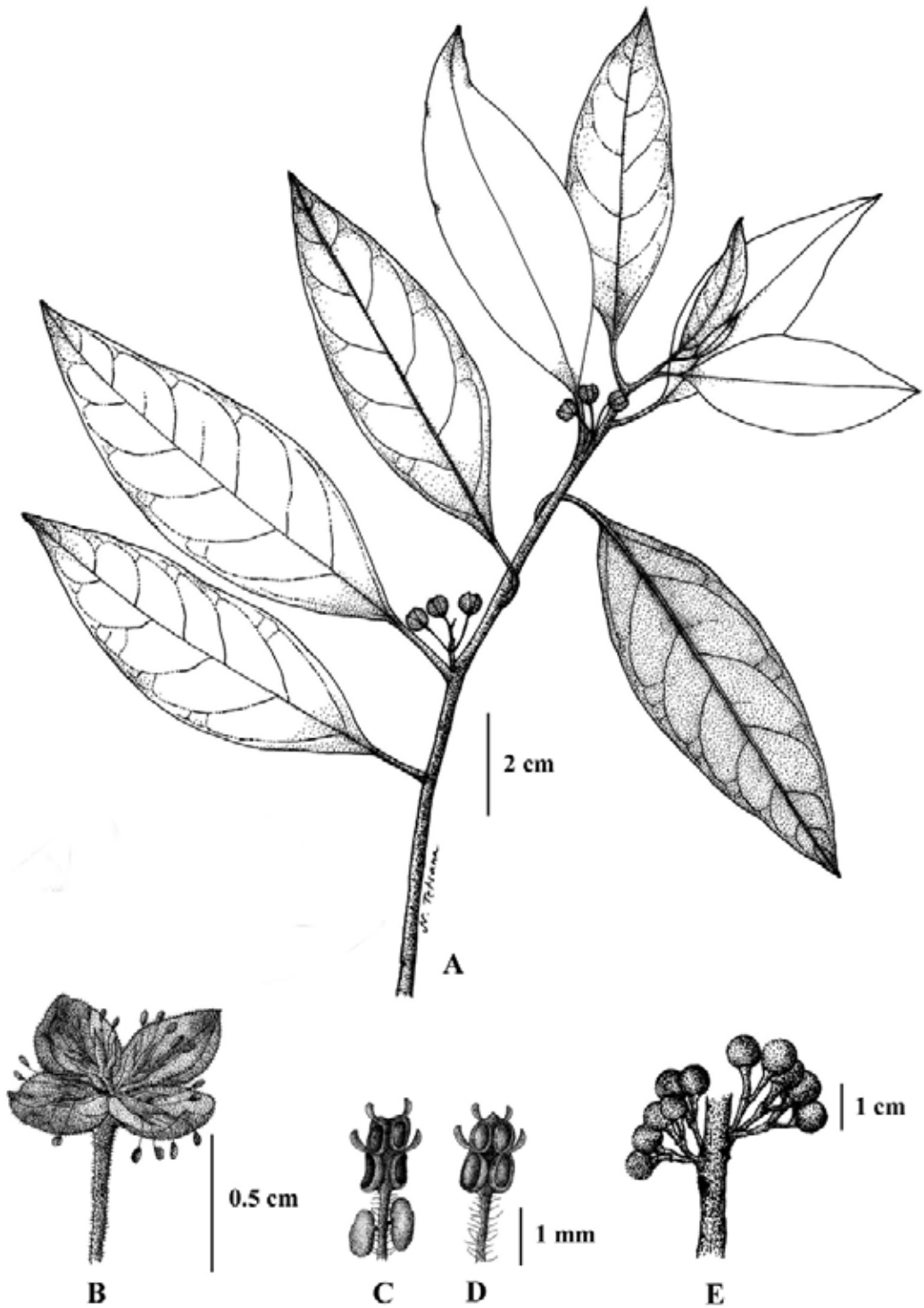

Figure 13. *Litsea mollis* Hemsl.: A. flowering branch with inflorescence buds; B. male inflorescence; C. inner whorled stamen with 2 glands; D. outer whorled stamen without gland; E. fruiting branch. Drawn by N. Tetsana.

21. Litsea monopetala (Roxb.) Pers., Syn 2: 4. 1807; Allen, Ann. Missouri Bot. Gard. 25: 387. 1938; Backer & Bakh.f., Fl. Java 1: 126. 1963; Kosterm., Bibliogr. Laur. 849. 1964; D.G.Long, Fl. Bhutan 1(2): 276. 1984; Kochummen in Ng, Tree Fl. Malaya 4: 161. 1989; Lemmens et al., Pl. Resources SE Asia 5(2): 319. 1995; Pendry in Watson et al., Fl. Nepal 3: 41. 2011.— *Tetranthera monopetala* Roxb., Pl. Corom. 2: 26. t. 148. 1798; Juss., Ann. Mus. Hist. Nat. 6: 211. 1805; Fl. Indica 3: 821. 1832; Nees in Wall., Pl. Asiat. Rar. 2: 66. 1831; Syst. Laurin. 525. 1836; Dietrich, Syn. 2: 1359. 1840; Blume, Mus. Bot. Lugd. Bat. 1(24): 378. 1851; Miq., Pl. Jungh. 184. 1852; Meisn. in DC., Prodr. 15(1): 189. 1864; Drury, Handbook Ind. Fl. 3: 66. 1869; Kurz, Forest Fl. Burma 2: 299. 1877; Mason, Burma, its people and productions 2: 285. 1883; Kosterm., Bibliogr. Laur. 1410. 1964. Type: not seen.— *T. macrophylla* Roxb. [Hort. Bengal. 73. 1814, nom. nud.; Wall., Numer. List 2549A-G. 1830] Fl. Indica 3: 822. 1832; Kosterm., Bibliogr. Laur. 1408. 1964. Type: not seen.— *Litsea polyantha* Juss., Ann. Mus. Hist. Nat. 6: 211. 1805; Hook.f., Fl. Brit. India 5: 162. 1886; Hemsl., J. Linn. Soc. Bot. 26: 384. 1891; Boerl., Handl. Fl. Ned. Ind. 3: 142. 1900; Ridl., J. Straits Branch Roy. Asiat. Soc. 33: 132. 1900; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 147. 1904; Brandis, Ind. Trees: 536. 1906; Craib, Bull. Misc. Inform. Kew: 451. 1911; Gamble, J. Asiat. Soc. Bengal 75(1): 143. 1912; Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 89. 1913; Fl. Indo-Chine 5: 135. 1914; Lace, List Trees, Shrubs and Climbers Burma: 140. 1922; Ridl., Fl. Malay Penins. 3: 118. 1924; Liou Ho, Laurac. Chine & Indochine: 192. 1932; Kanjilal et al., Fl. Assam 4: 83. 1940; Gamble, Fl. Madras 2: 866. 1957; Kosterm., Bibliogr. Laur. 865. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 163. 1989. Type: not seen. Figs. 14, 26: E–F.

Small to medium-sized tree 5–20 m tall; bark smooth, grey; branchlets pubescent. *Leaves* spiral; blade obovate, obovate-oblong, broadly ovate or elliptic-oblong, 8–21 by 4–11.5 cm, apex obtuse, acute, acuminate, sometimes retuse, base cuneate or oblique, margin entire, chartaceous, dark green, glabrous above or pubescent on midrib and secondary veins above, glaucous, pubescent beneath; petiole 1–2.5 cm long, pubescent; midrib sunken above, raised beneath, secondary veins 6–11 pairs, sunken above, raised beneath, curving or curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets or in axils of leaves, clusters of umbels 1–2 cm long; umbels 0.7–1.2 cm in diam.; peduncles 0.5–1.2 cm long, pubescent; bracts (4–)5, usually imbricate, suborbicular, broadly ovate or ovate, concave, 3–6 by 3–4.5 mm, outer coriaceous, pubescent outside, inner membranaceous, hairy. *Male flowers* 6–8 in each umbel; tepals 6, obovate or obovate-oblong, subequal, 2–3 by 0.8–1 mm, membranaceous, pubescent; pedicels 2–2.5 mm long, densely pubescent; stamens 9, unequal; anthers 0.5–1 mm long; filaments slender, 2–3 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 6–8 in each umbel; tepals 6, linear-oblong or oblong, subequal, 2.5–3 by 0.5–1 mm, membranaceous, pubescent; pedicels 2–3 mm long, densely pubescent; ovary ovoid, 1.5–2 by 1 mm, glabrous; style 2–2.5 mm long; stigma peltate; staminodes 7–9, linear, 1–1.5 mm long, villose, 2 glands or without glands. Fruits ovoid or broadly ovoid, 0.8–1.1 by 0.6–0.8 cm, green with white dots, turning dark red, dark purple and black when ripe, glabrous, glossy; enlarged perianth tube cup-shaped, 0.2–0.5 cm high, 0.4–0.6 cm in diam., slightly pubescent, margin entire; fruiting pedicels 0.5–1.2 cm long, slightly pubescent; infructescence stalks 0.5–1 cm long, pubescent.

Thailand.— NORTHERN: Mae Hong Son (Khun Yuam Noi), Chiang Mai (Doi Suthep-Pui, Doi Chiang Dao, Doi Inthanon, Doi Pha Mon, Huai Nam Dang, Mae Tho National Park, Doi Saket, Doi Ang Khang, Fang, Hang Dong, Sankamphaeng, Mae Rim), Chiang Rai (Doi Tung, Wiang Pa Pao, Khun Kon Waterfall, Doi Ang Khang), Phayao (Doi Luang National Park), Lamphun (Doi Khun Tan), Lampang (Ngao, Wang Nuea, Chae Son National Park), Phrae, Tak (Umphang), Sukhothai, Kamphaeng Phet (Mae Wong); NORTH-EASTERN: Loei (Phu Luang, Phu Kradueng), Khon Kaen (Phu Wiang); EASTERN: Chaiyaphum (Phu Khiao Wildlife Sanctuary), Nakhon Ratchasima (Khao Yai National Park); SOUTH-WESTERN: Uthai Thani (Ban Rai, Nong Chang), Kanchanaburi (Thong Pha Phum,

Sangkhla Buri, Sai Yok, Si Nakharin National Park, Chaloem Rattanakosin National Park, Thung Yai Naresuan Wildlife Sanctuary), Phetchaburi (Kaeng Krachan); CENTRAL: Saraburi (Phu Khae), Nakhon Nayok (Khao Yai), Bangkok; SOUTH-EASTERN: Chanthaburi (Pong Nam Ron); PENINSULAR: Chumphon (Phato, Sawi, Tha Sae), Ranong (Kapoe, Khao Phota Luang Kaeo), Surat Thani (Khao Sok, Don Sak, Wiphawadi Falls), Phangnga (Khlong Nang Yon), Krabi, Nakhon Si Thammarat (Thung Song, Chawang, Lan Saka, Khiri Wong, Khao Luang), Songkhla (Thepha, Saba Yoi), Yala (Bannang Sata).

Distribution.— China, Pakistan, India, Nepal, Bhutan, Myanmar, Laos, Vietnam, Cambodia, Malay Peninsula, Sumatra, Java, Borneo.

Ecology.— Often by streams in a wide variety of habitats, in dry evergreen forest, along the edge of tropical rain forest, mixed deciduous forest, lower montane forest, disturbed open areas, 25–1600 m. Flowering: January–May. Fruiting: April–August.

Vernacular.— Ka thang (กะทัง), kra thon rok (กระท้อนรอก) (Peninsular); mo-mo (เมาะโม) (Karen-Mae Hong Son); mi (หมี่), mi bong (หมี่บ้ง), tum (ตุ้ม),

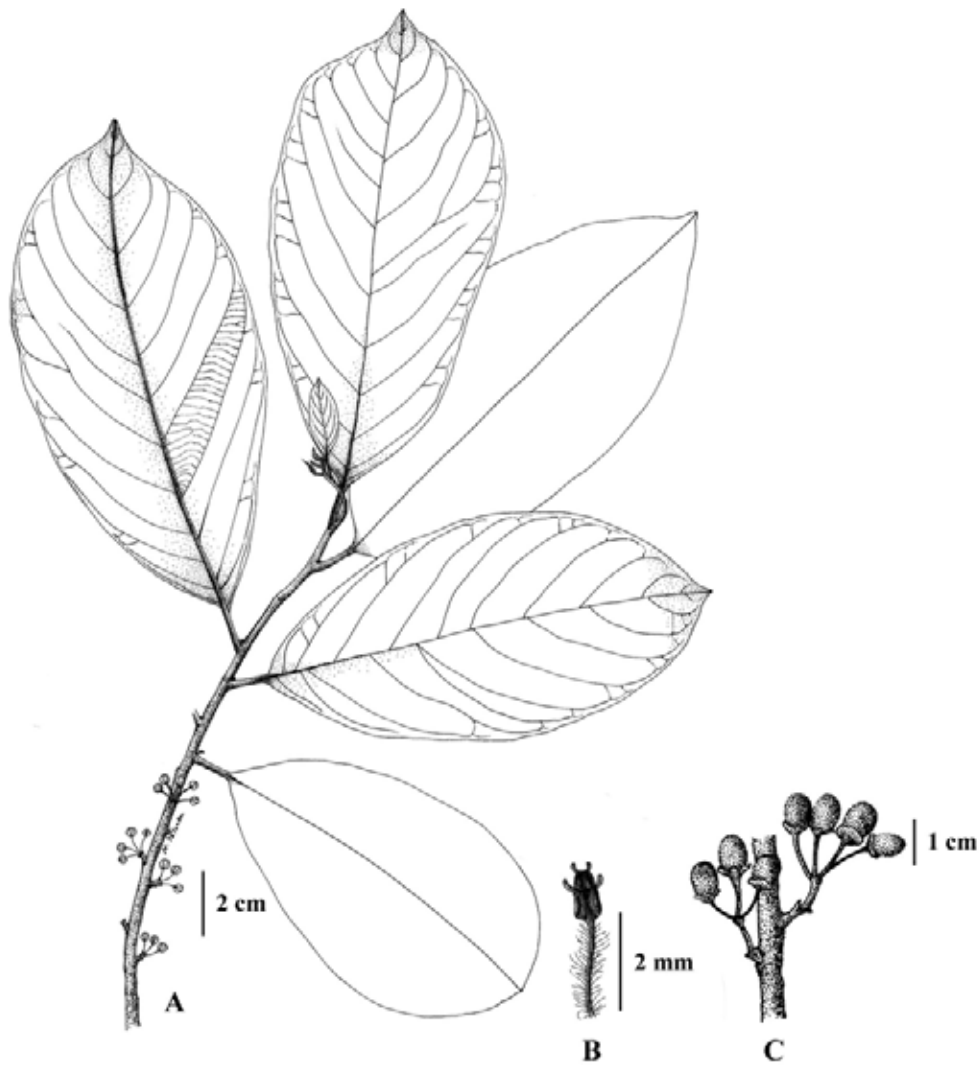

Figure 14. *Litsea monopetala* (Roxb.) Pers.: A. flowering branch with inflorescence buds; B. outer whorled stamen without gland; C. fruiting branch. Drawn by N. Tetsana.

mi tum (หมีตุ้ม), mi pang (หมีปัง), ha (ฮา) (Chiang Mai); yuk yao (ยุ๊กเยา) (Phrae); mi men (หมีเหม็น) (Lampang); i men (อีเหม็น) (Northern); sa mi (สะหมี่) (Chaiyaphum); khai so (คายโซ่) (Kanchanaburi); pho-nuai (โพหน่วย), mu-mu (มุหมู) (Karen-Kanchanaburi); pho khra (พอครา) (Nakhon Si Thammarat); thang pom (ทังป้อม) (Chumphon); thang nam (ทังน้ำ) (Songkhla).

22. Litsea myristicaefolia (Wall. ex Nees) Hook.f., Fl. Brit. India 5: 172. 1886; Boerl., Handl. Fl. Ned. Ind. 3: 145. 1900; Ridl., J. Straits Branch Roy. Asiat. Soc. 33: 131. 1900; Brandis, Ind. Trees: 538. 1906; Gamble, J. Asiat. Soc. Bengal 75(1): 169. 1912; Lace, List Trees, Shrubs and Climbers Burma: 139. 1922; Ridl., Fl. Malay Penins. 3: 125. 1924; Corner, Ways. Trees Malaya 1: 348. 1940, 3rd ed. 385. 1988; Kosterm., Bibliogr. Laur. 851. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 161. 1989; H. Keng, Concise Fl. Singapore: 19. 1990; Lemmens et al., Pl. Resources SE Asia 5(2): 319. 1995.— *Tetranthera myristicaefolia* Wall. [Numer. List 2548. 1830, nom. nud.] ex Nees in Wall., Pl. Asiat. Rar. 2: 67. 1831 (*myristicifolia*); Syst. Laurin. 555. 1836 (*myristicifolia*); Dietrich, Syn. 2: 1361. 1840 (*myristicifolia*); Kurz, Forest Fl. Burma 2: 302. 1877; Mason, Burma, its people and productions 2: 286. 1883; Kosterm., Bibliogr. Laur. 1412. 1964.— *Cylicodaphne myristicaefolia* (Wall. ex Nees) Meisn. in DC., Prodr. 15(1): 208. 1864; Kosterm., Bibliogr. Laur. 451. 1964. Type: Malaysia, Penang, *Wallich Cat. no. 2548* (lectotype **K-W!**, designated here; isolectotypes **BM**!, **E!**, **K!**). Figs. 15, 26: G–H.

Small to medium-sized tree 6–20 m tall; branchlets glabrous. *Leaves* spiral; blade obovate-oblong or obovate, 7.5–20(–26) by 2.5–6.5(–10) cm, apex acute or obtuse, base cuneate, margin entire, coriaceous, glabrous on both surfaces; petiole 1–2.8 cm long, glabrous; midrib sunken above, raised beneath, secondary veins 7–12 pairs, flattened above, raised beneath, curving near margin, tertiary veins finely reticulate, indistinct on both surfaces. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, in axils of leaves, along branchlets or at apex of branchlets, clusters of umbels 1–2.5 cm long; umbels 0.5–1 cm in diam.; peduncles 0.7–2 cm long, glabrous; bract 4, decussate, suborbicular or broadly ovate, concave, 4–5 by 3–5 mm, coriaceous, glabrous. *Male flowers* 5–6 in each umbel; tepals 6, obovate-oblong, oblong, subequal, 3–3.5 by 0.8–1.5 mm, membranaceous, glabrous; pedicels 1.5–2 mm long, glabrous; stamens 9–12, unequal; anthers 0.8–1.5 mm long; filaments slender, 2–4 mm long, glabrous, 2 glands at base or without glands; pistillode none. *Female flowers* 5–7 in each umbel; tepals 6, ovate, ovate-oblong or oblong, subequal, 2–3 by 0.8–1 mm, membranaceous, glabrous; pedicels 1.5–2 mm long, glabrous; ovary globose or subglobose, 0.8–1 mm in diam., glabrous; style 2–2.5 mm long; stigma peltate; staminodes 9, linear, 1–2 mm long, glabrous, 2 glands or without glands. *Fruits* globose or subglobose, 1–1.3 cm in diam., glabrous; enlarged perianth tube cup-shaped, 0.8–1 cm high, 1–1.2 cm in diam., glabrous, margin entire; fruiting pedicels thickened, 1–2 cm long, glabrous; infructescence stalks 0.8–1.5 cm long, glabrous.

Thailand.— SOUTH-EASTERN: Trat (Khao Saming), Chanthaburi (Makham, Khao Sa Bap); PENINSULAR: Phangnga (Ko Surin), Nakhon Si Thammarat (Khao Luang), Trang (Ko Libong, Khao Chong), Satun.

Distribution.— Myanmar, Malay Peninsula, Singapore.

Ecology.— In tropical rain forest, often found on islands, 0–100 m. Flowering: November–December. Fruiting: January–April.

Vernacular.— Trit (ตริด) (Trang); ka tit nu (กะทิตหนู) (Chanthaburi); cham chu ri pa (จามจุรีป่า) (Trat).

23. Litsea nuculanea (Kurz) Hook.f., Fl. Brit. India 5: 166. 1886; Brandis, Ind. Trees: 537. 1906; Lace, List Trees, Shrubs and Climbers Burma: 139. 1922; Kosterm., Bibliogr. Laur. 855. 1964.— *Tetranthera nuculanea* Kurz, J. Asiat. Soc. Beng. 42(2): 102. 1873; Forest Fl. Brit. Burma 2: 301. 1877; Mason, Burma, its people and productions 2: 286. 1883; Kosterm., Bibliogr. Laur. 1413. 1964. Type: Myanmar, Tenasserim, *Kurz s.n.* (holotype **K!**). Figs. 16, 27: A.

Shrub or small tree 2–5 m tall; branchlets tomentose or tomentulose. *Leaves* spiral; blade obovate, obovate-oblong or elliptic-oblong, 10–20.5

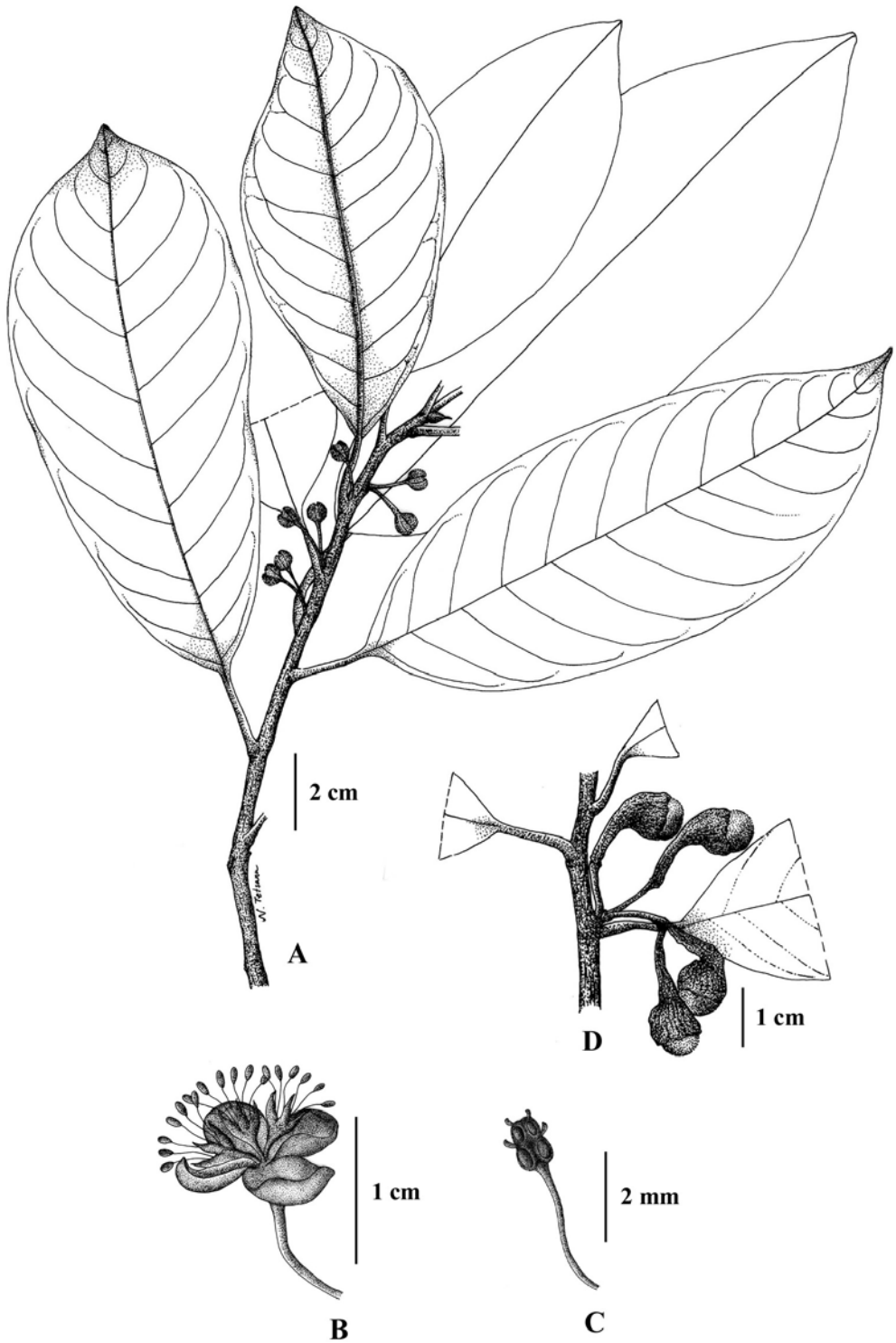

Figure 15. *Litsea myristicaefolia* (Wall. ex Nees) Hook.f.: A. flowering branch with inflorescence buds; B. male inflorescence; C. outer whorled stamen without gland; D. fruiting branch with immature fruits. Drawn by N. Tetsana.

by 4–7.5(–10) cm, apex acute or acuminate, base cuneate, margin entire, chartaceous, green or dark green, glabrous above or tomentulose on midrib and secondary veins above, glaucous, tomentose or tomentulose beneath; petiole 1–1.8 cm long, tomentose; midrib shallowly sunken above, raised beneath, secondary veins 6–9 pairs, shallowly sunken or flattened above, raised beneath, curving near margin, tertiary veins usually scalariform-reticulate, partly reticulate (scalariform and faint beneath), finely areolate and usually distinct above. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, in axils of leaves or along branchlets, clusters of umbels 1–1.5 cm long; umbels 0.5–0.7 cm in diam.; peduncles 0.4–0.6 cm long, tomentose; bracts 5, imbricate, suborbicular or broadly ovate, concave, 4–6 by 3–6 mm, tomentose outside, margin fimbriate (only nearly open inflorescence buds found). *Male flowers* 6–7 in each umbel; tepals 6, elliptic, subequal, 2 by 1 mm, membranaceous, hairy; pedicels 1–1.5 mm long, tomentose; stamens 9–12, unequal; anthers 0.5–1 mm long; filaments 1–2 mm long, villose, 2 glands at base or without glands; pistillode 1–1.2

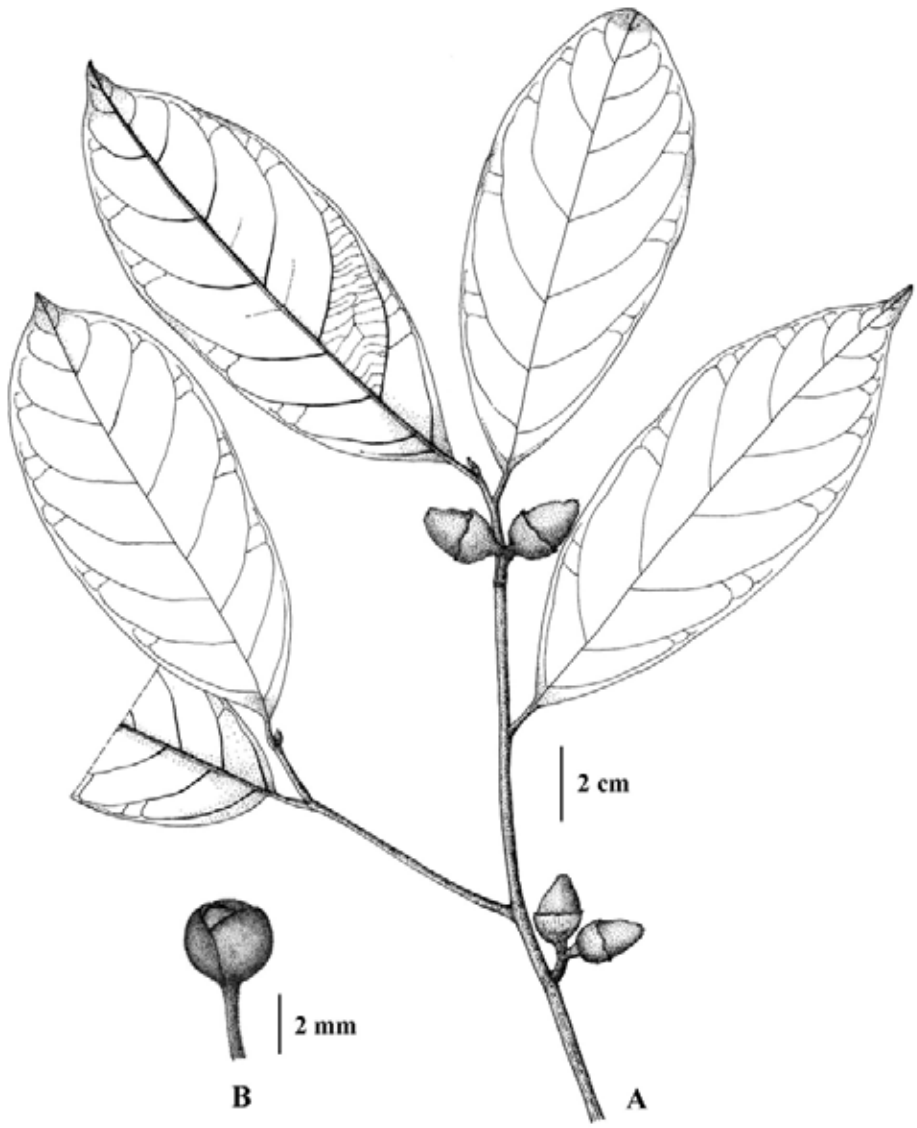

Figure 16. *Litsea nuculanea* (Kurz) Hook.f.: A. fruiting branch; B. inflorescence bud. Drawn by N. Tetsana.

mm long, glabrous. *Female flowers* 6–7 in each umbel; tepals 6, elliptic, subequal, 2 by 1 mm, membranaceous, hairy; pedicels 1–1.5 mm long, tomentose; ovary ovoid, 0.8–1 by 0.5–0.8 mm, glabrous; style 1–1.5 mm long; stigma peltate; staminodes 9–12, linear, 1–1.5 mm long, hairy, 2 glands or without glands. *Fruits* ovoid, 1.5–2.4 by 0.8–1.3 cm, half or less enclosed in the cup-shaped enlarged perianth tube, green with white dots, glabrous, glossy; enlarged perianth tube deep cup-shaped, 0.6–1.2 cm high, 1–1.5 in diam., warty, tomentulose; fruiting pedicels thickened, 0.3–0.7 cm long, tomentulose; infructescence stalks 0.3–0.6 cm long, tomentulose; young fruits completely enclosed in turbinate enlarged perianth tube with a circular hollow at the top.

Thailand.— PENINSULAR: Chumphon: (Phato), Ranong (Khlong Na Kha Wildlife Sanctuary, Khao Phota Luang Kaeo, Khao Phota Chong Dong, Kra Buri), Trang (Khao Chong).

Distribution.— Myanmar.

Ecology.— In tropical rain forest, 50–500 m. Flowering: October–December. Fruiting: January –April.

Vernacular.— Thang muak (ทังหมวก).

24. Litsea ochracea (Blume) Boerl., Handl. Fl. Ned. Ind. 3: 144. 1900.; Gamble, J. Asiat. Soc. Bengal 75(1): 165. 1912; Ridl., Fl. Malay Penins. 3: 124. 1924; Kosterm., Bibliogr. Laur. 858. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 162. 1989; Lemmens et al., Pl. Resources SE Asia 5(2): 320. 1995.— *Cylicodaphne ochracea* Blume, Mus. Bot. Lugd. Bat. 2(1): 13. 1856; Meisn. in DC., Prodr. 15(1): 205. 1864; Kosterm., Bibliogr. Laur. 452. 1964. Type: Sumatra, *Korthals s.n.* (lectotype **K!** designated here; isolectotype U). Figs. 17, 27: B.

Medium-sized tree 10–20 m tall; branchlets glabrous or glabrescent. *Leaves* spiral; blade oblong, oblong-lanceolate, obovate-oblong or obovate-lanceolate, 9.5–28 by 3.5–7 cm, apex acute or acuminate, base cuneate, margin entire, thinly coriaceous, dark green, glabrous above, glaucous, sparsely puberulous or glabrous beneath; petiole 1.2–2.8 cm long, glabrous; midrib flattened above, raised beneath, secondary veins 7–12 pairs, flattened above, raised beneath, curving near margin, tertiary veins scalariform-reticulate, partly reticulate (scalariform and faint beneath). *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets or in axils of leaves, clusters of umbels 1–2.5 cm long; umbels 0.8–1.3 cm in diam.; peduncles 0.5–1.7 cm long, puberulous; bracts 4, decussate, suborbicular, broadly ovate or ovate, concave, 4–6 by 3–6 mm, puberulous outside. *Male flowers* 5–6 in each umbel; tepals 6, elliptic, elliptic-oblong or oblong, subequal, 2–3 by 0.8–1 mm, membranaceous, hairy; pedicels 2–4 mm long, densely puberulous; stamens 9–15, unequal; anthers 1–1.5 mm long; filaments slender, 1.5–3 mm long, villose, 2 glands at base or without glands; pistillode 1.5–2 mm long, glabrous. *Female flowers* 6 in each umbel; tepals 6, elliptic, elliptic-oblong or oblong, subequal, 2–2.5 by 0.8–1 mm, membranaceous, hairy; pedicels 1.5–3 mm long, densely puberulous; ovary globose, 0.8–1 mm in diam., glabrous; style 1–2 mm long; stigma peltate; staminodes 9–11, linear, 1–1.5 mm long, hairy, 2 glands or without glands. *Fruits* depressed globose, 0.9–1.2 cm in diam., half enclosed in the deep cup-shaped enlarged perianth tube, green with white dots, glabrous, glossy; enlarged perianth tube cup-shaped, 0.5–0.7 cm high, 1–1.2 cm in diam., warty; fruiting pedicels thickened, 0.4–0.7 cm long, warty; infructescence stalks 0.5–0.7 cm long, puberulous.

Thailand.— PENINSULAR: Ranong (Khlong Na Kha Wildlife Sanctuary, Kam Phuan Protection Unit, Khao Phota Luang Kaeo, Khao Phota Chong Dong), Narathiwat (Hala-Bala Wildlife Sanctuary, Sirindhorn Waterfall).

Distribution.— Malay Peninsula, Sumatra, Borneo.

Ecology.— In tropical rain forest, 50–700 m. Flowering: December–February. Fruiting: March–June.

Vernacular.— Ka thang phon ko (กะทังผลก่อ).

25. Litsea phuwuaensis Ngerns., Thai Forest Bull. (Bot.) 32: 110. fig. 1 & 2. 2004. Type: Thailand, Nong Khai, Bung Khla, Phu Wua Wildlife Sanctuary, *Ngernsaengsaruay 376* (holotype **BKF!**; isotypes **BK!**, Herb. of the Department of Botany, Kasetsart University!).

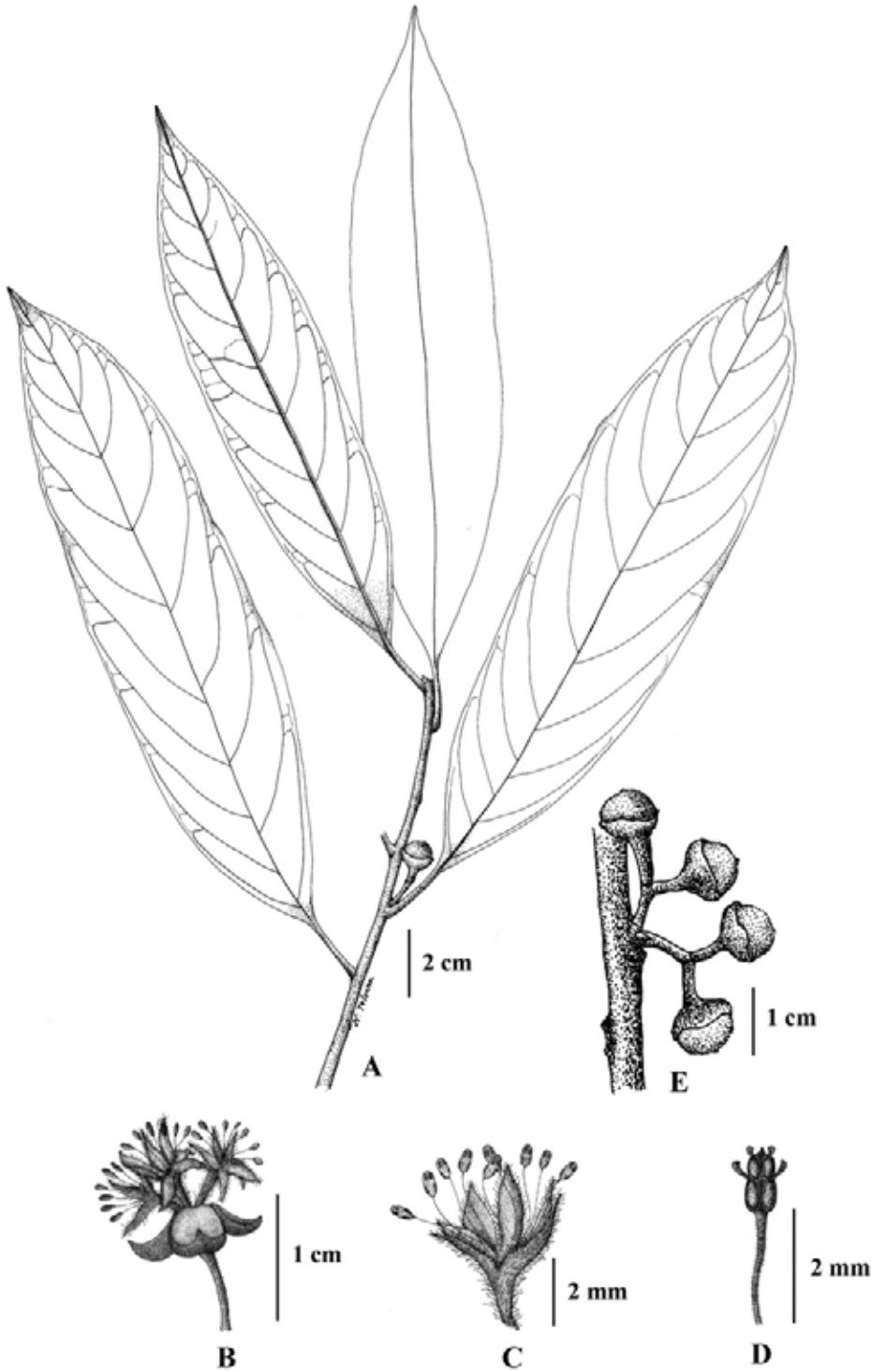

Figure 17. *Litsea ochracea* (Blume) Boerl.: A. fruiting branch; B. male inflorescence; C. male flower; D. outer whorled stamen without gland; E. infructescences. Drawn by N. Tetsana.

Shrub 0.5–2.5 m tall; young parts very densely pale brown villose; branchlets densely villose. *Leaves* spiral; blade obovate-oblong, obovate-lanceolate, oblong, elliptic-oblong or oblong-lanceolate, 7–18(–25) by 2–5.5(–7) cm, apex caudate or acuminate, base obtuse or cuneate, margin ciliate, chartaceous, green or dark green above, villose on both surfaces, glaucous beneath; petiole 0.3–1 cm long, densely villose; midrib sunken above, raised beneath, secondary veins 7–14 pairs, sunken above, raised beneath, curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels, in axils of leaves or along branchlets, rarely cauliflorous (along main stem), clusters of umbels 0.8–1 cm long; umbels 0.5–0.7 cm in diam.; peduncles 0.3–0.5 cm, villose; bracts 4, decussate, suborbicular or broadly ovate, concave, 3.5–5 by 3–4 mm, thinly coriaceous, with veins, villose outside. *Male flowers* 5 in each umbel; tepals 4–6, linear-oblong, subequal, 2–2.5 by 0.5–1 mm, membranaceous, sparsely hairy outside; pedicels 1–2 mm long, villose; stamens 6–8(–9), unequal; anthers 0.5–1 mm long; filaments slender, 1.5–2.5 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 5 in each umbel; tepals 5–6, linear-oblong, subequal, 2–2.5 by 0.5–1 mm, membranaceous, sparsely hairy outside; pedicels 1–2 mm long, villose; ovary ovoid, 1–2 mm long, glabrous; style 1–2 mm long; stigma peltate; staminodes 6–7, linear, 1.5–2 mm long, villose. *Fruits* ovoid, 0.8–1 by 0.7–0.9 cm, green with white dots, glabrous, glossy; enlarged perianth tube shallow cup-shaped, 0.5–0.6 cm in diam.; fruiting pedicels thickened, 0.8–1.2 cm long, sparsely villose; infructescence stalks 0.4–0.5 cm long, villose.

Thailand.— NORTH-EASTERN: Nong Khai (Phu Wua Wildlife Sanctuary, Tham Fun), Nakhon Phanom (Phu Langka National Park, Tat Kham Fall, Ban Phaeng).

Distribution.— Endemic, Known only from NE Thailand.

Ecology.— In mixed deciduous forest, occasionally by streams, ca. 150–200 m. Flowering: May–June. Fruiting: June–August.

Vernacular.— Thang bai khon phu wua (ทังใบขนภูวัว).

Notes.— The specific epithet is named after Phu Wua Wildlife Sanctuary where the author found and collected the type specimens.

Litsea phuwuaensis is distinguished by the villose indumentum on most plant parts, the caudate or acuminate leaf apex and the ciliate leaf margin. Young parts are especially very densely pale brown villose.

26. Litsea pierrei Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 83. 1913; Fl. Indo-Chine 5: 138. 1914; Liou Ho, Laurac. Chine & Indochine 174. 1932; Allen, Ann. Missouri Bot. Gard. 25: 382. 1938; Kosterm., Bibliogr. Laur. 863. 1964. Type: Cochinchina, *Pierre 5151* (lectotype **K!**, designated here; isolectotypes **BM**!, **K!**). Fig. 18.

Medium-sized to large tree 15–30 m tall; branchlets glabrous or glabrescent. *Leaves* spiral; blade obovate, obovate-oblong or oblong, 6–17.5 by 2.5–6.5 cm, apex acute or acuminate, base cuneate, margin entire, coriaceous, glabrous on both surfaces; petiole 1.2–3 cm long, glabrous; midrib shallowly sunken above, raised beneath, secondary veins 5–8 pairs, flattened above, raised beneath, curving near margin, tertiary veins reticulate, distinct or indistinct beneath, finely areolate and distinct above. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a short raceme of umbels, in axils of leaves or along branchlets, raceme of umbels 2–4 cm long; umbels 0.5–0.6 cm in diam.; peduncles 0.8–1.7 cm long, puberulous; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–4.5 by 4–4.5 mm, densely puberulous outside (only nearly open inflorescence buds found). *Male flowers* 5 in each umbel; tepals 6, elliptic, elliptic-oblong or oblong, subequal, 2.5–4 by 1–1.2 mm, membranaceous, puberulous; pedicels 1 mm long, densely puberulous; stamens 9–12, unequal; anthers 0.8–1.2 mm long; filaments 1–2 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* not known. *Fruits* cylindrical or ovoid, 1.8–2.4 by 1–1.3 cm, half or more enclosed in the cup-shaped enlarged perianth tube, glabrous; enlarged perianth tube a deep cup, 1.2–1.5 cm high, 1.5–2 cm in diam., warty; fruiting pedicels thickened, 0.6–1 cm long, warty; infructescence stalks 0.8–2 cm long, sparsely puberulous; young fruits completely enclosed in turbinate enlarged perianth tube with a circular hollow at the top.

Thailand.— SOUTH-EASTERN: Chon Buri (Si Racha), Prachin Buri, Trat (Ko Chang, Khlong Dan, Ko Kut).

Distribution.— Laos, Cambodia.

Ecology.— In dry evergreen forest, 10–150 m. Flowering: July (only nearly open inflorescence buds found). Fruiting: December–March.

Vernacular.— Tan hok (ตานหก) (Prachin Buri, Chon Buri).

Notes.— The specific epithet is given in honour of Pierre who found and collected the type specimens.

Lecomte (1913) described *Litsea pierrei* based on two syntypes [*Pierre 471* (**K!**), Cochinchina; *Pierre 5151* (**BM**!, **K!**), Cochinchina]. The second one is designated here as the lectotype and isolectotypes.

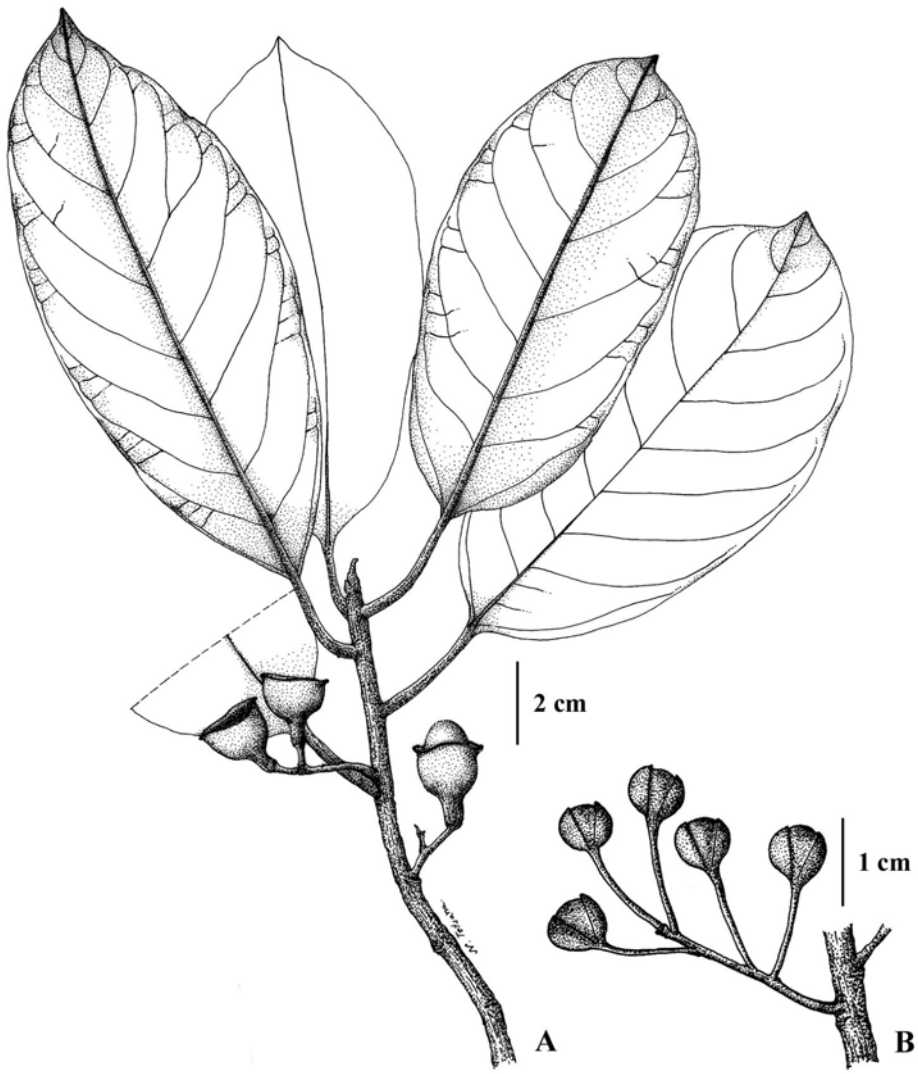

Figure 18. *Litsea pierrei*: A. fruiting branch; B. flowering branch with inflorescence buds. Drawn by N. Tetsana.

27. Litsea pseudo-elongata Kosterm., Nat. Hist. Bull. Siam Soc. 25(3–4): 38. 1975, non Liou Ho, Type: Thailand, Loei, Phu Kradueng, *Sørensen, Larsen & Hansen* 6221 (holotype C!).

Small to medium-sized tree 3–12 m tall; bark smooth, lenticellate, brown or dark brown; terminal buds perulate; branchlets brown tomentose. *Leaves* spiral; blade obovate-oblong, elliptic-oblong or oblong, 13–21(–33) by 3.5–7.5(–9) cm, apex acute or acuminate, base cuneate, margin entire, thinly coriaceous, dark green, glabrous above or tomentose on midrib above, tomentose beneath; petiole 0.3–1 cm long, tomentose; midrib shallowly sunken or flattened above, raised beneath, secondary veins 7–14 pairs, shallowly sunken or flattened above, raised beneath, curving and looping near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels, in axils of leaves, along branchlets or at apex of branchlets; umbels 0.6–1 cm in diam.; sessile; bracts 4–5, decussate or imbricate, suborbicular or broadly ovate, concave, 3–8 by 3–7 mm, outer coriaceous, tomentose outside, inner membranaceous, hairy, margin fimbriate. *Male flowers* 4–5 in each umbel; tepals 6, ovate, ovate-oblong or oblong, subequal, 3.5–5 by 1.5–2 mm, membranaceous, hairy, margin fimbriate; pedicels 2–4 mm long, densely tomentose; stamens 8–11, unequal; anthers 1–2 mm long; filaments slender, 4–7 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 4 in each umbel; tepals 6, ovate, ovate-oblong or oblong, subequal, 2–4 by 1–1.5 mm, membranaceous, hairy, margin fimbriate; pedicels 2–3 mm long, densely tomentose; ovary ovoid, 1–1.5 by 0.8–1 mm, glabrous (ovary completely enclosed in enlarged perianth tube); style 2–3 mm long; stigma peltate; staminodes 8–9, linear, 1–2 mm long, hairy, 2 glands or without glands. *Fruits* ovoid, 0.7–0.8 by 0.4–0.5 cm (young fruits), green with white dots, glabrous, glossy; enlarged perianth tube cup-shaped, 0.3–0.4 cm high, 0.4–0.5 cm in diam., tomentose; fruiting pedicels 0.2–0.3 cm long, tomentose; infructescence stalks sessile or subsessile (only young fruiting specimens found).

Thailand.— NORTH-EASTERN: Loei (Phu Kradueng, Phu Luang).

Distribution.— Endemic.

Ecology.— In lower montane forest, occasionally by streams, 900–1300 m. Flowering: June–November. Fruiting: October–December (only young fruiting specimens found).

Vernacular.— Ka thang khon phu (กะทังขนภู).

28. Litsea pseudo-umbellata Kosterm., Nat. Hist. Bull. Siam Soc. 25(3–4): 38. 1975. Type: Thailand, Chiang Mai, Doi Suthep, *Kerr 3230* (holotype **BM**!; isotypes **C!**, **K!**, **L!**).

Small tree 4–8 m tall; branchlets pubescent. *Leaves* spiral; blade ovate-oblong, ovate-lanceolate or oblong-lanceolate, 7–15 by 2–4 cm, apex acuminate or cuspidate, base cuneate or slightly oblique, margin entire, chartaceous, dark green, glabrous above, slightly glaucous, sparsely pubescent on midrib and secondary veins beneath; petiole 0.6–1.5 cm long, pubescent; midrib sunken above, raised beneath, secondary veins 7–14 pairs, shallowly sunken or flattened above, raised beneath, curving near margin, tertiary veins scalariform-reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels or umbels solitary, in axils of leaves or along branchlets, clusters of umbels 0.5–1 cm long; umbels 0.5–0.8 cm in diam.; peduncles 0.2–0.4 cm long, pubescent; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–4 by 2.5–4 mm, pubescent outside. *Male flowers* 4–5 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2.5–3 by 1–1.2 mm, membranaceous, hairy; pedicels 1.5–2 mm long, densely pubescent; stamens 6–9, unequal; anthers 0.5–1.2 mm long; filaments slender, 2.5–4 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 3–5 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2–3 by 1 mm, membranaceous, hairy; pedicels 1–2 mm long, densely pubescent; ovary ovoid, 0.8 by 1 mm, glabrous; style 1.5–2 mm long; stigma peltate; staminodes 6, linear, 1–2 mm long, hairy, 2 glands or without glands. *Fruits* ellipsoid or ovoid, 1–1.5 by 0.5–0.9 cm, green with white dots, glabrous, glossy; enlarged perianth tube a shallow cup, 0.4–0.6 cm in diam., sparsely pubescent; fruiting pedicels 0.4–0.6 cm long, sparsely pubescent; infructescence stalks 0.4–0.6 cm long, pubescent.

Thailand.— NORTHERN: Chiang Mai (Doi Suthep-Pui, Mon Long), Lumphun (Mae Tha).

Distribution.— Endemic.

Ecology.— In lower montane forest, 1000–1500 m. Flowering: March–July. Fruiting: June –October.

Vernacular.— Fan pla doi (ฟันปลาดอย).

29. Litsea punctulata Kosterm., Nat. Hist. Bull. Siam Soc. 25(3–4): 39. 1975. Type: Thailand, Trang, Khao Chong, *Phusomsaeng* & *Phengklai 244* (holotype **AAU**!; isotypes **BK!**, **C!**, **E!**, **K!**, **L!**).

Medium-sized to large tree 15–25 m tall; branchlets pubescent. *Leaves* spiral; blade oblong or obovate-oblong, 9–19 by 3.5–7 cm, apex acute or obtuse, base cuneate or slightly oblique, margin entire, chartaceous, glabrous above or sparsely pubescent on midrib and secondary veins above, pubescent on midrib and secondary veins beneath; petiole 1.2–2 cm long, pubescent or glabrescent; midrib sunken above, raised beneath, secondary veins 7–11 pairs, shallowly sunken above, raised beneath, curving near margin, tertiary veins scalariform-reticulate, faint beneath. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves, along branchlets or at apex of branchlets, raceme of umbels 1.5–2.5 cm long; umbels 0.6–0.8 cm in diam.; peduncles 0.7–1.2 cm long, pubescent; bracts 4, decussate, suborbicular, broadly ovate or ovate, concave, 3–4 by 2.5–4 mm, pubescent outside. *Male flowers* 5–6 in each umbel; tepals 6, elliptic, elliptic-oblong or oblong, subequal, 2–3 by 0.8–1 mm, membranaceous, hairy, margin fimbriate; pedicels 1.5–3 mm long, densely pubescent; stamens 9–12, unequal; anthers 0.8–1 mm long; filaments slender, 2–3 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* not known. *Fruits* not known.

Thailand.— PENINSULAR: Trang (Khao Chong).

Distribution.— Endemic.

Ecology.— In tropical rain forest, 100–200 m. Flowering: May–July.

Vernacular.— Ka thang khao chong (กะทังเขาช่อง).

Note.— The description is based only on the type specimens.

30. Litsea resinosa Blume, Bijdr. 562. 1825; Boerl., Handl. Fl. Ned. Ind. 3: 142. 1900; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 144. 1904; Backer & Bakh.f., Fl. Java 1: 129. 1963; Kosterm., Bibliogr. Laur. 870. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 163. 1989; Lemmens et al., Pl. Resources SE Asia 5(2): 320. 1995.— *Tetranthera resinosa* Nees, Syst. Laurin. 550. 1836; Blume, Mus. Bot. Lugd. Bat. 1(24): 386. 1851; Dietrich, Syn. 2: 1360. 1840; Meisn. in DC., Prodr. 15(1): 184. 1864; Kosterm., Bibliogr. Laur. 1421. 1964. Type: Indonesia, Java, *Unknown s.n.* (lectotype **K!**, designated here; isolectotypes **C!**, **L**, **U**).— *Litsea monticola* Gamble, Bull. Misc. Inform. Kew: 361. 1910; J. Asiat. Soc. Bengal 75(1): 164. 1912; Ridl., Fl. Malay Penins. 3: 124. 1924; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 416. 1925; Calder & Ramaswami, Records Bot. Survey Ind. 11(1): 83. 1926; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928. Type: Malaysia, Perak, *King's Collector 7000* (lectotype **K!**, designated here; isolectotype **K!**). Fig. 19.

Medium-sized tree 10–20 m tall; branchlets pubescent, becoming glabrescent. *Leaves* spiral; blade elliptic or elliptic-oblong, 9–18 by 2.5–7.5 cm, apex acute or acuminate, base cuneate or slightly oblique, margin entire, coriaceous, glabrous or sparsely pubescent on midrib and secondary veins above, sometimes glaucous, pubescent, becoming glabrescent or glabrous beneath; petiole 1–2.5 cm long, pubescent or glabrescent; midrib sunken above, raised beneath, secondary veins 7–13 pairs, sunken above, raised beneath, curving near margin, tertiary veins scalariform-reticulate, faint beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, in axils of leaves or along branchlets, clusters of umbels 1–1.5 cm long; umbels 0.7–0.9 cm in diam.; peduncles 0.4–1 cm long, densely pubescent; bracts 4, decussate, suborbicular or broadly ovate, concave, 3–5 by 2.5–5 mm, pubescent outside. *Male flowers* 4–7 in each umbel; tepals 6, elliptic, elliptic-oblong or oblong, subequal, 2–3.5 by 0.8–1 mm, membranaceous, hairy, margin fimbriate; pedicels 1.5–2 mm long, densely pubescent; stamens 9–16, unequal; anthers 0.5–1.5 mm long; filaments slender, 1.5–3.5 mm long, villose, 2 glands at base or without glands; pistillode none.

Figure 19. *Litsea resinosa*: A. flowering branch with inflorescence buds; B. male inflorescence; C. male flower; D. outer whorled stamen without gland; E. fruiting branch. Drawn by N. Tetsana.

Female flowers not known. *Fruits* ellipsoid, 1.8–2.4 by 1–1.2 cm, glabrous; enlarged perianth tube shallow cup-shaped, 0.3–0.5 cm high, 0.8–1 cm in diam., glabrescent or glabrous; fruiting pedicels 0.5–0.8 cm long, glabrescent or glabrous; infructescence stalks 0.7–1.2 cm long, slightly pubescent.

Thailand.— PENINSULAR: Nakhon Si Thammarat, Narathiwat (Tak Bai, Su-ngai Padi); SOUTH-EASTERN: Trat (Khao Saming).

Distribution.— Malay Peninsula, Sumatra, Java, Celebes, Borneo, Brunei, Philippines.

Ecology.— In peat swamp forest and tropical rain forest, 0–100 m. Flowering: June–November. Fruiting: August–February.

Vernacular.— Ka thang pa (กะทังป่า) (Narathiwat); tham mang pho krong (ทำมังพอกรง), tham mang (ทำมัง) (Nakhon Si Thammarat); ma-dae-u-tae (มะแดอูแต), ma-dae (มะแด) (Malay-Narathiwat).

Notes.— Gamble (1910b) described *Litsea monticola* based on two syntypes [*King's Collector 7000* (**K!**), 8454 (**K!**), Malay Peninsula, Perak]. The first one is designated here as the lectotype and isolectotype.

Specimens of *Litsea resinosa* were previously often misidentified as either *L. costalis* or *L. costata* which do not occur in Thailand.

31. Litsea semecarpifolia (Wall. ex Nees) Hook.f., Fl. Brit. India 5: 165. 1886; Brandis, Ind. Trees: 537. 1906; Ridl., Bull. Misc. Inform. Kew: 452. 1911; Lace, List Trees, Shrubs and Climbers Burma: 140. 1922; Kanjilal et al., Fl. Assam 4: 86. 1940; Kosterm., Bibliogr. Laur. 879. 1964.— *Tetranthera semecarpifolia* Wall. [Numer. List 6345B. 1830, nom. nud.] ex Nees in Wall., Pl. Asiat. Rar. 3: 31. 1832; Nees, Syst. Laurin. 558. 1836; Dietrich, Syn. 2: 1361. 1840; Meisn. in DC., Prodr. 15(1): 198. 1864; Kurz, Forest. Fl. Brit. Burma 2: 303; Kosterm., Bibliogr. Laur. 1426. 1964. Type: Myanmar, *Wallich Cat. no. 6345B* (lectotype **K-W!**, designated here). Figs. 20, 27: C.

Small to medium-sized tree 5–12 m tall; branchlets tomentose or tomentulose. *Leaves* spiral; blade obovate, 11–22.5 by 6–12 cm, apex obtuse or acute, base cuneate or slightly oblique, margin entire, coriaceous, glabrous above or tomentulose on midrib and secondary veins above, tomentose or tomentulose beneath; petiole 1.5–3 cm long, tomentose or tomentulose; midrib shallowly sunken or flattened above, raised beneath, secondary veins 8–11 pairs, flattened above, raised beneath, curving and looping near margin, tertiary veins scalariform-finely reticulate, prominent beneath, finely areolate and distinct above. *Inflorescences* on umbel-bearing reduced branchlets with the appearance of a raceme of umbels, in axils of leaves or along branchlets, raceme of umbels (2–) 3–8 cm long; umbels 0.7–1.4 cm in diam.; peduncles 0.5–1.3 cm long, tomentose; bracts 6, imbricate, suborbicular or broadly ovate, concave, 4–7 by 3–7 mm, outer coriaceous, tomentose outside, inner membranaceous, hairy, margin fimbriate. *Male flowers* 6–8 in each umbel; tepals 6–8, elliptic, elliptic-oblong or oblong, subequal, 3–5 by 0.8–1.5 mm, membranaceous, hairy; pedicels 1.5–2.5 mm long, tomentose; stamens 9–12, unequal; anthers 0.8–1.5 mm long; filaments slender, 2–5 mm long, villose, 2 glands at base or without glands; pistillode 2.5 mm long, glabrous. *Female flowers* 5–7 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2–2.5 by 0.8–1 mm, membranaceous, hairy; pedicels 1.5–3 mm long, tomentose; ovary ovoid, 1–1.5 by 0.8–1 mm, glabrous; style 1.5–2 mm long; stigma peltate; staminodes 9–12, linear, 1–2 mm long, hairy. *Fruits* depressed globose, 1.3–1.6 cm in diam., glabrous; enlarged perianth tube cup-shaped 0.4–0.7 cm high, 1.4–1.7 cm in diam., tomentulose, warty; fruiting pedicels 0.8–1.2 cm long, tomentulose, warty; infructescence stalks 0.5–1.2 cm long, tomentose.

Thailand.— NORTHERN: Mae Hong Son (Khun Yuam), Chiang Mai (Doi Chiang Dao, Doi Suthep, Mae Rim, Mae Kam Pong, Mae On, Omkoi); SOUTH-WESTERN: Uthai Thani (Huai Kha Khaeng Wildlife Sanctuary), Kanchanaburi (Ban Cha Ke Yai).

Distribution.— India, Myanmar.

Ecology.— In mixed deciduous forest and lower montane forest, 400–1200 m. Flowering: July–December. Fruiting: December–April.

Vernacular.— Cho khao suk (ช่อข้าวสุก), mi bong (หมี่บ้ง) (Chiang Mai).

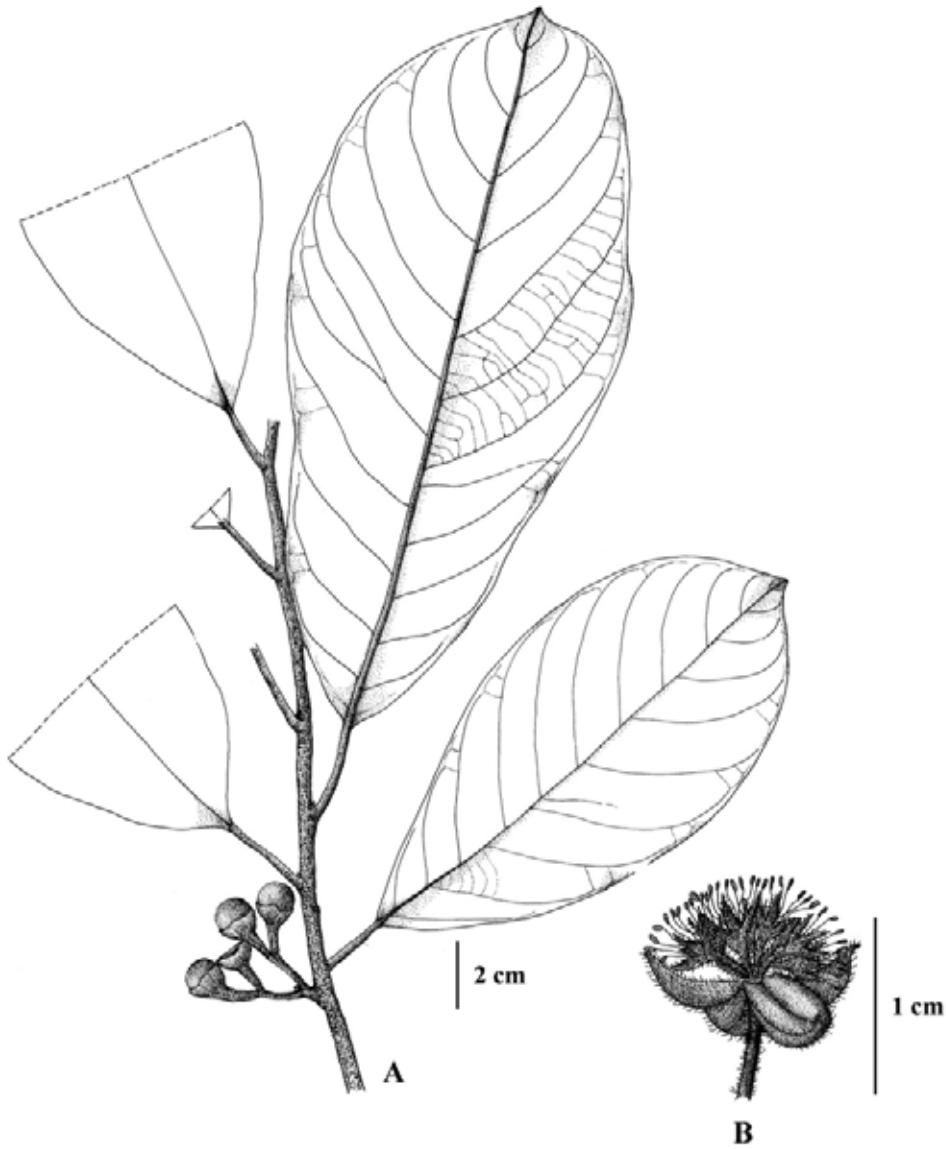

Figure 20. *Litsea semecarpifolia*: A. fruiting branch; B. male inflorescence. Drawn by N. Tetsana.

32. Litsea tomentosa Blume, Bijdr. 566. 1825; Boerl., Handl. Fl. Ned. Ind. 3: 141. 1900; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 138. 1904; Gamble, J. Asiat. Soc. Bengal 75(1): 132. 1912; Ridl., Fl. Malay Penins. 3: 115. 1924; Backer & Bakh.f., Fl. Java 1: 125. 1963; Kosterm., Bibliogr. Laur. 886. 1964; Kochummen in Ng, Tree Fl. Malaya 4: 165. 1989; Lemmens et al., Pl. Resources SE Asia 5(2): 322. 1995; Ngernsaengsaruay et al., Thai Forest Bull. (Bot.) 33: 86. figs. 5, 6: E–F. 2005, non Heyne, non Okubo, Type: Indonesia, Java, *Unknown s.n.* (lectotype **K!**, designated by Ngernsaengsaruay et al. (2005)).

Small tree 8 m tall; bark smooth, lenticellate, greyish brown; branchlets densely tomentose. *Leaves* spiral, crowded toward the apex of branchlets, closely spaced; blade obovate, 15–30 by 7.5–16 cm, apex acute, base cuneate, margin ciliate, chartaceous, green, tomentose or tomentulose

above, densely tomentose on midrib and secondary veins above, glaucous, densely tomentose beneath; petiole 1.5–2.5 cm long, densely tomentose; midrib shallowly sunken above, raised beneath, secondary veins 11–16 pairs, shallowly sunken above, raised beneath, curving and looping near margin, tertiary veins scalariform-finely reticulate, prominent beneath, finely areolate and distinct above. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, along branchlets, clusters of umbels 2–3 cm long; umbels 1.2–2 cm in diam.; peduncles 1.2–2.5 cm long, tomentose; bracts 4–5, decussate or imbricate, suborbicular or broadly ovate, concave, 8–10 by 6–8 mm, tomentose outside. *Male flowers* 5–6 in each umbel; tepals 9–12, elliptic or elliptic-oblong, unequal, 4–5 by 1.5–2 mm, membranaceous, hairy; pedicels 2.5–4 mm long, densely tomentose; stamens 24–30, unequal; anthers 1.5–2 mm long; filaments slender, 2–5 mm long, villose, 2 glands at base or without glands; pistillode 2 mm long, glabrous. *Female flowers* 5–6 in each umbel tepals 8–12, elliptic or elliptic-oblong, unequal, 2–3 by 0.5–1 mm, membranaceous, hairy; pedicels 1.5–3 mm long, densely tomentose; ovary ovoid, 1–1.5 mm in diam., glabrous; style 1.5–2 mm long; stigma peltate; staminodes 26–30, linear, 1.5–2 mm long, villose, 2 glands or without glands. *Fruits* not known.

Thailand.— PENINSULAR: Nakhon Si Thammarat (Lan Saka, Khao Luang National Park).

Distribution.— Malay Peninsula, Sumatra, Java, Borneo.

Ecology.— Open areas in disturbed tropical rain forest, ca. 600 m. Flowering: April–May.

Vernacular.— Ka thang bai khon (กะทังใบขน).

Notes.— The descriptions of flowering material (female flowers) is based Malaysian material (for further details see Ngernsaengsaruay et al. (2005)).

Notes on the occurence of this species in Thailand can be found in Ngernsaengsaruay et al. (2005).

33. Litsea umbellata (Lour.) Merr., Philipp. J. Sci. 14: 242. 1919; Contributions Arnold Arbor. 8: 63. 1934; Allen, Ann. Missouri Bot. Gard. 25: 396. 1938; Corner, Ways. Trees Malaya 1: 348. fig. 119. 1940, 3rd ed. 385. fig. 123. 1988; Kosterm., Bibliogr. Laur. 889. 1964; Kochummen in Ng, Tree Fl. Malaya. 4: 166. 1989; Lemmens et al., Pl. Resources SE Asia 5(2): 323. 1995.— *Hexanthus umbellatus* Lour., Fl. Cochinch. 196. 1790; Juss., Ann. Mus. Hist. Nat. 6: 212. 1805; Moore, J. Bot. 63: 254. 1925; Kosterm., Bibliogr. Laur. 539. 1964. Type: Cochinchina, *Unknown s.n.* (holotype **BM**!). — *Litsea hexantha* Juss., Ann. Mus. Hist. Nat. 6: 212. 1805; Pers., Syn. 2: 4. 1807 (*hexanthus*); Kosterm., Bibliogr. Laur. 830. 1964. Type: not seen.— *L. amara* Blume, Bijdr. 563. 1825; Hook.f., Fl. Brit. India 5: 163. 1886; Ridl., J. Straits Branch Roy. Asiat. Soc. 33: 131. 1900; Boerl., Handl. Fl. Ned. Ind. 3: 142. 1900; Koorders & Valeton, Bijdr. 10. Boomsoorten Java: 150. 1904; Brandis, Ind. Trees: 537. 1906; Gamble, J. Asiat. Soc. Bengal 75(1): 140. 1912; Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 90. 1913; Fl. Indo-Chine 5: 136. 1914; Lace, List Trees, Shrubs and Climbers Burma: 139. 1922; Ridl., Fl. Malay Penins. 3: 117. 1924; Burkill & Henderson, Gard. Bull. Straits Settlem. 3: 415. 1925; Henderson, Gard. Bull. Straits Settlem. 4: 312. 1928; Liou Ho, Laurac. Chine & Indochine. 190. 1932; Backer & Bakh.f., Fl. Java 1: 126. 1963; Kosterm., Bibliogr. Laur. 787. 1964.— *Tetranthera amara* (Blume) Nees in Wall., Pl. Asiat. Rar. 3: 30. 1832; Syst. Laurin. 551. 1836; Dietrich, Syn. 2: 1360. 1840; Blume, Mus. Bot. Lugd. Bat. 1(24): 379. 1851; Meisn. in DC., Prodr. 15(1): 190. 1864; Kurz, Forest Fl. Burma 2: 299. 1877. Type: not seen. Figs. 21, 27: D–E.

Shrub or small to medium-sized tree 1–13 m tall; bark smooth, lenticellate, greyish brown; branchlets densely reddish brown or fulvous tomentose. *Leaves* spiral; blade very variable in shape and size, elliptic, elliptic-oblong, oblong, oblong-lanceolate, obovate, obovate-oblong, ovate or ovate-oblong, 3–14.5 by 1.2–4(–7.5) cm, apex acute, acuminate, cuspidate or caudate, base cuneate, margin entire, chartaceous, dark green, glabrous above or tomentulose on midrib and secondary veins above, sometimes glaucous, reddish brown tomentose or tomentulose beneath; petiole 0.3–1 (–1.5) cm long, tomentose or tomentulose; midrib shallowly sunken above, raised beneath, secondary veins 5–11 pairs, shallowly sunken or flattened above, raised beneath, curving or curving and looping near margin, tertiary veins usually

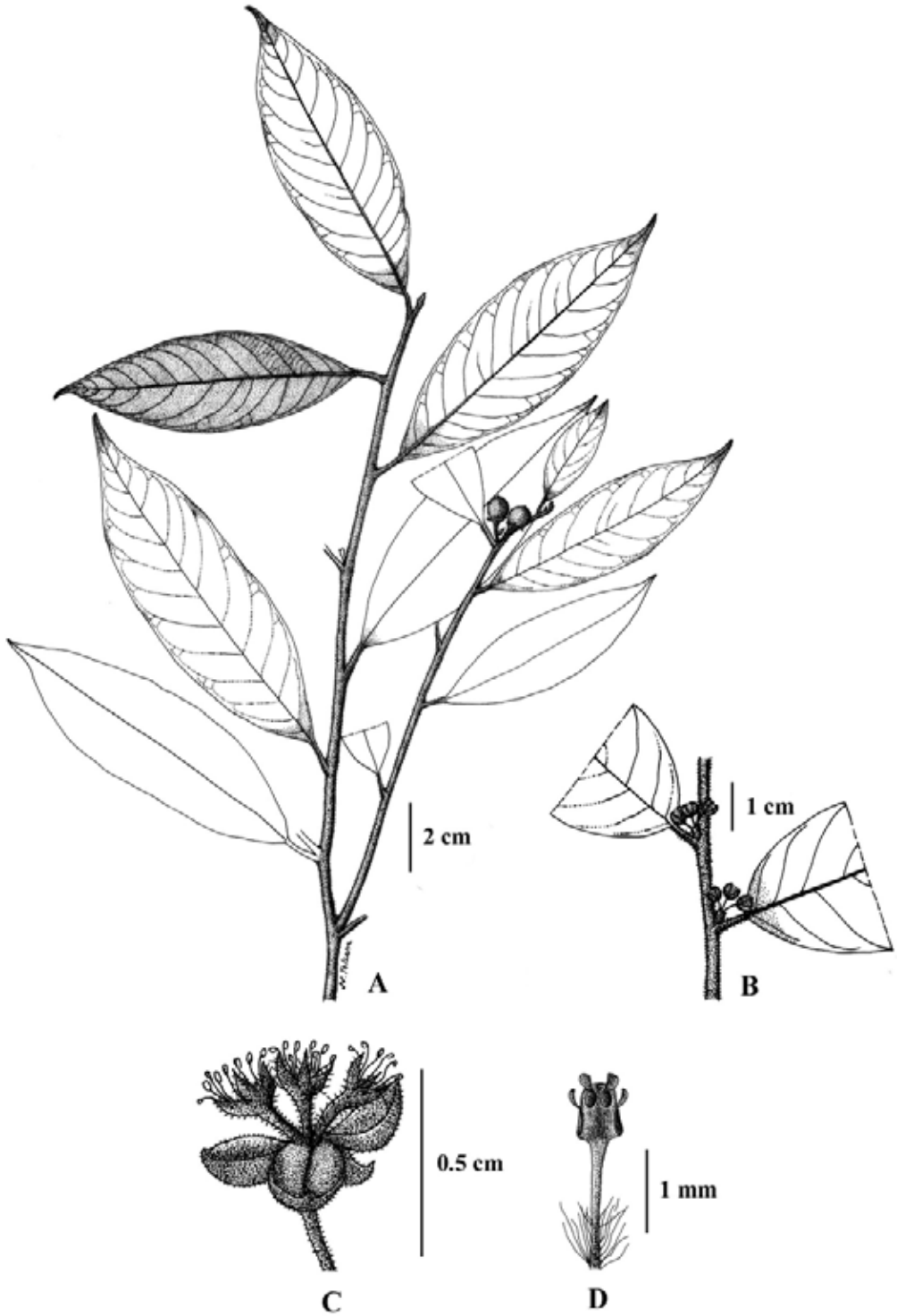

Figure 21. *Litsea umbellata*: A. fruiting branch; B. flowering branch with inflorescence buds; C. male inflorescence; D. outer whorled stamen without gland. Drawn by N. Tetsana.

scalariform-reticulate, distinct or indistinct beneath. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels, sometimes umbels solitary, in axils of leaves or along branchlets, clusters of umbels usually 0.5–1 cm long; umbels 0.3–0.6 cm in diam.; peduncles 0.2–0.8 cm long, tomentose; bracts 4, decussate, suborbicular or broadly ovate, concave, 2–4 by 2–3 mm, tomentose outside. *Male flowers* 3–6 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 1.5–2.5 by 0.8–1 mm, membranaceous, hairy; pedicels 1–2 mm long, tomentose; stamens 8–9, unequal; anthers 0.5–1 mm long; filaments 1–2 mm long, villose, 2 glands at base or without glands; pistillode none. *Female flowers* 3–6 in each umbel; tepals 6, elliptic, elliptic-oblong, subequal, 1–1.5 by 0.5–0.8 mm, membranaceous, hairy; pedicels 1–2 mm long, tomentose; ovary globose or ovoid, 0.5–0.8 mm in diam., glabrous; style 1 mm long; stigma peltate; staminodes 7–9, linear, 0.5–1 mm long, hairy, 2 glands or without glands. *Fruits* globose or subglobose, 0.6–1 cm in diam., green with white dots, turning dark purple and black when ripe, glabrous, glossy; enlarged perianth tube a shallow cup, 0.3–0.5 cm in diam., tomentulose; fruiting pedicels 0.2–0.5 cm long, tomentulose; infructescence stalks 0.2–0.7 cm long, tomentulose.

Thailand.— NORTHERN: Chiang Mai (Doi Chiang Dao), Nan; NORTH-EASTERN: Nong Khai (Phu Wua Wildlife Sanctuary, Bung Khla), Sakon Nakhon (Wanon Niwat), Nakhon Phanom (Phu Langka National Park); EASTERN: Nakhon Ratchasima (Khao Yai); SOUTH-WESTERN: Kanchanaburi (Si Sawat, Dong Yai, Sri Nakharin National Park); CENTRAL: Nakhon Nayok (Khao Yai); SOUTH-EASTERN: Sa Kaeo (Pang Sida National Park), Chon Buri (Si Racha, Khao Khiao, Ban Bueng), Chanthaburi (Khlung, Makham, Khao Sa Bap, Pong Nam Ron, Khao Khitchakut), Trat (Ko Chang, Khao Saming, Khao Kuap, Taphan Hin); PENINSULAR: Chumphon (Phato, Thung Tako, Tha Sae), Ranong (Kapoe, khlong Na Kha, Kra Buri), Surat Thani (Khao Sok, Ban Na San, Ko Samui, Tha Chang, Phanom, Phrasaeng, Thap Put), Phangnga (Takua Thung, Takua Pa, Khao Nang Hong); Krabi (Khao Pra Bang Khram, Ko Lan Ta Yai), Nakhon Si Thammarat (Khao Luang, Lan Sa Ka, Krung Ching Waterfall, Ka Rom Waterfall, Thung Song), Trang (Thung Khai, Khao Chong), Satun (Ko Tarutao, Khuan Po), Songkhla (Hat Yai, Khao Kho Hong, Ton Nga Chang, Na Thawi, Khao Nam Khang, Rattaphum, Boriphat Waterfall, Thepha), Pattani (Khao Kala Khiri, Ban Sai Khao), Yala (Than To), Narathiwat (Hala-Bala Wildlife Sanctuary, Waeng, To Mo, Rueso, Bacho).

Distribution.— Myanmar, Laos, Vietnam, Cambodia, Malay Peninsula, Sumatra, Java, Borneo.

Ecology.— In a wide variety of habitats, in or along the edge of tropical rain forest, dry evergreen forest, mixed deciduous forest, secondary forest, disturbed open areas, scrub by the sea, occasionally by streams, 0–800 m. Flowering and fruiting throughout the year.

Vernacular.— Fan pla (ฟันปลา), salot (สลด) (Chanthaburi); men-true (เมนตรือ) (Khmer-Chanthaburi); sa tuea (สะเตื้อ) (Trat); kat na (กัดนา), nuan paeng (นวลแป้ง), nam phueng (น้ำผึ้ง) (Trang); mo rat (หมอรัด), ta pla (ตาปลา), sak na (สักนะ) (Surat Thani).

34. Litsea variabilis Hemsl., J. Linn. Soc. Bot. 26: 386. 1891; Liou Ho, Laurac. Chine & Indochine. 188. 1932; Allen, Ann. Missouri Bot. Gard. 25: 393. 1938; Kosterm., Bibliogr. Laur. 891. 1964. Type: China, Hainan, *A. Henry 8729* (lectotype **K!**, designated here). Figs. 22, 27: F.

Small tree 3–8 m tall; bark smooth, lenticellate, dark brown; branchlets sparsely pubescent or glabrous. *Leaves* spiral; blade oblong or oblong-lanceolate, 7.5–22 by 2.5–7 cm, apex acute or acuminate, base cuneate, margin entire, chartaceous, dark green, glabrous above, glaucous, sparsely pubescent or glabrous beneath; petiole 0.5–1 cm long, sparsely pubescent; midrib sunken above, raised beneath, secondary veins 6–10 pairs, shallowly sunken or flattened above, raised beneath, curving near margin, tertiary veins reticulate, distinct beneath. *Inflorescences* on umbel-bearing reduced branchlets, in short clusters of umbels, in axils of leaves or along branchlets, clusters of umbels 0.7–1 cm long; umbels 0.3–0.6 cm in diam.; peduncles 0.4–0.7 cm long, pubescent; bracts 4, decussate, suborbicular or broadly ovate, concave, 2–5 by 2–3 mm, pubescent outside. *Male flowers* 3–4 in each umbel; tepals 6, elliptic or elliptic-oblong, subequal, 2.5–3 by 1–1.5 mm, membranaceous, hairy; pedicels 1–2 mm long, pubescent; stamens 8–12, unequal; anthers

0.5–1.2 mm long; filaments 1–2 mm long, villose, 2 glands at base or without glands; pistillode 1.5 mm long. *Female flowers* not known. *Fruits* globose, 0.7–1.1 cm in diam., green with white dots, turning black when ripe, glabrous, glossy; enlarged perianth tube a shallow cup, 0.4–0.5 cm in diam., sparsely pubescent; fruiting pedicels 0.2–0.5 cm long, sparsely pubescent; infructescence stalks 0.4–0.6 cm long, sparsely pubescent.

Thailand.— NORTHERN: Chiang Mai (Doi Chiang Dao), Lampang (Mae Yom), Phitsanulok (Nakhon Thai); NORTH-EASTERN: Phetchabun, Loei (Phu Luang); EASTERN: Chaiyaphum (Nong Bua Daeng).

Distribution.— China, Laos, Vietnam.

Ecology.— In dry evergreen forest and lower montane forest, 100–1000 m. Flowering: March–July. Fruiting: September–November.

Figure 22. *Litsea variabilis*: A. fruiting branch. Drawn by N. Tetsana.

Vernacular.— Su ra ma rit (สุรามะริด) (Lampang), sa riang nok (เสรียงนก) (Loei).

Notes.— Hemsley (1891) described *Litsea variabilis* based on five syntypes [*A. Henry 4*, *8431*, *8540*, *8729*, *8761* (**K!**), China, Hainan]. The fourth one is designated here as the lectotype.

Thai specimens of *Litsea variabilis* were sometimes previously misidentified as *Litsea baviensis* which does not occur in Thailand.

35. Litsea verticillata Hance, J. Bot. 21: 356. 1883; Hemsl., J. Linn. Soc. Bot. 26: 386. 1891; Liou Ho, Laurac. Chine & Indochine. 171. 1932; Allen, Ann. Missouri Bot. Gard. 25: 373. 1938; Merr., J. Arnold Arbor. 19: 31. 1938; Kosterm., Bibliogr. Laur. 892. 1964, non Vidal, Type: China, Herb. H.F. Hance, *B.C. Henry 22051* (holotype **BM**!; isotypes **BM**!).— *Litsea multiumbellata* Lecomte, Nouv. Arch. Mus. Hist. Nat. ser. 5, 5: 85. 1913; Fl. Indo-Chine 5: 133. 1914; Liou Ho, Laurac. Chine & Indochine. 171. 1932; Allen, Ann. Missouri Bot. Gard. 25: 373. 1938; Kosterm., Bibliogr. Laur. 851. 1964. Type: Cambodia, *Pierre 643* (lectotype **K!**, designated here; isolectotype **BM**!). Figs. 23, 27: G–H.

Small to medium-sized tree 3–12 m tall; bark smooth, greyish brown; terminal buds perulate; branchlets densely tomentose. *Leaves* subverticillate; blade lanceolate, oblong-lanceolate, ovate-oblong or elliptic-oblong, (6–)8–20.5 by 1.8–6.5 cm, apex acute, acuminate or caudate, base cuneate or obtuse, margin entire, chartaceous, dark green, glabrous above or tomentulose on midrib and secondary veins above, slightly glaucous, densely tomentose beneath; petiole 0.2–1 cm long, densely tomentose; midrib shallowly sunken above, raised beneath, secondary veins 7–16 pairs, flattened above, raised beneath, curving and looping near margin, tertiary veins scalariform-reticulate or reticulate, prominent beneath. *Inflorescences* on umbel-bearing reduced branchlets, in clusters of umbels, at apex of branchlets, in axils of leaves, sometimes along branchlets, clusters of umbels 1.5–3(–4) cm long; umbels 0.7–1.5 cm in diam.; peduncles 0.8–2(–3.5) cm long, tomentose; bracts 5–6, imbricate, suborbicular or broadly ovate, concave, 4–8 by 4–8 mm, tomentose outside, margin fimbriate. *Male flowers* 4–6 in each umbel; tepals 6–7, elliptic or elliptic-oblong, subequal, 4–5 by 1.5–2.5 mm, membranaceous, hairy; pedicels 1–3 mm long, densely tomentose; stamens 9–14, unequal; anthers 1.5–2 mm long; filaments slender, 3–7 mm long, villose, 2 glands at base or without glands; pistillode none or pistillode 2–2.5 mm long, glabrous. *Female flowers* 5–7 in each umbel; tepals 6, elliptic, elliptic-oblong, subequal, 2.5–3.5 by 1–1.5 mm, membranaceous, hairy; pedicels 1–1.5 mm long, densely tomentose; ovary ovoid, 1–1.5 by 0.8–1 mm, glabrous; style 2–3 mm long; stigma peltate; staminodes 9–14, linear, 1.5–3 mm long, hairy, 2 glands or without glands. *Fruits* ovoid, 0.7–1 by 0.5–0.8 cm, green with white dots, turning dark purple and black when ripe, glabrous, glossy; enlarged perianth tube cup-shaped, 0.4–0.5 cm in diam., tomentose; fruiting pedicels 0.2–0.3 cm long, tomentose; infructescence stalks 0.6–2 cm long, tomentose.

Thailand.— EASTERN: Nakhon Ratchasima (Khao Yai National Park, Sakaerat); CENTRAL: Nakhon Nayok (Khao Yai); SOUTH-EASTERN: Trat (Khao Kuap).

Distribution.— China, Laos, Cambodia, Vietnam.

Ecology.— Occasionally by streams in dry evergreen forest, tropical rain forest and lower montane forest, 350–1200 m. Flowering: July–November. Fruiting: October–February.

Vernacular.— Tan hok khon (ตานหกขน) (Nakhon Ratchasima).

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Figure 23. *Litsea verticillata*: A. flowering branch with inflorescence buds; B. male inflorescence; C. fruiting branch. Drawn by N. Tetsana.

Figure 24. *Litsea cubeba* (Lour.) Pers.: A. flowering branch with male inflorescences; B. flowering branch with female inflorescences; C. fruiting branch; *L. elliptica* Blume: D. flowering branch with male inflorescences; E. fruiting branch; F. ripe fruits and seeds; *L. grandis* (Nees) Hook.f.: G–H. fruiting branch with mature and ripe fruits. Photographed by C. Ngernsaengsaruay.

Figure 25. *Litsea khasyana* Meisn.: A. male inflorescences; B. fruiting branch; *L. kurzii* King ex Hook.f.: C. branchlet with leaves; D. flowering branch with male inflorescences; E. flowering branch with female inflorescences; F. fruiting branch with mature and ripe fruits; *L. laeta* (Wall. ex Nees) Hook.f.: G. flowering branch with inflorescence buds; H. fruiting branch. Photographed by C. Ngernsaengsaruay.

Figure 26. *Litsea lancifolia* (Roxb. ex Nees) Fern.-Vill.: A. flowering branch with male inflorescences; B. fruiting branch; *L. martabanica* (Kurz) Hook.f.: C. flowering branch with female inflorescences; D. fruiting branch; *L. monopetala* (Roxb.) Pers.: E. flowering branch with female inflorescences; F. fruiting branch with mature and ripe fruits; *L. myristicaefolia* (Wall. ex Nees) Hook.f.: G. flowering branch with male inflorescences; F. fruiting branch with mature and ripe fruits. Photographed by C. Ngernsaengsaruay (A–F, H); A. Sinbumroong (G).

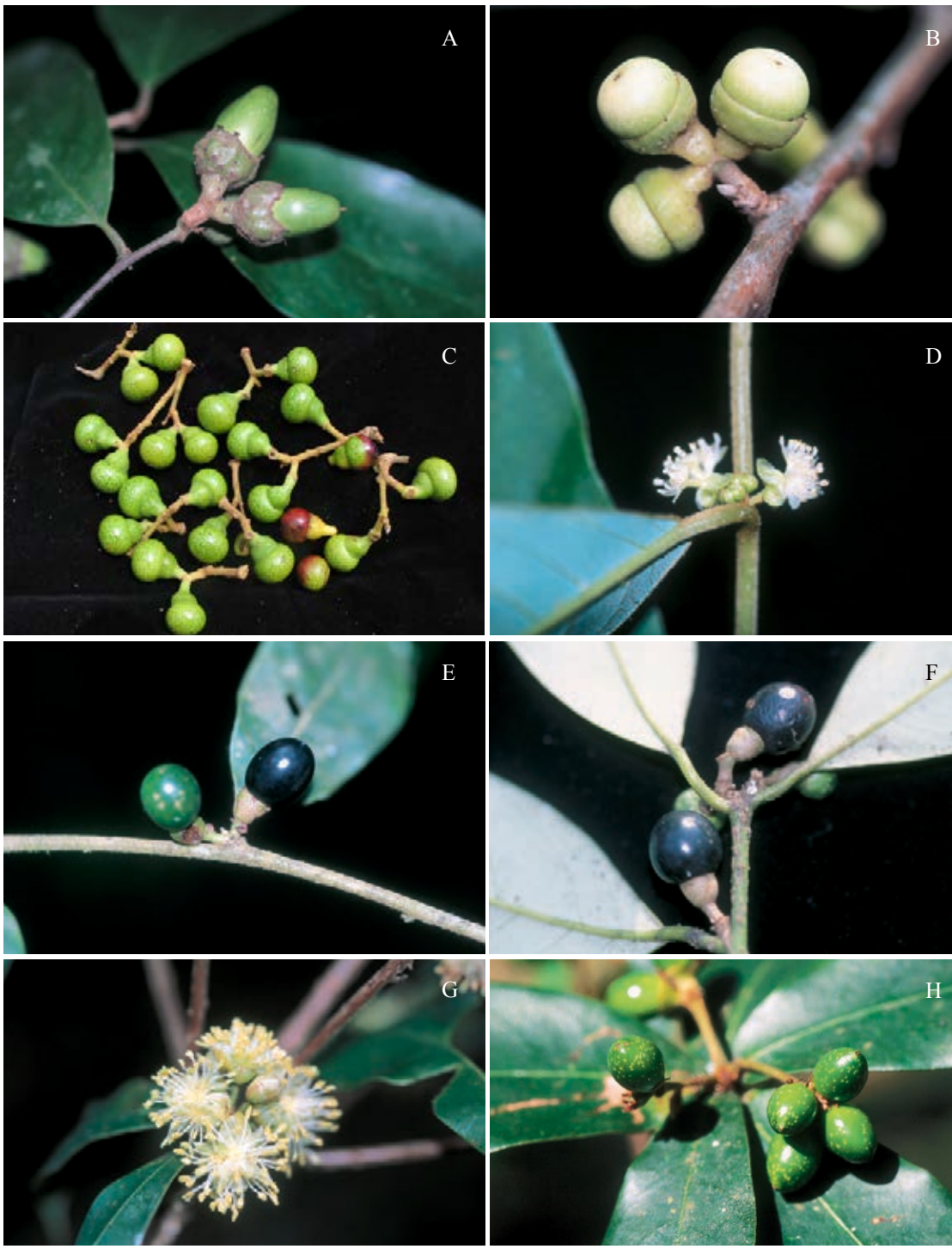

Figure 27. *Litsea nuculanea* (Kurz) Hook.f.: A. fruiting branch; *L. ochracea* (Blume) Boerl.: B. fruiting branch; *L. semecarpifolia* (Wall. ex Nees) Hook.f.: C. infructescences; *L. umbellata* (Lour.) Merr.: D. flowering branch with male inflorescences; E. fruiting branch with mature and ripe fruits; *L. variabilis* Hemsl.: F. fruiting branch with mature and ripe fruits; *L. verticillata* Hance: G. flowering branch with male inflorescences; H. fruiting branch. Photographed by C. Ngernsaengsaruay.

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SPECIMENS EXAMINED

Litsea beusekomii Kosterm.

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Dao (**BKF**, **C**); *Nanakorn et al. 8254*, 15 Dec. 1996, Doi Inthanon (**QBG**); *Ngernsaengsaruay 84*, 21 June 2002, Chiang Rai, Doi Tung (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 87*, 22 June 2002, Chiang Rai, Doi Tung (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 105*, 25 June 2002, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 113*, *118*, 26 June 2002, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 237*, 6 Dec. 2002, Doi Chiang Dao (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 249*, *250*, *251*, 5 Jan. 2003, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 511*, 7 April 2004, Kamphaeng Phet, Mae Wong National Park (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 515*, 9 April 2004, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Noguchi 271*, 4 June 1997, Chiang Mai, Doi Inthanon (**CMU**); *Phengklai et al. 7119*, 28 July 1988, Doi Inthanon (**BKF**); *Santisuk 1005*, 18 May 1988, Doi Inthanon (**BKF**); *Shimizu, Hideo, Koyama, Yahara & Santisuk T-18768*, 15 Oct. 1979, Doi Inthanon (**AAU**, **BKF**); *Shimizu & Hutoh T-10255*, 15 Sept. 1967, Doi Chiang Dao (**BKF**); *Somkid 227*, 3 Sept. 1938, Doi Phu Kha (**BKF**); *Somkid 246*, 4 Sept. 1938, Doi Phu Kha (**BKF**); *Srisanga, Puff & Pongamornkul 68*, 6 Jan. 1998, Doi Inthanon (**QBG**); *Srisanga 1897*, 14 Nov. 2000, Nan, Doi Phu Wae (**QBG**); *Suksathan 1477*, 23 Nov. 1998, Doi Phahom Pok (**QBG**); *Suksathan 2144*, 20 Nov. 1999, Doi Chiang Dao (**QBG**); *Tagawa*, *Iwatsuki & Fukuoka T-2636*, 18 Dec. 1965, Doi Inthanon (**BKF**); *Worawut 67*, 4 Jan. 1970, Doi Inthanon (**BKF**); *Worawut 97*, 7 May 1913, Doi Inthanon (**BKF**); *Werner s.n.*, 29 May 1987, Doi Inthanon (**BKF**); *Wongprasert 0012-68*, 7 Dec. 2000, Doi Inthanon (**BKF**); *Yahara & Nagamasu T-50033*, 10 Dec. 1984, Doi Inthanon (**BKF**).

Litsea castanea Hook.f.

Ngernsaengsaruay & Chantarasuwan 374, 18 June 2003, Narathiwat, Hala-Bala Wildlife Research Station (**BK**, **BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 451*, 24 Oct. 2003, Narathiwat, Hala-Bala Wildlife Research Station (Herb. of the Department of Botany, Kasetsart University, spirit specimen); *Niyomdham, Puudjaa & Chonkunjana 5925*, 22 Nov. 1999, Narathiwat, Sirindhorn Waterfall (**AAU**).

Litsea cordata (Jack) Hook.f.

Ngernsaengsaruay & Chantarasuwan 373, 18 June 2003, Narathiwat, Sirindhorn Peat Swamp Forest (neotype **BKF**; isoneotypes **BK**, Herb. of the Department of Botany, Kasetsart University).

Litsea cubeba (Lour.) Pers.

Bjørnland & Schumacher 310, 7 Sept. 1978, Chiang Mai, Mae Rim, Ban Kong Hae (**BK**, **C**); *Bunchuai 1598*, 3 Feb. 1968, Loei, Phu Luang (**BK**, **C**, **E**, **L**); *Chai-udom D42*, 18 Jan. 1999, Chiang Mai, Doi Inthanon (**CMU**); *Drechsler & Scholz 47*, 5 Oct. 1999, Doi Inthanon (**QBG**); *Garrett 625*, 6 Feb. 1931, Doi Angka (**AAU**, **BKF**, **K**, **L**); *Hansen, Seidenfaden & Smitinand 11129*, 13 Feb. 1964, Phu Miang (**BKF**, **C**, **E**, **L**); *Hansen, Seidenfaden & Smitinand 11139*, 14 Feb. 1964, Phu Miang (**BKF**, **C**, **E**, **L**); *Hansen & Smitinand 12689*, 20 Feb. 1968, Mae Hong Son, Doi Chong (**AAU**, **C**, **E**, **K**, **L**); *Hara, Sri-ngern Yuang & Sun B552*, 15 Jan 1998, Chiang Mai, Doi Inthanon (**CMU**); *Kerr 4942*, 26 Feb. 1921, Nan, Doi Phu Kha (**BK**, **BM**, **C**, **K**); *Konta & Khao-Iam 10828*, 4 Feb. 1998, Doi Inthanon (**BKF**); *Konta & Phengklai 3914*, 4 Feb. 1998, Doi Inthanon (**BKF**); *Konta, Phengklai & Khao-Iam 4105*, 9 Feb. 1998, Doi Inthanon (**BKF**); *Konta, Phengklai & Khao-Iam 4946*, 21 Dec. 1998, Doi Inthanon (**BKF**); *Koyama, Phengklai, Niyomdham, Tamura, Okada & Cornor 15405*, *15406*, 17 Feb. 1979, Doi Inthanon (**AAU**, **BKF**); *Koyama, Terao & Wongprasert T-33715*, 19 Feb. 1983, Loei, Phu Luang (**BKF**); *Koyama T-61616*, 30 July 1988, Doi Inthanon (**AAU**, **BKF**); *Lakshnakara 1487*, 11 Dec. 1938, Doi Angka (**BK**); *K. Larsen, S.S. Larsen, Nanakorn, Ueachirakan & Sirirugsa 41846*, 10 Dec. 1990, Phitsanulok, Phu Hin Rong Kla (**AAU**, **PSU**); *K. Larsen, S.S. Larsen, Nørgaard, Pharsen, Pudjaa & Ueachirakan 44594*, Nan, Doi

Khun Sathan (**AAU**); *Løjtnant & Niyomdham 127*, 2 Feb. 1978, Doi Inthanon (**AAU**); *Løjtnant & Niyomdham 164*, 5 Feb. 1978, Chiang Mai, Doi Phahom Pok (**AAU**, **K**); *Martin 579*, 27 July 2002, Uthai Thani, Huai Kha Khaeng Wildlife Sanctuary (**CMU**); *Maxwell 96-1272*, 23 Sept. 1996, Lampang, Chae Son National Park, Mae Chaem Yao village area (**BKF**, **CMU**); *Maxwell 97-142*, 17 Feb. 1997, Chiang Mai, summit area of Doi Lon, border of Chae Son National Park, Lampang (**BKF**, **CMU**); *Nanakorn 1103*, 13 Dec. 1984, Doi Inthanon (**BKF**); *Ngernsaengsaruay 107*, 25 June 2002, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 119*, 26 June 2002, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 139*, 27 July 2002, Uthai Thani, Huai Kha Khaeng (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 282*, *283*, 3 March 2003, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 388*, 25 June 2003, Loei, Phu Luang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 404*, *405*, 4 July 2003, Phitsanulok, Phu Hin Rongkla (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Nimanong 87*, 18 April 1967, Kanchanaburi, Thong Pha Phum (**AAU**, **BKF**, **L**); *Niyomdham & Vidal 511*, 4 Feb. 1983, Loei, Phu Luang (**AAU**, **BKF**, **C**); *Niyomdham 5686*, 9 April 1999, Yala, Betong, Hala-Bala (**AAU**); *Noguchi A970*, 10 Feb. 1997, Chiang Mai, Doi Inthanon (**CMU**) *Paisooksantivatana 1743-86*, 10 Jan. 1986, Chiang Mai, San Pa Tong, Ban Mae Mu Noi (**BK**); *C. P. & B. N. 974*, 23 March 1965, Chiang Mai, Doi Phahom Pok (**BKF**, **K**, **L**); *Phengklai, Tamura, Niyomdham & Sangkhachand 4077*, 24 June 1978, Doi Inthanon (**BKF**, **C**, **K**); *Puudjaa 1019*, 16 Feb. 2002, Narathiwat, Roadside from Waeng to Sukhirin (**BKF**); *Pooma 529*, 9 Sept. 1991, Doi Inthanon (**BKF**); *P. Sangkhachand 813*, 24 April 1967, Kanchanaburi, Thong Pha Phum (**BK**); *Shimizu, Iwatsuki, Fukuoka, Hutoh, Chaiglom & Nalampoon T-11729*, 5 Oct. 1967, Phu Miang (**BKF**, **L**); *Somkid 181*, 29 Aug. 1938, Nan, Doi Phu Kha (**BKF**); *Srisanga 1744*, 11 Nov. 2000, Nan, Doi Phu Kha (**QBG**); *Suksathan 1415*, 8 Nov. 1998, Chiang Mai, Doi Phahom Pok (**QBG**); *Tamura T-60236*, 25 July 1988, Chiang Mai, Doi Inthanon (**BKF**); *Wongprasert 997-133*, 12 July 1999, Kamphaeng Phet, Mae Wong National Park (**BKF**); *Wongprasert s.n.*, 13 Dec. 1997, Loei, Phu Luang (**BKF** 116279); *Wongprasert s.n.*, 24 Nov. 1997, Nan, Doi Phu Kha (**BKF** 117369); *Wongprasert et al. s.n.*, 23 Jan. 1999, Chiang Rai, Phu Chi Fa (**BKF** 124769); *Yahara & Nagamasu T-50029*, 10 Dec. 1984, Doi Inthanon (**BKF**).

Litsea elliptica Blume

Anonymous s.n., 18 April 1940, Surat Thani (**BKF** 2098); *Ngernsaengsaruay 15*, 26 March 2002, Narathiwat (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 315*, 7 May 2003, Narathiwat, Sukhirin (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 455*, *456*, *457*, 8 Nov. 2003, Chumphon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 493*, 6 Feb. 2004, Chumphon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Put 432*, 15 Aug. 1933, Chanthaburi, Makham, Khao Sa Bap (**BKF** 2095, **C**); *Punyabukkana 868*, 24 March 1920, Surat Thani, Ban Don (**BKF**, **K**); *Yuang 36*, Sept. 1927, Surat Thani, Ban Na (**K**); *Yuang 37A*, 1 Sept. 1927, Surat Thani, Ban Na, Nong Sum (**BK**, **BM**).

Litsea firma (Blume) Hook.f.

Ngernsaengsaruay 313, 6 May 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University).

Litsea glutinosa (Lour.) C.B. Rob.

Adisai 508, 14 June 1963, Nong Khai, Phon Phisai (**BK**); *Adisai 742*, 9 June 1964, Phetchabun, Nam Nao (**BK**); *Amnat 105*, 19 June 1954, Chiang Rai (**BKF**); *Anonymous 570*, Dec. 1959, Tak, Bhumiphon Dam (**BK**); *Anonymous s.n.*, 12 May 1954, Nakhon Nayok, Salika (**BK** 20541); *Asa s.n.*, 11 June 1943, Sikhio (**BKF** 2099); *Beusekom & Phengklai 1312*, 19 June 1968, Chiang Mai, Doi Chiang Dao (**AAU**, **BKF**, **C**, **K**, **L**, **E**); *BGO Staff 283*, 20 Dec. 1993, Chiang Mai, Mae Rim (**QBG**); *BGO Staff 1573*, 16 Sept. 1994, Khon Kaen, Phu Wiang (**QBG**); *BGO Staff 3317*, 22 April 1995, Chiang Mai, Mae Rim, Botanic Garden (**QBG**);

BGO Staff 3342, 15 May 1995, Chiang Mai, Huai Kaeo Arboretum (**QBG**); *BGO Staff 9161*, 8 June 1997, Chiang Mai, Phrao (**QBG**); *Bjørnland & Schumacher 40*, 19 July 1978, Chiang Mai, Mueang, Ban Pong Noi (**C**, **BKF**); *Boonphaeng 346*, 26 June 1949, Loei, Phu Krading (**C**); *Bunchuai 1040*, 4 May 1959, Chumphon (**K**); *Bunchuai 1625*, 17 May 1968, Udon Thani, Non Sang (**BKF**, **C**, **E**, **K**, **L**); *Bunnak 624*, May 1959, Tak, Ban Na, Phumiphon Dam (**BK**); *Bunsong 8*, 8 June 1949, Phrae, Huai Mae Sai (**BKF**); *Bunyarataphand 85*, 4 March 1954, Lampang, Ngao (**BKF**, **C**, **E**, **K**, **L**); *Chai-anan 439*, 1 June 1973, Narathiwat, Khao Tan Yong (**BKF**); *Chayamarit, Santisuk, Wongprasert, Boonthavikoon, Pooma, Suddee & Phattarahirankanok 2957*, 29 June 2001, Suphanburi, Phu Toei National Park (**BKF**); *Chayamarit, Phuphathanaphong, Pooma, Suddee & Phattarahirankanok 3065*, 9 Jan. 2002, Prachuap Khiri Khan, Thap Sa Kae, Hat Wanakon National Park (**BKF**); *Chermsirivathana 124*, 21 Oct. 1964, Prachuap Khiri Khan, Khlong Wan (**BK**); *Chimkham 1*, 10 July 1954, Mae Hong Son, Mae Sariang (**BKF**); *Chuenhathai 30*, 31 July 1976, Songkhla, Hat Yai, Prince of Songkhla University (**PSU**); *Chuenhathai 40*, 11 Aug. 1976, Trang, Khao Huai Hang (**PSU**); *Collins 221*, July 1913, Chon Buri, Si Racha (**K**); *Collins 1981*, 21 Nov. 1927, Chon Buri, Si Racha (**BK**, **BM**, **C**, **K**, **L**); *Congdon 458*, 17 June 1979, Yala, Sai Khao Waterfall (**AAU**); *C. H. 164*, 20 May 1971, Chaiyaphum, Phu Kum Khao (**BKF**); *Dee 74*, 8 July 1948, Loei, Wang Saphung (**BKF**); *Dee 346*, 26 June 1949, Loei, Phu Kradueng, (**BKF**, **L**); *Dee 865*, 6 June 1956, Phetchabun, Lom Kao (**BKF**); *Din 126*, 15 Jan. 1947, Loei, Wang Saphung (**BKF**); *Din 176*, 18 Aug. 1946, Loei, Phu Kradueng (**BKF**); *Din 264*, 26 April 1948, Loei, Wang Saphung (**BKF**); *Fukuoka T-62366*, 30 July 1988, Doi Inthanon (**BKF**); *Fukuoka T-62412*, 1 Aug. 1988, Doi Inthanon (**BKF**); *Geesink, Phanichapol & Santisuk 5540*, 29 May 1973, Tak**,** Lan Sang National Park (**AAU**, **BKF**, **C**, **L**); *Geesink, Phanichapol & Santisuk 5805*, 7 June 1973, Chiang Mai, Bo Luang (**AAU**, **BKF**, **C**, **K**, **L**); *Geesink & Phengklai 6166*, 7 July 1973, Kanchanaburi (**AAU**, **BKF**, **C**, **K**, **L**); *Geesink, Hattink & Phengklai 7097*, 31 May 1974, Chaiyaphum, Thung Kamang (**BKF**, **C**, **K**, **L**); *H. & C. 458*, 11 June 1979, Pattani (**PSU**); *Jaray 127*, 5 June 1969, Chumphon, Lang Suan (**BK**); *Kasem 180*, 27 May 1962, Kanchanaburi, Si Sawat (**BK**, **BKF**); *Kerr 1208*, 6 June 1910, Chiang Mai, Doi Suthep (**BM**, **K**), *Kerr 2018*, 6 Sept. 1911 (**BM**, **K**); *Kerr 3257*, 21 June 1914, Chiang Mai, Doi Suthep (**BM**, **C**, **K**, **L**); *Kerr 3638*, 1 June 1915, Lampang (**BM**, **K**); *Kerr 5549*, 3 June 1921, Doi Chiang Dao (**BK**, **BM**, **C**, **K**, **L**); *Kerr 5646*, 9 June 1921, Chiang Mai, Mae Rim (**BK**, **BM**, **C**, **K**); *Kerr 7260*, 21 July 1923, Yala (**BK**, **BM**, **C**, **K**); *Kerr 10709*, 6 June 1926, Bangkok (**BK**, **BM**, **C**, **K**); *Kerr 12126*, 26 Feb. 1927, Chumphon, Phato (**BK**, **BM**, **C**, **K**); *Kerr 13031*, 28 July 1927, Surat Thani (**BK**, **BM**, **C**, **K**); *Kerr 13080*, 1 Aug. 1927, Surat Thani, Kanchanadit (**BK**, **BM**, **C**, **K**, **L**); *Kerr 13332*, 13 Aug. 1927, Surat Thani, Ban Na San (**BK**, **BM**, **C**, **K**, **L**); *Kerr 16824*, 22 Jan. 1929, Ranong (**BK**, **C**, **K**, **L**); *Kerr 16155*, 9 Nov. 1928, Prachuap Khirikhan, Khao Tao (**BK**, **BM**, **C**, **K**, **L**); *Kerr 16203*, 11 Nov. 1928, Prachuap Khirikhan, Hua Hin (**C**, **K**); *Kerr 18276*, 26 Feb. 1930, Surat Thani, Khao Wong (**BK**, **BM**, **C**, **K**, **L**); *Kerr 19545*, 13 July 1930, Kanchanaburi (**BK**, **BM**, **C**, **K**, **L**); *Kerr 20578*, 8 Nov. 1931, Phetchaburi, Thung Luang (**BK**, **BM**, **C**, **K**); *Khantchai 945*, 19 July 1958, Doi Chiang Dao (**BKF**); *Khantchai 1040*, 4 May 1959, Chumphon (**BKF**); *Kostermans 517*, 6 May 1946, Khwae Noi River Basin (**BK**, **K**, **L**); *Kostermans 1052*, 10 July 1946, Khwae Noi River Basin (**L**); *Kostermans 1064*, 11 July 1946, Khwae Noi River Basin (**L**); *Kumphet, Watthana & Pongamornkul 427*, 22 April 1999, Chiang Mai, Mae On, Mae Kham Pong (**QBG**); *Lakshnakara 863*, 8 June 1932, Ubon Ratchathani (**BK**, **BM**, **C**, **K**); *Lakshnakara 982*, 23 June 1932, Nakhon Phanom (**BK**, **BM**, **C**, **K**, **L**); *K. Larsen & S.S. Larsen 33442*, 27 April 1974, Ranong (**AAU**, **BKF**, **K**, **L**); *K. Larsen, S.S. Larsen, Nielsen & Santisuk 31590*, 9 Aug. 1972, Chaiyaphum, Thung Kamang (**AAU**, **L**); *Marcan 376*, 3 Aug. 1920, Prachuap Khirikhan, Hua Hin (**BM**, **K**); *Marcan 2103*, 6 June 1926, Bangkok (**BM**, **C**); *Martin 360*, 30 May 1999, Kamphaengphet, Mae Wong National Park (**CMU**); *Maxwell 71-480*, 15 Aug. 1971, Ang Thong, Mueang (**AAU**, **BK**, **L**); *Maxwell 72-254*, 6 June 1972, Sukhothai, Khiri Mat (**AAU**, **BK**); *Maxwell 72-263*, 7 June 1972, Sukhothai, Khiri Mat (**AAU**, **BK**); *Maxwell 72-563*, 24 Oct. 1972, Chon Buri, Sattahip (**AAU**, **BK**); *Maxwell 74-578*, 2 June 1974, Saraburi, Sam Lan National Park

(**AAU**, **BK**, **L**); *Maxwell 74-589*, 15 June 1974, Saraburi, Sam Lan National Park (**AAU**, **BK**, **L**); *Maxwell 75-446*, 26 April 1975, Chon Buri, Si Racha, Khao Khiao (**AAU**, **BK**, **L**); *Maxwell 75-623*, 23 June 1975, Chon Buri, Si Racha, Khao Khiao (**AAU**, **BK**, **L**); *Maxwell 76-338*, 15 May 1976, Chon Buri, Si Racha, Khao Khiao (**AAU**, **BK**, **L**); *Maxwell 84-304*, 11 Oct. 1984, Songkhla, Mueang (**BK**, **PSU**); *Maxwell 85-445*, 6 May 1985, Songkhla, Hat Yai (**BKF**, **L, PSU**); *Maxwell 87-698*, 23 July 1987, Chiang Mai, Mueang (**BKF**, **E**, **L**); *Maxwell 90-754*, 8 July 1990, Chiang Mai, Mueang (**BKF**); *Maxwell 91-585*, 28 June 1991, Chiang Mai, Chom Thong (**E**); *Maxwell 91-717*, 11 Aug. 1991, Chiang Mai, Chom Thong (**E**); *Maxwell 92-650*, 29 Oct. 1992, Chiang Mai, Sankamphaeng (**CMU**); *Maxwell 93-1012*, 30 Aug. 1993, Lamphun, Doi Khun Tan National Park (**BKF**, **CMU**); *Maxwell 01-302*, 18 June 2001, Chiang Mai, Chiang Mai University (**CMU**); *Maxwell 02-254*, 12 Aug. 2002, Chiang Mai (**CMU**); *Maxwell 03-231*, 23 Aug. 2003, Chonburi, Siracha (**CMU**); *Maxwell 03-473*, Nakhon Ratchasima (**CMU**); *Middleton, Argent, Santisuk, Chayamarit,Pooma,Wongprasert,Phattarahirankanok, Ngernsaengsaruay, Boonthavikoon, Pasitpirom & Phonhai 154*, 2 Sept. 1999, Nan, Tham Pha Toop Forest Park (**AAU**, **BKF**); *Middleton, Suddee & Hemrat 1369*, 26 Aug. 2002, Prachuap Khiri Khan, Thap Sakae, Huai Yang National Park (**CMU**); *Murata, Phengklai, Mitsuta, Yahara, Nagamasu & Nantasan T 50556*, 13 Nov. 1984, Sakon Nakhon, Phu Phan National Park (**BKF**); *Nai Noe 229*, 24 May 1929, Nakhon Ratchasima, Ban Chum Saeng (**BK**, **BM**, **C**, **K**); *Nai Noe 269*, 25 May 1929, Nakhon Ratchasima, Ban Chum Saeng (**BK**, **BM**, **C**, **K**); *Ngernsaengsaruay 104*, 24 June 2002, Chiang Mai, Doi Suthep-Pui (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 121*, 27 June 2002, Chiang Mai, Chiang Mai University (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 142*, 28 July 2002, Uthai Thani, Huai Kha Khaeng (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 197*, 24 Sept. 2002, Nakhon Si Thammarat, Nam Tok Yong National Park (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay* 205, 15 Oct. 2002, Rayong (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 342*, 28 May 2003, Ubon Ratchathani (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 349*, 7 June 2003, Saraburi, Phra Phutthachai (**BKF**, Herb of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 382*, *383*, *384*, 21 June 2003, Nong Khai, Bueng Kan (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 399*, 27 June 2003, Chaiyaphum, Phu Khiao Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Niyomdham 4879*, 8 Nov. 1996, Nong Khai, Bung Khla (**BKF**); *Paisooksantivatana 1631-85*, 2 Oct. 1985, Maha Sarakham, Phayakkhaphum Phisai (**BK**); *Palee 483*, 24 May 1999, Chiang Mai, Chiang Mai University (**CMU**); *Panatkool 314*, 30 May 2000, Lampang, Chae Hom (**CMU**); *Panatkool 394*, 16 Sept. 2000, Lampang, Chae Hom (**CMU**); *Pannarat s.n.*, 18 May 1954, Lampang, Ngao (**BKF** 9974); *Phattarahirankanok 126*, 29 April 2000, Phitsanulok, Phu Hin Rong Kla National Park (**BKF**); *Phengklai 161*, 1 May 1961, Phitsanulok, Thung Salaeng Luang (**BKF**, **K**); *Phengklai 1045*, 8 May 1965, Phitsanulok, Thung Salaeng Luang (**BKF**, **K**, **L**); *Phengklai 3217*, Feb. 1976, Nakhon Ratchasima, Pak Thong Chai (**BKF**, **K**, **L**); *Phengklai 3219*, Feb. 1976, Kanchanaburi, Dong Yai (**PSU**); *Phengklai, Tamura, Niyomdham & Sangkhachand 4191*, 28 June 1978, Chiang Mai, Omkoi (**C**, **K**, **L**); *Phengklai, Tamura, Niyomdham & Sangkhachand 4192*, 28 June 1978, Chiang Mai, Omkoi (C, **BKF**, **K**, **L**); *Phengklai et al. 11220*, Sept. 1998, Prachuap Khiri Khan, Bang Saphan (**BKF**); *Phengklai et al. 11964*, 14 Aug. 1999, Chon Buri, Sattahip, Ko Khram (**BKF**); *Phengklai et al. 12214*, 14 April 2000, Kanchanaburi (**BKF**); *Phengklai et al.* 12240, 14 April 2000, Kanchanaburi (**BKF**); *Pongamornkul 630*, 1 May 2000, Chiang Mai, Mae Rim (**QBG**); *Pooma, de Wilde, Duyfjes, Chamchumroon, Phattarahirankanok 2131*, 20 Aug. 2001, Buri Ram, Lam Plai Mat, Ban Nong Bua (**BKF**); *Pooma, Chamchumroon, Phuphat & Trakulkomchai 3128*, 30 Oct. 2001, Pattani, Thung Yang Daeng District (**BKF**); *Pracha 4*, 12 May 1954, Lampang, Ngao (**BKF**); *Pradit 878*, 28 April 1964, Phitsanulok (**BK**); *Prayad 454*, 23 July 1966, Phayao (**BK**); *Priyakraison 6*, 21 June 1949, Phrae, Huai Mae Sai (**BKF**); *Put 1657*, 14 June 1928, Chumphon, Lang Suan (**BK**,

BM, **C**, **K**, **L**); *Put 3069*, 21 March 1930, Nakhon Ratchasima, Ban Chum Saeng (**BK**, **BM**, **C**, **K**); *Put 4238*, 31 Oct. 1931, Nakhon Ratchasima, Bua Yai (**BK**, **BM**, **C**, **K**); P. S. 2162, 13 Aug. 1964, Trang, Khao Chong (**BKF**, **L**); *Rabil 394*, 6 Aug. 1929, Trang (**BK**, **BM**, **C**, **K**); *Sakol 197*, 16 May 1962, Surin (**BK**); *Sakol 234*, 17 May 1965, Surin, Nadi (**BK**); *Sakol 275*, 19 May 1965, Surin, Rattanaburi (**BK**); *Sakol 306*, 4 Dec. 1964, Chanthaburi, Khlung (**BK**); *Sakol Sutheesorn 623*, 13 Oct. 1965, Chaiyaphum, Chatturat (**BK**); *Sakol 1335*, 14 July 1966, Surat Thani (**BK**); *Sakol Sutheesorn 2464*, 27 April 1967, Phangnga, Khao Phra Mi (**BK**); *Sakol Sutheesorn 3237*, 27 March 1975, Prachinburi, Khao I-To (**BK**); *Sakol 6081-84*, 23 July 1984, Roi Et, Mueang Suang (**BK**); *Samanvanakit s.n.*, 11 Feb. 1932, Chumphon, Pathio (**BKF** 2094); *Sangkhachand 20*, 20 June 1960, Chanthaburi, Khao Soi Dao (**BKF**, **C**, **K**, **L**); *Sangkhachand 586*, 11 Feb. 1956, Chanthaburi, Pong Nam Ron (**BKF**, **C**, **K**, **L**); *Sangkhachand 1003*, 25 July 1963, Uthai Thani, Ban Rai (**AAU**, **K**, **L**); *Sangkhachand 1476*, 17 June 1967, Chanthaburi, Pong Nam Ron, Khao Soi Dao (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Sankamethawee 120*, 31 May 2000, Chiang Mai, Huai Kaeo Arboretum (**CMU**); *Santisuk s.n.*, Oct. 1981, Kanchanaburi, Thong Pha Phum (**BKF** 077504); *Shimizu & Nalampoon T 7823*, 20 Aug. 1967, Prachuap Khiri Khan, Thap Sakae to Bang Saphan (**L**); *Shimizu & Nalampoon T 7824*, 20 Aug. 1967, Prachuap Khiri Khan, Thap Sakae to Bang Saphan (**BKF**); *Shimizu & Nalampoon T 14652*, 20 Aug. 1967, Prachuap Khiri Khan, Bang Saphan (**BKF**); *Sidisunthorn & Gardner 2454*, 19 Nov. 1997, Phayao, Doi Luang National Park, Champa Thong Waterfall (**CMU**); *Sirirugsa 820*, 26 May 1984, Songkhla, Sathing Phra (**BKF**, **PSU**); *Smitinand 625*, 18 July 1951, Nakhon Si Thammarat, Mueang (**BKF**); *Smitinand 4706*, 15 July 1958, Chiang Mai, Doi Chiang Dao (**BKF**); *Snan 239*, 30 April 1955, Nakhon Si Thammarat, Lan Saka, Khao Luang (**BKF**); *Snan 698*, 13 June 1956, Nakhon Si Thammarat, Chawang (**BKF**); *Snan 1038*, 12 April 1957, Nakhon Si Thammarat, Khao Luang (**BKF**); *Suang 1*, without date, Lampang, Ngao (**BKF**); *Suvanakoses 2162*, 13 Aug. 1964, Trang, Khao Chong (**C**, **K**); *Suvarnasuddhi 52*, 3 July 1945, Kanthararom (**BKF**); *Suvarnasuddhi 68*, 9 Nov. 1944, Si Sa Ket (**BKF**); *S. P. et al. 370*, 21 May 1970, Trang, Khao Chong (**BKF**); *S. R. 10*, 22 July, Huai Mae Kon (**BKF**); *Thaworn s.n.*, 30 April 1955, Nakhon Si Thammarat (**C**); *Tippan 138*, 27 April 1974, Ranong, Ngao Waterfall (**BK**); *Vacharee 17*, 5 April, Chon Buri, Si Racha, Khao Khiao (**BK**); *Vanpruk 31*, without date and locality (**BKF**); *Vanpruk 64*, 2 July 1909, Phrae (**BKF**); *Vanpruk 187*, April 1910, Phrae (**BKF**, **K**); *Winai & Parinya 222* (**BK**); *Winai Somprasong 322*, 16 April 1993, Kanchanaburi, Sai Yok (**BK**); *Winit 425*, 4 July 1915, Lamphun (**BKF**, K); *Winit 1753*, 6 July 1926, Nan (**BK**, **K**); *Wongprasert 997-84*, 11 July 1999, Kamphaeng Phet, Mae Wong National Park (**BKF**); *Wongprasert s.n.*, 24 Aug. 1995, Saraburi (**BKF** 104409); *Wongprasert s.n.*, 4 May 1998, Prachuap Khiri Khan, Kaeng Krachan National Park (**BKF** 120168); *Wongprasert s.n.*, 14 April 2000, Kanchanaburi, Bo Phloi (**BKF** 128855); *W. N. 580*, 12 Aug. 1984, Chaiyaphum (**BKF**); *W. N. 586*, 14 Aug. 1984, Loei, Phu Kradueng (**BKF**).

Litsea grandis (Nees) Hook.f.

Boonnab 105, 2 Dec. 1965, Trang, Khao Chong (**BKF**); *Bunkurd 75*, 16 April 1949, Trang, Khao Chong (**BKF**); *Congdon 225*, 27 Jan. 1979, Khao Chumsak near Hat Yai (**AAU**); *Congdon 261*, 10 Jan. 1980, Tarutao (**AAU**); *H. & C. 225*, 27 Jan. 1979, Songkhla, Hat Yai (**PSU**) *Haniff 2062*, 8 Dec. 1917 (**K**); *Indrapong 80*, 10 Dec. 1974, Ranong, Ngao Waterfall (**BKF**, **C**, **K**, **L**); *Kaoauichai s.n.*, April 1939, Pattani, Sai Buri (**BKF**); *Kerr 9239*, 29 Sept. 1924, Ko Chang, Khlong Kloi (**BK**, **BM**, **C**, **K**); *Kerr 11632*, 24 Jan. 1927, Chumphon (**BK**, **BM**, **C**, **K**, **L**); *Kerr 12373*, 19 March 1927, Surat Thani, Phanom (**BK**, **BM**, **C**, **K**, **L**); *Kerr 13780*, 31 Dec. 1927, Satun, Khuan Po (**BK**, **BM**, **C**, **K**, **L**); *Kerr 14178*, 18 Jan. 1928, Satun, Tarutao (**BK**, **BM**, **C**, **K**, **L**); *Kerr 14858*, 28 March 1928, Pattani, Ban Sai Khao (**BK**, **BM**, **C**, **K**, **L**); *Kerr 18551*, 13 March 1930, Phangnga, Thap Put (**BK**, **BM**, **C**, **K**, **L**); *Maxwell 84-555*, 25 Dec. 1984, Songkhla, Hat Yai, Kho Hong Hill (**BKF**, **PSU**); *Maxwell 85-130*, 1 Feb. 1985, Trang, Khao Chong (**BKF**, **PSU**); *L.N. Nakhon 3*, 21 Sept. 1931, Trang, Kantang (**BKF**); *Ngernsaengsaruay 14*, 24 March 2002, Narathiwat (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 316*, 7 May 2003, Narathiwat,

Waeng (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 318*, 21 May 2003, Nong Khai, Phu Wua Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 330*, 24 May 2003, Nakhon Phanom, Phu Langka National Park (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Nimanong & S. P. 1607*, 1 Dec. 1974, Trang, Khao Chong (**AAU**, **BKF**, **C**, **K**, **L**); *Niyomdham 4880*, 8 Nov. 1996, Bung Khla (**BKF**); *Niyomdham & Ueachirakan 1797*, 9 April 1988, Tak Bai (**AAU**, **BKF**, **C**, **K**, **L**); *Phanomkwan s.n.*, 11 Dec. 1934, Surat Thani, Tha Chang (**BKF** 2090); *Phengklai 220*, 17 Dec. 1961, Kanchanaburi, Tham Pha (**BKF**); *Phusomsaeng 406*, 3 April 1971, Trang, Khao Chong (**AAU**, **BKF**, **C**, **K**, **L**); *Put 272*, 9 June 1976, Trang, Kra Chong (**BKF**); *Punyabukkana 864*, 24 March 1920, Surat Thani, Ban Don (**BKF**, **K**); *Put 314*, 23 June 1976, Trang, Kantang (**BKF**); *Samanvanakit 1*, 30 Aug. 1931, Surat Thani (**BKF**); *Samanvanakit s.n.*, 30 Aug. 1931, Surat Thani (**BKF**); *Samanvanakit s.n.*, 19 Sept. 1936, Trang, Kantang (**BKF**); *Sangkhachand & Smitinand 132*, 8 June 1961, Narathiwat, Bacho (**BKF**, **C**, **K**, **E**, **L**); *P. Sangkhachand 1687*, 16 Jan. 1969, Narathiwat, Bacho (**BK**); *Santisuk & Nimanong 470*, 21 Dec. 1972, Yala, Yaha (**AAU**, **BKF**, **C**, **K**, **E**, **L**); *Seidenfaden & Luang Saman 2577*, 10 Jan. 1935, Surat Thani (**C**), *Smitinand* 7131, 10 Feb. 1961, Satun, Thung Nui (**BKF**, **C**); *Sirirugsa 953*, 1 Feb. 1985, Trang, Khao Chong (**BKF**, **PSU**); *Smitinand 10079*, 17 Nov. 1966, Nong Khai, Bueng Kan, Nong Na Saeng (**BKF**); *Sørensen, Larsen & Hansen 662*, 25 Jan. 1958, Phatthalung (**BKF**, **C**, **K**); *Sutheesorn 2225*, 14 April 1967, Chumphon, Sawi (**BK**); *Vanpruk 611*, March 1915, Trang (K); *Winit 272*, 9 June 1976, Trang, Kra Chong (**BKF**).

Litsea hirsutissima Gamble

K. Larsen, S.S. Larsen, Nielsen & Santisuk 30736, 7 July 1972, Phangnga, Khao Phra Mi (**AAU**, **BKF**, **K**, **L**), 30742 (**AAU**, **BKF**, **K**); *Ngernsaengsaruay 428*, 29 Sept. 2003, Ranong, Khlong Na Kha Wildlife Sanctuary, along nature trail near headquarters (Herb. of the Department of Botany, Kasetsart University); 429 (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 529*, 25 April 2004, Ranong, Wang Kum Protection Unit, Khlong Na Kha Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); 530 (**BK**, **BKF**, Herb. of the Department of Botany, Kasetsart University); *Niyomdham et al*. *330*, 16 July 1979, Ranong, Khao Phota Luang Kaeo (**AAU**, **BKF**, **C**, **K**, **L**); *Shimizu, Fukuoka & Nalampoon T 8014*, 24 Aug. 1967, Phangnga, Khao Nang Hong, between Thap Put and Phangnga (**BKF**).

Litsea hookeri (Meisn.) D.G. Long

Geesink, Phanichapol & Santisuk 5710, 5 June 1973, Chiang Mai, Chiang Dao (**AAU**, **C**, **K**); *Put 3856*, 1 May 1931, Chiang Mai, Pang Ton (**BK**, **BM**, **C**, **K**, **L**).

Litsea johorensis Gamble

Kerr 7192, 14 July 1923, Narathiwat, Bacho (**C**, **K**, **L**); *Ngernsaengsaruay 184*, 14 Sept. 2002, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 306*, 307, 5 May 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 311*, 6 May 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 351*, 15 June 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 354*, *356*, 16 June 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 361*, 17 June 2003, Narathiwat, way to Li Pae (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 437*, 439, 441, 23 Oct. 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Niyomdham et al. 1080*, 6 Jan. 1986, Narathiwat, Su-ngai Kolok (**BKF**); *Promchua 30*, 14 Aug. 2003, Narathiwat, Waeng, Hala-Bala Wildlife Sanctuary (**CMU**); *Put 3624*, 25 Jan. 1931, Narathiwat, Ban Bukit (**BK**, **BM**, **C**, **K**, **L**) *Puudjaa 614*, 3 Aug. 1999, Narathiwat, Waeng, Hala-Bala Wildlife Sanctuary (**BKF**); *Puudjaa & Cholkulchana 747*, 29 March 2000, Narathiwat, Sukhirin, Hala-Bala Wildlife Sanctuary (**BKF**).

Litsea kerrii Kosterm.

Kerr 5202, 2 April 1921, Chiang Mai, Doi Phahom Pok (holotype K; isotypes **BK**, **BM**).

Litsea khasyana Meisn.

Drechsler & Scholz 48, 5 Oct. 1999, Chiang Mai, Doi Inthanon (**QBG**); *Fukuoka T-62255*, 26 July 1988, Chiang Mai, Doi Inthanon (**BKF**); *Garrett 449*, 14 Sept. 1927, Chiang Mai, Doi Angka (**BM**, **K**, **L**); *Ngernsaengsaruay 106*, 25 June 2002, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 117*, 26 June 2002, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 252*, 5 Jan. 2003, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 402*, 3 July 2003, Phetchabun, Nam Nao (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 415*, 11 July 2003, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 514*, 9 April 2004, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Phengklai et al. 7093*, 28 July 1988, Chiang Mai, Doi Inthanon (**AAU**, **C**); *Phengklai et al. 7374*, 30 July 1988, Chiang Mai, Doi Inthanon (**AAU**, **BKF**, **C**, **K**); *Pooma 1395*, Chiang Mai, Doi Inthanon (**CMU**); *Tamura T-60263*, 26 July 1988, Chiang Mai, Doi Inthanon (**BKF**); *Watthana*, *Suksathan & Argent 604*, 22 Aug. 1999, Chiang Mai, Doi Inthanon, Kio Mae Pan (**QBG**); *Yahara & Nagamasu T-50026*, 10 Dec. 1984, Chiang Mai, Doi Inathanon (**BKF**).

Litsea kurzii King ex Hook.f.

Beusekom & Phengklai 268, 1 April 1968, Kanchanaburi, Khao Lio Long near Khao Ngi Yai, East of Sangkhla Buri (**BKF**, **K**, **L**); *Beusekom & Phengklai 268a*, 8 April 1968, Kanchanaburi, between Khao Yai and Khao Ngi Yai, East of Sangkhla Buri (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Kerr 10421*, 2 Feb. 1926, Kanchanaburi, Khao Ri Yai (**BK**, **BM**, **K**); *Kerr 16898*, 30 Jan. 1928, Ranong, Khao Phota Luang Kaeo (**BK**, **BM**, C, **E**, **K**); *Kerr 17218*, 23 Feb. 1929, Phangnga, Khao Bang To (**BK**, **BM**, C, **E**, **K**); *Ngernsaengsaruay 520*, *521*, 23 April 2004, Kanchanaburi, Thong Pha Phum (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 532*, *533*, *534*, 3 May 2004, Kanchanaburi, Thong Pha Phum (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Shimizu*, *Toyokuni*, *Koyama*, *Yahara & Niyomdham T-26605*, 9 Dec. 1979, Ranong, Kapoe, Khao Phota Luang Kaeo (**BKF**, **L**).

Litsea laeta (Wall. ex Nees) Hook.f.

Chamchumroon & Puff 1421, 16 March 2002, Loei, Phu Luang (**BKF**); *Chamchumroon & Puff 1446*, 18 March 2002, Uttaradit, Phu Soi Dao, Sai Thip Falls (**BKF**); *Charoenphol 520*, 6 Jan. 1974, Tak (**C**, **K**, **L**); *Kerr 1111*, 13 April 1910, Chiang Mai, Doi Suthep (**BM**, **K**, **L**); *Kerr 3145*, 22 Feb. 1914, Chiang Mai, Doi Suthep (**BM**, **C**, **K**); *Kerr 5055*, 9 March 1921, Nan, Doi Tiu (**BK**, **BM**, **C**, **K**, **L**); *Kerr 5756*, 6 April 1922, Mueang Lom (**BK**, **BM**, **C**, **K**); *Kerr 15027*, 4 April 1928, Pattani, Khao Kala Khiri (**BK**, **BM**, **C**, **K**, **L**); *Maxwell 91-345*, 15 April 1991, Chiang Mai: Doi Suthep-Pui (**AAU**); *Murata, Phengklai, Mitsuta, Yahara, Nagamasu & Nantasan T-42579*, 1 Nov. 1984, Loei, Phu Kradueng (**AAU**, **L**); *T-42656* (**AAU**); *T-42664* (**AAU**); *Ngernsaengsaruay 92*, 22 June 2002, Chiang Rai, Khun Kon Waterfall (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 130*, 26 July 2002, Uthai Thani, Huai Kha Khaeng Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 215*, 216, 9 Nov. 2002, Loei, Phu Luang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 284*, 3 March 2003, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Nilphanit 15*, 7 April 1953, Phetchabun, Nam Nao (**C**, **L**); *Phengnaren s.n.*, 25 Dec. 1965, Tak, Doi Mu Soe (**C**); *Put 3006*, 24 May 1930, Trat, Khao Kuap (**BK**, **K**, **L**); *Put 3730*, 22 April 1931, Chiang Mai, Doi Angka (**BK**, **C**, **K**, **L**); *Sutheesorn 3294*, 16 April 1975, Chiang Mai, Doi Chang Khian (**BK**); *Umpai 46*, 17 March 1961, Chiang Mai, Fang (**BK**).

Litsea lancifolia (Roxb. ex Nees) Fern.-Vill.

Beusekom & Phengklai 263, 1 April 1968, Kanchanaburi, Khao Lio Long near Khao Ngi Yai,

East of Sangkhla Buri (**AAU**, **C**, **K**, **L**); *Beusekom & Phengklai 557*, 4 May 1968, Ranong (**AAU**, **C**, **E**, **K**, **L**); *Beusekom, Phengklai, Geesink & Wongwan 4731*, 8 Jan. 1972, Phrae (**BKF**, **C**, **K**, **L**); *Chamchumroon, Puff & Koonkhunthod 1352*, 27 Feb. 2002, Nakhon Si Thammarat, Krung Ching Falls (**BKF**); *Chanmuk 46*, 22 March 1961, Phrae, Huai Hom (**BKF**); *Geesink, Hiepko & Phengklai 7663*, 27 Nov. 1974, Phangnga, Khao Phota Luang Kaeo (**BKF**, **C**, **K**, **L**); *Hansen & Smitinand 12916*, 14 March 1968, Tak, Doi Pae Poe (**C**); *Hara & Kanzaki B517*, 13 Jan. 1998, Chiang Mai, Doi Inthanon (**CMU**); *Hara A583*, 7 Jan. 1997, Chiang Mai, Doi Inthanon (**CMU**); *Iwatsuki*, *Koyama*, *Hutoh & Chintayungkun T-14618*, 24 Aug. 1967, Nakhon Si Thammarat, Khao Luang (**BKF**, **L**); *Kerr 4917*, 26 Feb. 1921, Nan, Doi Phu Kha (**BK**, **BM**, **C**, **K**); *Kerr 10079*, 11 March 1925, Yala, Betong (**BK**, **BM**, **C**, **K**); *Kerr 17160*, 20 Feb. 1929, Phangnga, Bang To (**BK**, **BM**, **C**, **K**, **L**); *Kerr 19165*, 28 April 1930, Trang (**BK**, **BM**, **C**, **K**, **L**); *Kiah 24390*, 26 June 1930 (**BK**, **BM**, **K**); *Koyama*, *Phengklai*, *Mitsuta*, *Yahara*, *& Nagamasu T-39431*, 11 Dec. 1984, Doi Inthanon (**BKF**); *Koyama*, *Phengklai*, *Mitsuta*, *Yahara*, *& Nagamasu T-39432*, 11 Dec. 1984, Doi Inthanon (**BKF**); *Koyama*, *Phengklai*, *Mitsuta*, *Yahara*, *& Nagamasu T-39567*, 11 Dec. 1984, Doi Inthanon (**BKF**); *K. Larsen & S.S. Larsen 32953*, 4 March 1974, Narathiwat, Waeng (**AAU**, **BKF**, **K**); *Maxwell 86-109*, 1 March 1986, Nakhon Si Thammarat, Khao Luang, Krung Ching Waterfall (**AAU**, **BKF**, **L**, **PSU**); *Maxwell 87-420*, 25 April 1987, Trang, Yan Ta Khao, Sai Rung Waterfall (**BKF**, **L**, **PSU**); *Ngernsaengsaruay 5*, 27 Feb. 2002, Nakhon Si Thammarat, Khao Luang, Krung Ching Waterfall (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 91*, 22 June 2002, Chiang Rai, Khun Kon Waterfall (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 188*, 14 Sept. 2002, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 195*, 23 Sept. 2002, Nakhon Si Thammarat, Khao Luang, Krung Ching Waterfall (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 253*, 5 Jan. 2003, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 285*, 3 March 2003, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 352*, 353, 15 June 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 362*, 17 June 2003, Narathiwat, trail to Li Pae (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 444*, *445*, 23 Oct. 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 516*, *517*, 9 April 2004, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Noguchi A992*, 10 Feb. 1997, Chiang Mai, Doi Inthanon (**CMU**); *Phengnaren 336*, 18 May 1967, Satun, Khuan Kalong (**BKF**, **C**); *Phusomsaeng 387*, 20 March 1968, Narathiwat, Waeng (**BKF**, **L**); *Ploenchit 290*, 15 March 1952, Nakhon Si Thammarat, Khao Luang (**BKF**, **K**); *Prayad 1232*, 18 March 1968, Narathiwat, Waeng (**BK**); *Sutheesorn 1521*, 23 Jan. 1970, Chaing Rai (**BK**); *Sutheesorn 2259*, 17 April 1967, Ranong, Kra Buri (**BK**); *Smitinand & Cheke 10802*, 15 April 1970, Phrae (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Somkid 250*, 4 Sept. 1938, Nan, Doi Phu Kha (**BKF**); *Suvarnakoses 304*, 15 March 1952, Nakhon Si Thammarat, Khao Luang (**BKF**, **C**); *Suvarnakoses 483*, 14 March 1953, Nakhon Si Thammarat, Khao Luang (**BKF**, **C**); *Suvarnakoses 1863*, 17 March 1961, Nakhon Si Thammarat, Khao Luang (**BKF**, **C**, **E**, **K**, **L**); *Tagawa*, *Iwatsuki & Fukuoka T 6719*, 26 Jan. 1966, Nakhon Si Thammarat (**BKF**); *Winit 58* (**BKF**).

Litsea machilifolia Gamble

Kerr 12559, 9 April 1927, Surat Thani, Ko Samui (**BK**, **BM**, **C**, **K**); *Kerr 12559A*, 9 April 1927, Surat Thani, Ko Samui (**BK**, **BM**, **K**); *Kerr 17053*, 8 Feb. 1929, Phangnga, Takua Pa (**BK**, **BM**, **C**, **K**, **L**).

Litsea martabanica (Kurz) Hook.f.

Beusekom & Phengklai 314, 3 April 1968, Kanchanaburi, Khao Lio Long near Khao Ngi Yai, East of Sangkhla Buri (**AAU**, **BKF**, **K**, **L**); *Beusekom & Phengklai 354*, 5 April 1968, Kanchanaburi, Khao Ngi Yai, East of Sangkhla Buri (**BKF**, **K**, **L**); *Beusekom & Charoenphol*

1746, 19 Oct. 1969, Nakhon Ratchasima: Khao Yai, Khao Khiao (**AAU**, **BKF**, **C**, **K**, **E**, **L**); *Beusekom & Charoenphol 1817*, 22 Oct. 1969, Nakhon Ratchasima, Khao Yai (**AAU**, **BKF**, **C**, **E**, **L**); *Beusekom & Phengklai*, *Geesink & Wongwan 4489*, 23 Dec. 1971, Loei, Phu Kradueng (**L**); *BGO Staff 51*, 23 Jan. 1996, Chiang Mai, Doi Suthep (**QBG**); *BGO Staff 408*, 18 Jan. 1994, Chiang Mai (**QBG**); *BGO Staff 2002*, 4 Oct. 1994, Chiang Mai, Mae Rim-Samoeng (**QBG**); *BGO Staff 2471*, 29 Oct. 1994, Chiang Mai, Chang Khian (**QBG**); *BGO Staff 2487*, 29 Oct. 1994, Chiang Mai, Chang Khian (**QBG**); *BGO Staff 4723*, 24 Sept. 1995, Mae Hong Son, Doi Huai Pu Ling (**QBG**); *BGO Staff 5436*, 17 Dec. 1995 (**QBG**); *BGO Staff 5460*, 17 Dec. 1995, Chiang Mai, Doi Suthep-Pui (**QBG**); *BGO Staff 9676*, 28 Feb. 1997, Chiang Mai, Mae Rim, Mon Long, Pong Yaeng (**QBG**); *Charoenchai 764*, 16 Feb. 1999, Nakhon Nayok, Khao Yai National Park (**CMU**); *Chantaranothai*, *Parnell & Middleton 1023*, 3 March 1993, Loei, Hin Tao, Phu Ruea National Park (**BKF**); *Charoenphol 97*, 12 April 1971, Chaiyaphum (**BKF**); *Charoenphol, Larsen & Warncke 4376*, 31 Oct. 1970, Khao Yai, Pha Kluai Mai (**AAU**, **BKF**, **K**, **L**); *Chop 14*, 16 Nov. 1951, Chiang Mai, Doi Suthep (**BKF**); *Din 51*, 25 Feb. 1948, Loei, Phu Kradueng (**BKF**, **C**); *Garrett 63*, 30 Sept. 1910, Doi Inthanon, Pha Ngaem (**BKF**, **K**, **E**, **L**); *Geesink & Phengklai 6202*, 9 July 1973, Kanchanaburi (**BKF**, **BK**, **K**, **L**); *Geesink, Hiepko & Phengklai 7654*, 27 Nov. 1974, Ranong, Khao Phota Luang Kaeo (**AAU**, **BKF**, **C**, **K**, **L**); *Geesink, Hiepko & Phengklai 8268*, 12 Jan. 1975, Chiang Rai, Doi Tung (**BKF**, **C**, **K**, **L**); *Iwatsuki*, *Koyama*, *Fukuoka & Nalampoon T 9347*, 8 Sept. 1967, Chiang Mai, Doi Suthep (**L**); *Kerr 880*, 31 Oct. 1909, Chiang Mai, Doi Suthep (**BM**, **K**, **E**); *Kerr 2541*, 12 April 1912, Chiang Mai, Doi Suthep (**BM**, **K**); *Kerr 2602*, 19 May 1912, Chiang Mai, Doi Suthep (**BM**, **K**, **E**); *Kerr 2727*, 6 Oct. 1912, Chiang Mai, Doi Suthep (**BM**, **K**); *Kerr 3433*, 25 Oct. 1914, Chiang Mai, Doi Suthep (**BM**, **K**, **E**); *Kerr 4981*, 2 March 1921, Nan (**BK**, **BM**, **C**, **K**, **L**); *Kerr 6653*, 9 Nov. 1922, Chiang Mai, Doi Chiang Dao (**BM**, **BK**, **C**, **K**); *Kerr 6674*, 17 Nov. 1922, Chiang Mai, Doi Suthep (**BM**, **C**, **K**, **L**); *Kerr 18726*, 28 March 1930, Krabi, Phanom Bencha (**BM**, **C**, **K**); *Kerr 20148*, 13 Feb. 1931, Loei, Phu Kradueng (**BK**, **BM**, **C**, **K**); *Khantchai 293*, 23 July 1955, Chiang Mai, Chiang Dao (**BKF**); *Khantchai 687*, 18 Sept. 1957, Chiang Mai, Doi Suthep (**BKF**, **C**); *Kopachon s020b1*, 15 Dec. 1994, Chiang Mai, Doi Suthep-Pui (**CMU**); *Kopachon s215b1*, 25 April 1996, Chiang Mai, Doi Suthep-Pui (**CMU**); *Kostermans 853*, 13 June 1946, Kanchanaburi, Khwae Noi River Basin (**BK**, **K**, **L**); *Koyama, Terao & Wongprasert T-31451*, 20 Dec. 1982, Loei, Phu Kradueng (**BKF**); *Koyama & Nagamasu T-50117*, 16 Dec. 1984, Chiang Mai, Doi Pui, around the peak of Doi Pui (**BKF**); *Martin 514*, 20 Jan. 2002, Kanchanaburi, Thong Pha Phum (**BKF**, **CMU**); *Maxwell 87-836*, 15 Aug. 1987, Chiang Mai, Doi Suthep (**BKF**, **L**); *Maxwell 87-952*, 5 Sept. 1987, Chiang Mai, Doi Suthep (**L**); *Maxwell 87-1390*, 7 Nov. 1987, Chiang Mai, Doi Suthep (**BKF**, **L**); *Maxwell 87-1557*, 5 Dec. 1987, Chiang Mai, Doi Suthep (**BKF**, **L**); *Maxwell 88-177*, 14 Feb. 1988, Chiang Mai, Doi Suthep (**AAU**, **BKF**, **L**); *Maxwell 88-583*, 5 May 1988, Chiang Mai, Doi Suthep (**AAU**, **L**); *Maxwell 88-671*, 22 May 1988, Chiang Mai, Doi Suthep (**BKF**, **L**); *Maxwell 88-1123*, 24 Sept. 1988, Chiang Mai, Doi Suthep (**BKF**, **L**); *Maxwell 90-360*, 26 March 1990, Chiang Mai, Doi Suthep (**L**); *Maxwell 92-194*, 9 May 1992, Chiang Mai, Mae Soi Ridge (**CMU**); *Maxwell 93-1128*, 20 Sept. 1993, Lamphun, Doi Khun Tan (**BKF**); *Maxwell 93-1322*, 26 Oct. 1993, Lamphun, Doi Khun Tan (**CMU**); *Maxwell 94-553*, 26 April 1994, Chiang Mai, Doi Suthep-Pui (**CMU**); *Maxwell 96-684*, 10 May 1996, Chiang Mai, San Kamphaeng (**BKF**, **CMU**); *Maxwell 96-1450*, 31 Oct. 1996, Lampang, Chae Son National Park (**BKF**, **CMU**); *Maxwell 97-1298*, 30 Oct. 1997, Chiang Rai, Wiang Pa Pao, Doi Luang National Park (**BKF**); *Maxwell 98-1074*, 9 Oct. 1998, Chiang Mai, Samoeng (**BKF**, **CMU**); *Maxwell 03-114*, 2 May 2003, Chiang Mai, Mae Wang (**CMU**); *Murata, Phengklai, Mitsuta, Yahara, Nagamasu & Nantasan T-43054*, 4 Nov. 1984, Loei, Phu Kradueng (**BKF**, **L**); *Murata, Phengklai, Mitsuta, Yahara, Nagamasu & Nantasan T-41660*, 7 Nov. 1984, Chaiyaphum, Phu Khiao (**L**); *Ngernsaengsaruay 95*, 23 June 2002, Chiang Mai, Doi Suthep-Pui (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 100*, 24 June 2002, Chiang Mai, Doi Suthep-Pui (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 125*, 6 July 2002, Khao Yai (**BKF**, Herb. of the Department of

Botany, Kasetsart University); *Ngernsaengsaruay 145*, *146*, 18 Aug. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 171*, 4 Sept. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 198*, 2 Oct. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 206*, *207*, 19 Oct. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 254*, *255*, *256*, 24 Jan. 2003, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 417*, 3 Aug. 2003, Kanchanaburi, Thong Pha Phum (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Nimanong & Phusomsaeng 1847*, 22 April 1977, Chiang Mai, Doi Suthep (**BKF**, **PSU**); *Phengklai et al. 6319*, 29 July 1987, Chiang Mai, Doi Suthep (**BKF**, **C**); *Phengklai et al. 12312*, Oct. 1999, Chaiyaphum, Phu Khiao (**BKF**); *Ploenchit 40*, 22 Sept. 1949, Chiang Mai, Doi Suthep (**BKF**); *Pooma 403*, 22 March 1990, Chiang Mai, Doi Suthep-Pui (**BKF**, **CMU**); *Put 3390*, 7 Nov. 1930, Chiang Mai (**AAU**, **BK**, **BM**, **C**, **K**, **L**); *Put 3816*, 29 April 1931, Chiang Mai, Pang Ton (**BK**, **BM**, **C**, **K**, **L**); *Santisuk 721*, 29 Nov. 1973, Ranong, Khao Phota Luang Kaeo (**BKF**); *Santisuk 872*, 7 Jan. 1977, Ranong, Khao Phota Luang Kaeo (**BKF**); *Shimizu, Iwatsuki, Fukuoka, Hutoh, Chaiglom & Nalampoon T-11478*, 3 Oct. 1967, Phitsanulok, Phu Rom Rot one of the peaks of Phu Miang (**BKF**, **L**); *Shimizu*, *Iwatsuki*, *Fukuoka*, *Hutoh Chaiglom & Nalampoon T-11652*, 4 Oct. 1967, Phitsanulok, one of the highest peaks of Phu Miang (**BKF**, **L**); *Shimizu, Iwatsuki, Fukuoka, Hutoh, Chaiglom & Nalampoon T-11730*, 5 Oct. 1967, Phu Miang (**BKF**, **L**); *Shimizu, Toyokuni, Koyama, Yahara & Santisuk T-18680*, 14 Oct. 1979, Chiang Mai, Doi Suthep around Phu Phing Palace (**BKF**); *Shimizu*, *Konta*, *Smitinand*, *Wongprasert*, *Sangkhachand T-28560*, 14 Aug. 1982, Phetchabun, Nam Nao National Park (**BKF**); *Sidisunthorn & Gardner 2421*, 27 Oct. 1997, Chiang Rai, Wiang Pa Pao, Doi Luang National Park (**CMU**); *Smitinand 1766*, 29 June 1954, Chiang Rai (**BKF**); *Smitinand 2038*, 16 Oct. 1954, Loei, Phu Kradueng (**BKF**, **C**); *Smitinand & Sleumer 8352*, 29 Aug. 1963, Khao Yai, Khao Khiao (**BKF**, **L**); *Smitinand 8618*, 1 Jan. 1965, Nakhon Ratchasima, Khao Yai (**BKF**, **C**); *Soradet 91*, 13 Aug. 1948, Chiang Mai, Doi Suthep (**BKF**); *Soradet 212*, 15 Sept. 1948, Chiang Mai, Doi Suthep (**BKF**); *Soradet 497*, 1 July 1949, Chiang Mai, Doi Suthep (**BKF**); *Sørensen, Larsen & Hansen 2819*, 16 April 1958, Chiang Mai, Doi Suthep (**C**); *Sørensen, Larsen & Hansen 2846*, 17 April 1958, Chiang Mai, Doi Suthep (**BKF**, **C**); *Sørensen, Larsen & Hansen 2847*, 17 April 1958, Chiang Mai, Doi Suthep (**BKF**, **C**); *Sørensen, Larsen & Hansen 3788*, 29 June 1958, Chiang Mai, Doi Suthep (**BKF**, **C**); *Sørensen, Larsen & Hansen 4401*, 25 July 1958, Chiang Mai, Doi Suthep (**C**, **K**); *Sørensen, Larsen & Hansen 4685*, 2 Sept. 1958, Chiang Mai, Doi Suthep (**BKF**, **C**, **K**); *Sørensen, Larsen & Hansen 5005*, 15 Sept. 1958, Chiang Mai, Doi Suthep (**C**, **K**); *Suvatee 84*, 10 Nov. 1939, Chiang Mai, Doi Suthep (**BK**); *Wongsthai 32*, 29 April 1989, Chiang Mai, Doi Suthep (**L**).

Litsea membranifolia Hook.f.

Adisai 635, 9 Nov. 1963, Chiang Mai, Doi Chiang Dao (**BK**); *Hennipman 3252*, 6 Dec. 1965, Chiang Mai, Doi Chiang Dao (**BKF**, **C**, **K**, **L**); *Kanzaki C479*, 1 Dec. 1998, Chiang Mai, Doi Inthanon (**CMU**); *Maxwell 95-1132*, 9 Nov. 1995, Chiang Mai, Doi Chiang Dao (**BKF**, **CMU**); *Phusomsaeng 25*, 18 Nov. 1963, Chiang Mai, Doi Chiang Dao, Doi Luang (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Shimizu, Toyokuni, Koyama, Yahara, Santisuk & Niyomdham 20931*, 27 Oct. 1979, Chiang Mai, Doi Chiang Dao (**BKF**, **L**); *Shimizu, Toyokuni, Koyama, Yahara, Santisuk & Niyomdham 20964*, 27 Oct. 1979, Chiang Mai, Doi Chiang Dao (**AAU**, **BKF**, **L**); *Smitinand*, *Poore & Robbins 7837*, 11 Nov. 1962, Chiang Mai, Doi Chiang Dao (**BKF**).

Litsea mollis Hemsl.

Anonymous s.n., 20 Feb. 1997, Chiang Mai, Doi Chiang Dao (QBG 8655); *Beusekom & Phengklai 1263*, 16 June 1968, Chiang Mai, Doi Suthep (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Beusekom & Phengklai 2612*, 19 Dec. 1969, Chiang Mai, Doi Pui (**AAU**, **C**, **E**, **K**, **L**); *BGO Staff 3*, 20 Jan. 1996, Chiang Mai, Mae Rim (**QBG**); *BGO Staff 5*, 27 Jan. 1996, Chiang Mai, Doi Chiang Dao (**QBG**); *BGO Staff 25*, 23 Jan. 1996, Chiang Mai, Doi Suthep (**QBG**); *BGO Staff 0280*, 20 Dec. 1993, Chiang Mai, Mae

Rim, Botanic Garden (**QBG**); *BGO Staff 1940*, 27 Sept. 1994, Chiang Mai, Doi Chiang Dao (**QBG**); *BGO Staff 5347*, 28 Nov. 1995, Chiang Mai, Mae Rim, Botanic Garden (**QBG**); *BGO Staff 6696*, 1 July 1996, Chiang Mai, Mae Rim, Mae Sa Mai (**QBG**); *Bunchuai 194*, 23 June 1955, Chiang Mai, Doi Chiang Dao (**BKF**, **C**, **K**, **L**); *Chayamarit & Phathanacharoen 696*, March 1997, Chiang Mai, Doi Suthep (**BKF**); *Chermsirivathana 380*, 24 March 1965, Chiang Mai, Doi Suthep (**BK**); *Fukuoka T-62197*, 23 July 1988, Chiang Mai, Doi Inthanon (**BKF**); *Garrett 633*, 9 Feb. 1931, Doi Angka, Doi Pha Mon (**AAU**, **K**); *Garrett 721*, 7 Sept. 1931, Doi Pha Khao (**BKF**, **BM**, **K**, **L**); *Garrett 928*, 15 Jan. 1935, Doi Angka, Doi Pha Mon (**K**, **L**); *Garrett 1039*, 8 Jan. 1936, Doi Angka, Doi Pha Mon (**BM**, **K**); *Garrett 1256*, 28 June 1941, Doi Chom Huat (**K**, **L**); *Hansen, Seidenfaden & Smitinand 10887*, 23 Jan. 1964, Mae Hong Son (**BKF**, **C**, **L**); Iwatsuki & *Fukuoka T 3212*, 23 Dec. 1965, Chiang Mai, Doi Suthep (**BKF**, **L**); *Karimura 19*, 24 April 1994, Chiang Mai, Doi Suthep-Pui (**CMU**); *Kerr 2293*, 24 Dec. 1911, Chiang Mai, Doi Suthep (**BM**, **E**, **K**); *Kerr 5498*, 24 May 1921, Mae Hong Son, Pai (**BK**, **BM**, **K**); *Khantchai 1209*, 19 Nov. 1962, Chiang Mai, Doi Chiang Dao (**BKF**); *Konta & Phengklai 3990*, 5 Feb. 1998, Chiang Mai, Mae Chaem (**BKF**); *Konta, Phengklai & Khao-Iam 4207*, 10 Feb. 1998, Chiang Mai, Doi Inthanon, Mae Wang (**BKF**); *Konta, Phengklai & Khao-Iam 4727*, 18 Dec. 1998, Chiang Mai, Doi Inthanon, Mae Wang (**BKF**); *Konta & Khao-Iam 10966*, 10 Feb. 1998, Chiang Mai, Doi Inthanon, Khun Mae Wang-Mae Chaem (**BKF**); *K. Larsen, S.S. Larsen, Nørgaard, Pharsen, Pudjaa & Ueachirakan 44935*, 27 Nov. 1993, Chiang Mai, Doi Suthep, Doi Pui (**AAU**); *Maxwell 88–22*, 9 Jan. 1988, Chiang Mai, Doi Suthep (**AAU**, **L**); *Maxwell 89-709*, 3 June 1989, Chiang Mai, Doi Suthep (**L**); *Maxwell 90-148*, 1 Feb. 1990, Chiang Mai, Chiang Dao (**L**); *Maxwell 93-67*, 17 Jan. 1993, Chiang Mai, Mae Soi Ridge (**CMU**); *Maxwell 93-95*, 29 Jan. 1993, Chiang Mai, Doi Inthanon (**CMU**); *Maxwell 94-774*, 17 July 1994, Chiang Mai, Doi Suthep-Pui (**BKF**, **CMU**); *Maxwell 96-90*, 27 Jan. 1996, Chiang Mai, Doi Chiang Dao (**BKF**, **CMU**); *Maxwell 97-29*, 14 Jan. 1997, Chiang Mai, Mae Chaem (**BKF**, **CMU**); *Maxwell 97-783*, 20 July 1997, Chiang Mai, Samoeng (**BKF**, **CMU**); *Morci 1238.1*, 1 Feb. 1999, Phayao, Doi Luang (**CMU**); *Maxwell 98-568*, 25 May 1998, Chiang Rai, Doi Luang National Park, Wiang Pa Pao (**BKF**, **CMU**); *Murata*, *Iwatsuki*, *Phengklai* & *Charoenphol T-15311*, 29 Sept. 1971, Chiang Mai, Doi Suthep (**BKF**, **C**, **K**, **L**); *Ngernsaengsaruay 99*, 24 June 2002, Chiang Mai, Doi Suthep-Pui (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 222*, 2 Dec. 2002, Chiang Mai, Doi Suthep-Pui (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 240*, 6 Dec. 2002, Chiang Mai, Doi Chiang Dao (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 274*, 25 Feb. 2003, Chiang Mai, Doi Chiang Dao (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 277*, *278*, 26 Feb. 2003, Chiang Mai, Doi Chiang Dao (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 409*, 8 July 2003, Chiang Mai, Doi Ang Khang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 410*, *411*, 9 July 2003, Huai Nam Dang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Nooteboom*, *Tantisewie & Phengklai 698*, 10 Jan. 1969, Chiang Mai, Doi Suthep (**BKF**, **C**, **K**, **L**); *Paisooksantivatana*, *Sadakorn & Penchitra 2227-88*, 13 Jan. 1988, Chiang Mai, Fang, Doi Phu Muen (**BK**); *Phengklai et al. 6993*, 27 July 1988, Chiang Mai, Doi Inthanon (**AAU**, **BKF**, **C**, **K**); *Ploenchit 1090*, 4 April 1965, Chiang Mai, Doi Chiang Dao (**BKF**); *Pongamornkul 158*, 7 July 1998, Chiang Mai, Doi Chiang Dao (**QBG**); *Panyadit s354b1*, 3 Oct. 1997, Chiang Mai, Doi Suthep-Pui (**CMU**); *Rock 1776*, 11 Jan. 1922, Chiang Mai, Doi Chang (**K**); *Sadakorn 478*, 19 Feb. 1975, Chiang Mai, Doi Ang Khang (**BK**); *Sadakorn 654*, 3 Dec. 1975, Chiang Mai, Chang Khian (**BK**); *Santisuk 1046*, 27 May 1977, Chiang Mai, Huai Nam Dang (**BKF**); *Santisuk 1446*, 3 Dec. 1977, Chiang Mai, Mae Taeng (**AAU**, **C**); *Serm 6*, 30 Dec. 1997, Chiang Mai, Mae Rim, Mae Sa Mai (**QBG**); *Shimizu, Toyokuni, Koyama, Yahara & Santisuk T-20242*, 22 Oct. 1979, Chiang Mai, Mae Taeng, Doi Chang (**AAU**, **BKF**, **L**); *Sharp 4*, 21 Nov. 1994, Chiang Mai, Doi Suthep-Pui (**CMU**); *Shimizu, Toyokuni, Koyama, Yahara & Santisuk T-20371*, 22 Oct. 1979, Chiang Mai, Mae Taeng, Doi Chang (**BKF**, **L**); *Sidisunthorn 2631.0*, 12 Feb. 1998, Chiang Rai, Wiang Pa Pao,

Doi Luang National Park (**CMU**); *Smitinand 3972*, 11 Dec. 1957, Chiang Mai, Doi Suthep (**BKF**); *Smitinand s.n.*, 27 Jan. 1978, Chiang Mai, Doi Suthep (**BKF** 072701); *Somkid 111*, Feb. 1938, Chiang Mai, Pha Mon (**BKF**); *Sørensen, Larsen & Hansen 1635*, 25 Feb. 1958, Chiang Mai, Doi Phahom Pok (**BKF**, **C**); *Sørensen, Larsen & Hansen 3223*, 3 May 1958, Chiang Mai, Doi Suthep (**BKF**, **C**, **K**); *Sørensen, Larsen & Hansen 6517*, 21 Dec. 1958, Chiang Mai, Doi Suthep (**BKF**, **C**, **K**); *Sørensen, Larsen & Hansen 6595*, 9 Jan. 1959, Chiang Mai, Doi Suthep (**BKF**, **C**, **K**); *Sørensen, Larsen & Hansen 6684*, 27 Jan. 1959, Chiang Mai, Doi Suthep (**BKF**, **C**); *Suksathan & Middleton 1840*, 16 Sept. 1999, Chiang Mai, Doi Pui (**QBG**); *Suksathan & Middleton 1866*, 18 Sept. 1999, Chiang Mai, Haui Nam Dang (**QBG**); *Tagawa*, *Shimizu*, *Koyama*, *Hutoh & Nalampoon T 9508*, 9 Sept. 1967, Chiang Mai, Doi Suthep (**BKF**, **L**); *Tsugaru T-61720*, 23 July 1988, Chiang Mai, Doi Inthanon (**AAU**, **BKF**); *Tsugaru T-61856*, 2 Aug. 1988, Chiang Mai, Doi Inthanon (**BKF**); *Ubolchalaket s.n.*, Dec. 1979, Chiang Mai, Doi Chiang Dao (**AAU**); *Umpai 355*, 19 Feb. 1967, Chiang Mai, Doi Suthep (**BK**); *Vidal & Niyomdham 6244*, 31 May 1979, Chiang Mai, Chom Thong, Ban Pha Mon (**AAU**, **BKF**); *Watthana 201*, 8 Jan. 1999, Chiang Mai, Doi Suthep-Pui (**QBG**); *Watthana, Panya & Pongamornkul 459*, 20 June 1999, Chiang Mai, Mae On, Mae Kam Pong (**QBG**); *Worawut 10*, 20 Aug. 1970, Chiang Mai, Doi Inthanon (**BKF**, **K**, **L**).

Litsea monopetala (Roxb.) Pers.

BGO Staff 437, 15 Feb. 1994, Chiang Mai, Mae Rim, Botanic Garden (**QBG**); *BGO Staff 0700*, 19 May 1994, Chiang Mai, Mae Rim, Botanic Garden (**QBG**); *BGO Staff 6635*, 5 May 1996, Chiang Mai, Mae Rim (**QBG**); *BGO Staff 9043*, 2 May 1997, Chiang Mai, Mae Rim, Mae Sa Mai (**QBG**); *BGO Staff s.n.*, 16 May 1995, Chiang Mai, Huai Kaeo Arboretum (**QBG** 3359); *Bloembergen & Kostermans 290*, 3 May 1946, Khwae Noi River Basin (**BK**, **K**, **L**); *Bunchuai 48*, 24 Feb. 1961, Kanchanaburi, Sangkhla Buri (**BKF**, **C**); *Bunchuai 55*, 27 Feb. 1961, Kanchanaburi, Sangkhla Buri (**BKF**, **C**); *Bunchuai 63*, 6 March 1961, Kanchanaburi, Sangkhla Buri (**BKF**, **K**, **L**); *Bunchuai 1130*, 11 June 1959, Chumphon (**BKF**, **K**); *Charoenchai 419*, 9 Feb. 2000, Nakhon Nayok, Khao Yai National Park (**CMU**); *Charoenchai 602*, 13 June 1998, Nakhon Nayok, Khao Yai National Park (**CMU**); *Chamroensi 3*, 12 March 1948, Saraburi, Phu Khae (**BKF**); *Chanthamuk 51*, 1 Dec. 1961, Yala, Bannang Sata (**BK**); *Chanthamuk 53*, 23 March 1961, Phrae (**BK**, **C**, **K**, **E**, **L**); *Charoensom s.n.*, 8 June 1976, Chiang Mai, Doi Ang Khang (**BK** 56009); *Chayamarit 1254*, 12 Feb. 1998, Chiang Rai (**BKF**); *Chayamarit 1298*, March 1998, Kanchanaburi (**BKF**); *Collins 545*, 1914, Bangkok (**K**); *C. H. & B. S. 290*, 24 March 1965, Chiang Mai, Doi Pui (**BKF**); *Dee 1161*, 29 March 1958, Chanthaburi, Pong Nam Ron (**BKF**, **C**); *Garrett 1114*, 19 April 1939, Chiang Mai, Doi Angka, Doi Pha Mon (**K**, **L**); *Geesink & Santisuk 4983*, 28 April 1973, Phangnga, Khlong Nang Yon (**AAU**, **BKF**, **C**, **L**); *Geesink, Hattink & Phengklai 7117*, 1 June 1974, Chaiyaphum, Thung Kamang (**AAU**, **BKF**, **C**, **K**, **L**); *Hambananda 290*, 24 March 1965, Chiang Mai, Doi Pui (**BK**); *Haniff* 4251, 23 May 1929 (**K**); *Hansen & Smitinand 12169*, 29 Jan. 1966, Nakhon Si Thammarat, Khao Luang, Thap Chang (**BKF**, **C**, **E**, **K**, **L**); *Jaray 92*, 30 May 1969, Chumphon, Tha Sae (**BK**); *Kasem 368*, 3 May 1963, Uthai Thani, Ban Rai (**BK**); *Kasem 450*, 19 March 1965, Nakhon Ratchasima, Khao Yai (**BK**); *Kasin 144*, 21 April 1984, Chiang Mai, Fang (**BK**); *Kerr 1134*, April 1910 (**L**); *Kerr 1137*, 24 April 1910, Chiang Mai, Doi Suthep (**BM**, **K**); *Kerr 2989*, 22 March 1913 (**BM**, **K**); *Kerr 4862*, 17 Feb. 1921, Phrae (**BK**, **BM**, **C**, **K**, **L**); *Kerr 5446*, 13 May 1921, Mae Hong Son, Khun Yuam Noi (**BK**, **BM**, **C**, **K**, **L**); *Kerr 6953*, 15 April 1923, Bangkok (**BK**, **BM**, **C**, **K**); *Kerr 10494*, 11 Feb. 1926, Kanchanaburi, Wangka (**BK**, **BM**, **C**, **K**, **L**); *Kerr 10691*, 9 May 1926, Bangkok (**BK**, **BM**, **C**, **K**); *Kerr 12437*, 26 March 1927, Krabi (**BK**, **BM**, **C**, **K**, **L**); *Kerr 14791*, 26 March 1928, Songkhla, Saba Yoi (**BK**, **BM**, **K**); *Kerr 16712*, 18 Jan. 1929, Ranong, Kapoe (**BK**, **BM**, **C**, **K**, **L**); *Kerr 20164*, 16 Feb. 1931, Khon Kaen, Phu Wiang (**BK**, **BM**, **C**, **K**, **L**); *Kerr s.n.*, 10 June 1922, Kamphaeng Phet (**BK** 20669); *Khantchai 340*, 20 Feb. 1957, Chiang Mai, Doi Chiang Dao (**BKF**); *Khantchai 826*, 28 March 1958, Chiang Mai, Doi Chiang Dao (**BKF**); *Kostermans 872*, 13 June 1946, Khwae Noi River Basin (**BK**, **K**, **L**); *Kostermans 1193*, 17 July 1946, Khwae Noi River Basin (**L**); *Kostermans & Hoed 202*, 19 June 1946,

Khwae Noi River Basin (**BK**, **K**, **L**); *K. Larsen 9642*, 8 Feb. 1962, Kanchanaburi, Sai Yok Forest Station (**C**); *K. Larsen, S.S. Larsen, Renner, Niyomdham, Ueachirakan & Sirirugsa 42765*, 9 June 1992, Surat Thani, Khao Sok (**PSU**); *Marcan 896*, 10 July 1922, Kanchanaburi (**BM**, **K**); *Marcan 2004*, 7 March 1926, Bangkok (**BM**, **K**); *Marcan 2066*, 9 May 1926, Bangkok (**BM**, **C**, **K**); *Marcan 2072*, 23 May 1926, Bangkok (**BM**, **K**); *Marcan 2123*, 4 July 1926, Bangkok (**BM**, **K**); *Martin 402*, 23 March 2001, Kanchanaburi, Si Nakharin National Park (**CMU**); *Maxwell 72-116*, 10 March 1972, Sukhothai (**AAU**, **BKF**, **BK**); *Maxwell 87-177*, 6 Feb. 1987, Surat Thani, Wiphawadi Falls (**AAU**, **BKF**, **PSU**, **L**); *Maxwell 89-358*, 21 March 1989, Chiang Mai, Doi Chiang Dao (**BKF**, **L**); *Maxwell 89-944*, 26 July 1989, Chiang Mai, Doi Suthep-Pui (**E**, **L**); *Maxwell 91-467*, 24 May 1991, Chiang Mai, Fang (**AAU**, **E**); *Maxwell 93-257*, 17 March 1993, Kanchanaburi, Sangkhlaburi (**CMU**); *Maxwell 93-460*, 22 May 1993, Chiang Mai, Doi Saket (**CMU**); *Maxwell 94-429*, 1 April 1994, Lamphun, Doi Khun Tan National Park (**CMU**); *Maxwell 96-633*, 28 April 1996, Lampang, Wang Nuea, Chae Son National Park (**BKF**, **CMU**); *Maxwell 96-931*, 3 July 1996, Chiang Mai, Sankamphaeng, Doi Lon (**BKF**, **CMU**); *Maxwell 96-984*, 21 July 1996, Lampang, Chae Son National Park (**CMU**); *Maxwell 97-440*, 3 May 1997, Chiang Mai, Mae Chaem (**BKF**, **CMU**); *Maxwell 97-563*, 3 June 1997, Lampang, Wang Nuea (**BKF**, **CMU**); *Maxwell 97-711*, 9 July 1997, Lampang, Wang Nuea (**BKF**, **CMU**); *Maxwell 00-261*, 6 May 2000, Chiang Mai, Mae Tho National Park (**CMU**); *Maxwell 02-77*, 11 March 2002, Nakhon Nayok, Khao Yai National Park (**CMU**); *Maxwell 02-134*, 23 May 2002, Nakhon Ratchasima, Khao Yai National Park (**CMU**); *Ngernsaengsaruay 76*, 21 June 2002, Chiang Rai, Doi Tung (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 93*, 22 June 2002, Chiang Rai, Khun Kon Waterfall (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 120*, 27 June 2002, Chiang Mai, Doi Inthanon (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 144*, 4 Aug. 2002, Kanchanaburi, Chaloem Rattanakosin National Park (**BKF**); *Ngernsaengsaruay 343*, 344, 7 June 2003, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 416*, 12 July 2003, Chiang Mai, Hang Dong (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 541*, 6 May 2004, Nakhon Si Thammarat, Khiri Wong (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Nimanong 28*, 5 April 1967, Kanchanaburi, Sangkhla Buri (**BKF**, **E**, **L**); *Nimanong & Phusomsaeng 1825*, 14 April 1977, Mae Hong Son (**BKF**, **PSU**); *Ploenchit 282*, 28 Feb. 1952, Nakhon Si Thammarat, Khiri Wong (**BKF**); *Ploenchit 1750*, 1 Dec. 1961, Yala, Bannang Sata (**BKF**); *Pooma 196*, 25 June 1989, Chiang Mai, Mae Rim, Maesa Botanical Garden (**BKF**, **CMU**); *Prayad 743*, 31 March 1967, Kanchanaburi, Sangkhla Buri (**BK**); *Pricha 452*, 25 April 1949, Kanchanaburi, Thong Pha Phum (**BKF**); *Put 117*, 11 July 1926, Kanchanaburi, Hin Dat (**BK**, **BM**, **K**); *Put 1465*, 8 March 1928, Bang Son (**BK**, **C**, **K**, **L**); *Put 2353*, 12 Feb. 1929, Nakhon Si Thammarat, Thung Song (**BK**, **BM**, **C**, **K**, **L**); *Sangkhachand 41*, 10 May 1954, Lampang, Ngao (**BKF**, **C**, **K**, **E**, **L**); *Sangkhachand 659*, Chanthaburi, Pong Nam Ron (**BKF**, **C**); *Santisuk et al. 129*, 2 May 1992, Kanchanaburi (**BKF**); *Santisuk 793*, 8 Dec. 1976, Ranong, Kapoe (**BKF**); *Santisuk 893*, 8 Jan. 1977, Ranong, Khao Phota Luang Kaeo (**BKF**); *Smitinand 3300*, 7 April 1956, Chiang Mai, Doi Suthep (**BKF**); *Smitinand s.n.*, 29 March 1983, Chumphon, Sawi (**BKF** 112217); *Snan 177*, 21 May 1955, Nakhon Si Thammarat, Chawang (**BKF**, **C**); *Snan 1009*, 18 March 1957, Nakhon Si Thammarat (**BKF**, **C**); *Soradet 3*, 12 May 1954, Lampang, Ngao (**BKF**); *Soradet 457*, 9 May 1949, Chiang Mai, Doi Suthep (**BKF**); *Sørensen, Larsen & Hansen 3470*, 16 May 1958, Chiang Mai, Doi Suthep (**BKF**, **C**, **K**); *Sutheesorn 2420*, 26 April 1967, Ranong, Khao Nam Tok (**BK**); *Sutheesorn 3052*, 31 May 1974, Uthai Thani, Nong Chang (**BK**); *Suvarnakoses 1750*, 1 Dec. 1961, Yala, Bannang Sata (**C**); *Suvatee 144*, 21 April 1984 (**BK**); *Thammachat 2*, 10 May 1954, Lampang, Ngao (**BKF**); *Vanpruk 103*, March 1909 (**BKF**); *Vanpruk 153*, 10 Aug. 1910, Phrae (**K**); *Vanpruk* 299, 22 May 1912 (**BKF**, **K**); *Winit 79* (**BKF**); *Winit 1839*, 4 June 1927, Lampang (**BK**, **BKF**, **K**); *Wirong 2*, 31 July 2001, Chiang Mai, Mae Chaem (**CMU**); *Wongprasert et al. 14*, 29 May 1994, Kanchanaburi, Thong Pha Phum (**BKF**); *Wongprasert et al. 69*, 28 May 1994, Kanchanaburi, Thong Pha Phum (**BKF**); *Wongprasert*

017-17, 11 July 2001, Chiang Rai, Wiang Pa Pao (**BKF**); *Wongprasert s.n.*, 30 May 1998, Chiang Rai, Doi Tung (**BKF** 123791).

Litsea myristicaefolia (Wall. ex Nees) Hook.f.

Boonnab 239, 20 Nov. 1965, Trang, Khao Chong (**BKF**); *Chit 70*, 18 Nov. 1945, Chanthaburi, Makham, Khao Ra Bang (**BKF**); *Kerr 17906*, 1 Jan. 1930, Trat, Khao Saming (**BK**, **BM**, **C**, **K**, **L**); *Kerr 19054*, 21 April 1930, Trang, Ko Libong (**BK**, **BM**, **C**, **K**); *Kerr 19078*, 23 April 1930, Trang, Ko Libong (**BK**, **BM**, **C**, **K**, **L**); *Ngernsaengsaruay & Ruengrue 549*, 7 April 2005, Nakhon Si Thammarat, Khao Luang (**BK**, Herb. of the Department of Botany, Kasetsart University); *Nuphakdee 70*, 18 Nov. 1945, Chanthaburi, Khao Sa Bap (**C**); *Sangkhachand 2207*, 2 Dec. 1969, Trang, Khao Chong (**BK**); *Suvarnakoses 2215*, 12 Nov. 1964, Trat (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Vanpruk 831*, Dec 1915, Trang (**BKF**, **K**, **L**).

Litsea nuculanea (Kurz) Hook.f.

Geesink, Hattink & Charoenphol 7377, 22 June 1974, Ranong, Khlong Na Kha (**AAU**, **BKF**, **K**, **L**); *Kerr 12124*, 26 Feb. 1927, Chumphon, Phato (**BK**, **BM**, **C**, **K**); *Kerr 12124A*, 3 March 1927, Chumphon, Phato (**BK**, **BM**, **C**, **K**); *Kerr 16727*, 19 Jan. 1929, Ranong, Khao Phota Chong Dong (**BK**, **BM**, **C**, **K**, **L**); *Kerr 16904*, 31 Jan. 1929, Ranong, Khao Phota Luang Kaeo (**BK**, **BM**, **C**, **K**, **L**); *Kloss & Robinson 7052*, 5 Nov. 1919, West Coast and Island of Peninsular Siam (**K**); *Maxwell 75-751*, 11 Aug. 1975, Trang, Khao Chong (**AAU**, **BK**, **L**); *Middleton, Suddee & Hemrat 1417*, 28 Aug. 2002, Ranong, Kra Buri, Thung Raya Nasak Wildlife Sanctuary (**CMU**); *Ngernsaengsaruay 494*, 17 March 2004, Trang, Khao Chong (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 522*, 23 April 2004, Trang, Khao Chong (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Vacharapong 192*, 29 Feb. 1968, Ranong, Kra Buri (**BK**).

Litsea ochracea (Blume) Boerl.

Kerr 16756, 20 Jan. 1929, Ranong, Khao Phota Chong Dong (**BK**, **BM**, **C**, **K**, **L**); *Kerr 16992*, 3 Feb. 1929, Ranong, Khao Phota Luang Kaeo (**BK**, **BM**, **C**, **K**, **L**); *Kerr 17020*, 5 Feb. 1929, Ranong, Khlong Kam Phuan (**BK**, **BM**, **C**, **K**, **L**), *Ngernsaengsaruay 524*, 24 April 2004, Ranong, Khlong Na Kha Wildlife Sanctuary, Kum Phuan Protection Unit (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Niyomdham, Puudjaa & Chonkunjana 6316*, 26 June 2000, Narathiwat, Hala-Bala Wildlife Sanctuary, Sirindhorn Waterfall (**AAU**).

Litsea phuwuaensis Ngerns.

Ngernsaengsaruay, *Tetsana*, *Suphuntee & Koonkunthod 319*, 21 May 2003, Nong Khai, Tham Fun, Phu Wua Wildlife Sanctuary (**BK**, **BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay*, *Tetsana*, *Suphuntee & Koonkunthod 328*, 24 May 2003, Nong Khai, Phu Wua Wildlife Sanctuary (**BK**, **BKF**); *Ngernsaengsaruay*, *Tetsana*, *Suphuntee & Koonkunthod 331*, 24 May 2003, Nakhon Phanom, Ban Phaeng, Phu Langka National Park (**BK**, **BKF**, Herb. of the Department of Botany, Kasetsart University); 335 (**BK**, **BKF**); *Ngernsaengsaruay 376*, 21 June 2003, Nong Khai, Bungkhla, Phu Wua Wildlife Sanctuary, way to Tham Fun near check point, mixed deciduous forest, 200 m altitude (holotype **BKF**; isotypes **BK**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 377*, *378*, *379*, *380*, *381*, 21 June 2003, Nong Khai, Tham Fun, Phu Wua Wildlife Sanctuary (**BK**, **BKF**, Herb. of the Department of Botany, Kasetsart University); *Pooma*, *de Wilde*, *Duyfjes*, *Chamchumroon & Phattarahirankanok 2794*, 27 Aug. 2001, Nong Khai, Bungkhla, Phu Wua Wildlife Sanctuary, Nature trail from headquarter (**BKF**); *Wongprasert et al. s.n.*, 30 Oct. 1998, Nakhon Phanom, Phu Langka National Park, Tat Kham Fall (**BKF** 131809).

Litsea pierrei Lecomte

Chamratsi s.n., 18 Feb. 1941, Prachin Buri (**BKF**); *Collins 915*, 22 July 1923, Chon Buri, near Si Racha (**BK**, **C**, **K**, **L**); *Collins 1765*, 19 Dec. 1927, Chon Buri, near Si Racha (**BK**, **BM**, **C**); *Ngernsaengsaruay 28*, 5 April 2002, Trat, Ko Kut (**BKF**); *Smitinand 2304*, 25 Feb. 1955, Trat, Ko Chang, Khlong Dan (**BKF**).

Litsea pseudo-elongata Kosterm.

Beusekom, Phengklai, Geesink & Wongwan 4520, 24 Dec. 1971, Loei, Phu Kradueng (**BKF**, **C**, **K**, **L**); *Mitsuta, Nagamasu, Yahara & Nantasan T-42356*, 31 Oct. 1984, Loei, Phu Kradueng (**AAU**, **BKF**, **L**); *Murata, Phengklai, Mitsuta, Yahara, Nagamasu & Nantasan T-42574*, 1 Nov. 1984, Loei, Phu Kradueng (**BKF**, **L**); *Murata, Phengklai, Mitsuta, Yahara, Nagamasu & Nantasan T-42661*, 1 Nov. 1984, Loei, Phu Kradueng (**AAU**, **BKF**, **L**); *Nakkarn 152*, 13 Aug. 1946, Loei, Phu Kradueng (**BKF**); *Ngernsaengsaruay 219*, 9 Nov. 2002, Loei, Phu Luang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 244*, 245, 14 Dec. 2002, Loei, Phu Kradueng (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 389*, 25 June 2003, Loei, Phu Luang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Norsangsri 1049*, 14 Oct. 2002, Loei, Phu Luang (**QBG**); *Shimizu*, *Toyokuni & Koyama*, *Yahara & Niyondham T-23190*, 16 Nov. 1979, Loei, Phu Kradueng (**BKF**, **L**); *Smitinand 4964*, 25 Nov. 1958, Loei, Phu Kradueng (**C**); *Sørensen, Larsen & Hansen 6221*, 25 Nov. 1958, Loei, Phu Kradueng (holotype **C**); *Wongprasert s.n.*, 13 Dec. 1997, Loei, Phu Luang (**BKF** 116298).

Litsea pseudo-umbellata Kosterm.

Kerr 3230, 7 June 1914, Chiang Mai, Doi Suthep (holotype **BM**; isotypes **C**, **K**, **L**); *Kerr 3435*, 25 Oct. 1914, Chiang Mai, Doi Suthep (**BM**, **K**); *Maxwell 91-728*, 12 Aug. 1991, Chiang Mai, Mae Soi Ridge (**AAU**); *Maxwell 92-194*, 9 May 1992, Chiang Mai, Mae Soi Ridge (**AAU**); *Maxwell 93-1128*, 26 Sept. 1995, Lumphun, Mae Tha (**BKF**); *Ngernsaengsaruay 96*, 23 June 2002, Chiang Mai, Doi Suthep-Pui (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 103*, 24 June 2002, Chiang Mai, Doi Suthep-Pui (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Pongamornkul 90*, 20 May 1998, Chiang Mai, Mon Long (**QBG**); *Sucheera s.n.*, 22 April 1998, Chiang Mai, Mae Rim, Huai Pu (**QBG** 10972).

Litsea punctulata Kosterm.

Phusomsaeng & Phengklai 244, 1 May 1969, Trang, Khao Chong (holotype **AAU**; isotypes **BK**, **C**, **E**, **K**, **L**); *Sangkhachand 1977*, 11 July 1969, Trang, Khao Chong (**BK**).

Litsea resinosa Blume

Niyomdham 655, *656*, 7 July 1983, Narathiwat, Tak Bai, Bang Khun Thong (**BKF**, **C**); *Niyomdham 783*, 17 Feb. 1984, Narathiwat, Kok Dan Peat Swamp Forest (**AAU**, **BKF**); *Niyomdham 805*, 28 Feb. 1984, Narathiwat, Tak Bai, Bang Khun Thong, Kok Dan (**AAU**, **BKF**, **C**, **K**); *Niyomdham 1172*, 20 Feb. 1986, Narathiwat, Su-ngai Padi, Pa Wai (**AAU**, **BKF**, **C**, **K**, **L**); *Ploenchit 701*, 2 Sept. 1953, Nakhon Si Thammarat (**BKF**); *Put 530* (**BK**, **K**, **L**); *Put 530*, 23 Jan. 1927, Trat, Khao Saming (**BK**, **BM**, **C**, **K**, **L**); *Suvarnakoses 482*, 14 March 1953, Nakhon Si Thammarat (**BKF**).

Litsea semecarpifolia (Wall. ex Nees) Hook.f.

BGO Staff 068, 25 Oct. 1993, Chiang Mai, Mae Rim, Botanic Garden (**QBG**), *BGO Staff 607*, 23 April 1994, Chiang Mai, Mae Rim, Botanic Garden (**QBG**), *BGO Staff 0982*, 23 June 1994, Chiang Mai, Mae Rim, Botanic Garden (**QBG**); *Kerr 1760*, 5 April 1911, Chiang Mai, Doi Suthep (**BM**, **K**); *Khantchai 87*, 22 Dec. 1961, Chiang Mai, Doi Chiang Dao (**BKF**, **C**); *Khantchai 283*, 5 July 1955, Chiang Mai, Doi Chiang Dao (**BKF**, **C**); *Khantchai 367*, 26 Feb. 1957, Chiang Mai, Doi Chiang Dao (**BKF**, **C**); *Khantchai 827*, 28 March 1958, Chiang Mai, Doi Chiang Dao (**BKF**); *Kopachon s227b1*, 4 May 1996, Chiang Mai, Doi Suthep-Pui (**BM**, **CMU**); *Kumphet, Watthana & Pongamornkul 399*, 22 April 1999, Chiang Mai, Mae Kam Pong, Mae On (**QBG**); *K. Larsen & S.S. Larsen 34268*, 7 Sept. 1974, Mae Hong Son, Khun Yuam (**AAU**, **K**, **L**); *Maxwell 90-1195*, 27 Oct. 1990, Chiang Mai, Doi Chiang Dao (**AAU**); *Morakot 096*, 3 Nov. 1997 (**QBG**); *Nanakorn 8299*, 18 Dec. 1996, Chiang Mai, Mae Rim, Botanic Garden (**QBG**); *Phengklai et al. 3065*, 28 Feb. 1973, Ban Ja Ke Yai (C, **BKF**, **K**, **L**,); *Santisuk 1434*, 26 Nov. 1977, Chiang Mai, Omkoi (**AAU**, **K**); *Watthana & Siriphum 37*, 29 Oct. 1997, Chiang Mai, Mae Rim, Botanic Garden, Huai Phan Si (**QBG**); *Watthana, Panya & Pongamornkul 451*, 20 June 1999, Chiang Mai, Mae Kam Pong, Mae On (**QBG**).

Litsea tomentosa Blume

Ngernsaengsaruay 542, 7 May 2004, Nakhon Si Thammarat, Khao Luang National Park, along trail from Khiri Wong to summit (**BK**, **BKF**, Herb. of the Department of Botany, Kasetsart University).

Litsea umbellata (Lour.) Merr.

Bunchuai 1910, 16 Dec. 1971, Narathiwat, Waeng (**C**, **L**); *Bunkurd 68*, 16 April 1949, Trang, Khao Chong (**C**); *Chalat 3*, 16 Sept. 1980, Ranong, Mueang (**PSU**); *Charoenchai 00-2*, 25 Jan. 2001, Nakhon Nayok, Khao Yai National Park (**CMU**); *Charoenphol*, *K. Larsen & Warncke 4097*, 21 Oct. 1970, Yala (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Congdon 312*, 19 Feb. 1979, Satun, Ko Tarutao (**AAU**); *Congdon 644*, 15 June 1980, Ko Tarutao (**AAU**, **PSU**); *Congdon 768*, 7 July 1980, Satun, Ko Tarutao (**AAU**, **PSU**); *Congdon 829*, 6 Aug. 1980, Satun, Ko Tarutao (**AAU**, **PSU**); *C. S. S. 263*, 22 Nov. 1971, Narathiwat, Waeng (**BKF**); *Dee 436*, Chanthaburi, Pong Nam Ron (**C**); *Fukuoka & Nanakorn T-35859*, 5 Sept. 1985, Ranong (**BKF**); Geesink & *Phengklai 6300*, 3 Aug. 1973, Trat, Taphan Hin (**L**); *Geesink, Hattink & Phengklai 6481*, 3 May 1974, Trat, Taphan Hin (**L**); *Geesink, Hiepko & Phengklai 7732*, 3 Dec. 1974, Surat Thani, Ko Samui (**BKF**, **C**, **K**, **L**); *Haniff 370*, Feb. 1929, Ranong (**BM**, **K**); *Hansen & Smitinand 12111*, 27 Jan. 1966, Nakhon Si Thammarat, Khao Luang (**BKF**, **C**, **L**); *Hansen & Smitinand 12273*, 12 Nov. 1966, Krabi, Ko Lan Ta Yai (**C**, **K**, **L**); *H. & C. 312*, 19 Feb. 1979, Satun, Ko Tarutao (**PSU**); *Kerr 6867*, 4 April 1923, Trat, Ko Chang, Khlong Mayom (**BK**, **BM**, **C**, **K**, **L**); *Kerr 8482*, 17 Feb. 1924, Sakon Nakhon, Wanon Niwat (**BK**, **BM**, **K**, **L**); *Kerr 9546*, 4 Dec. 1924, Chanthaburi, Khlung (**BM**, **C**, **K**, **L**); *Kerr 12363*, 18 March 1927, Surat Thani, Phanom (**BK**, **BM**, **C**, **K**, **L**); *Kerr 12477*, 29 March 1927, Surat Thani (**BK**, **BM**, **C**, **K**); *Kerr 12487*, 30 March 1927, Surat Thani, Phrasaeng (**BK**, **BM**, **K**, **L**); *Kerr 13222*, 8 Aug. 1927, Surat Thani (**BK**, **BM**, **K**); *Kerr* 13330, 13 Aug. 1927, Surat Thani, Ban Na San (**BK**, **BM**, **C**, **K**); *Kerr 13755*, 30 Dec. 1927, Satun, Khuan Po (**BK**, **C**, **K**); *Kerr* 13807, 1 Jan. 1928, Satun, Khuan Po (**BM**, **C**, **K**); *Kerr 14732*, 24 March 1928, Songkhla, Thepha (**BK**, **BM**, **C**, **K**); *Kerr 15010*, 3 April 1928, Pattani, Khao Kala Khiri (**BK**, **BM**, **C**, **K**); *Kerr 15054*, 5 April 1928, Pattani, Ban Sai Khao (**BK**, **BM**, **C**, **K**, **L**); *Kerr 15805*, 16 July 1928, Songkhla, Na Thawi (**BK**, **BM**, **C**, **K**); *Kerr 16719*, 18 Jan. 1929, Ranong (**BK**, **BM**, **C**, **K**, **L**); *Kerr 17545*, 7 Feb. 1929, Phangnga Takua Pa (K); *Kerr 17992*, 7 Jan. 1930, Chanthaburi, Khao Sa Bap (**BK**, **BM**, **C**, **K**, **L**); *Kerr 18239*, 24 Feb. 1930, Surat Thani (**BK**, **BM**, **C**, **K**); *Kerr 18356*, 4 March 1930, Phangnga, Thap Put (**BK**, **BM**, **C**, **K**, **L**); *Kerr 18632*, 20 March 1920, (**BK**, **BM**, **C**, **K**, **L**); *Koyama, Terao & Wongprasert T-33173*, 6 Feb. 1983, Chiang Mai, Doi Chiang Dao (**BKF**); *Lakshnakara 497*, 22 Nov. 1930, Chanthaburi, Makham (**BK**, **C**, **K**); *Lakshnakara 656*, 17 April 1931, Narathiwat, To Mo (**BK**, **BM**, **C**, **K**); *K. Larsen, S.S. Larsen, Nielsen & Santisuk 31218*, 22 July 1972, Krabi (**AAU**, **K**); *K. Larsen & S.S. Larsen 33924*, 28 June 1974, Kanchanaburi, West of Si Sawat (**AAU**, **K**); *K. Larsen & S.S. Larsen 40313*, 8 Oct. 1988, Narathiwat, Bacho Falls (**AAU**); *K. Larsen, S.S. Larsen, Barfod, Nanakorn, Ueachirakan & Sirirugsa 41041*, 1 Nov. 1990, Songkhla, Ton Nga Chang Waterfall (**AAU**); *K. Larsen, S.S. Larsen, Renner, Niyomdham, Ueachirakan & Sirirugsa 42762*, 9 June 1992, Surat Thani, Khao Sok (**AAU**, **BKF**); *K. Larsen, S.S. Larsen, Renner, Niyomdham, Ueachirakan & Sirirugsa 42876*, 13 June 1992, Songkhla, Na Thawi (**AAU**, **BKF**); *Marcan 1282*, 4 April 1923, Trat, Ko Chang (**BM**, **K**); *Martin 397*, 23 March 2001, Dong Yai, Sri Nakharin National Park (**CMU**); *Maxwell 71-563*, 17 Oct. 1971, Chanthaburi (**AAU**, **BK**); *Maxwell 73-380*, 4 Aug. 1973, Trat, Mueang (**AAU**, **BK**); *Maxwell 75-259*, 9 March 1975, Chon Buri, Si Racha, Khao Khiao (**AAU**, **BK**, **L**); *Maxwell 76-15*, 17 Jan. 1976, Chon Buri, Ban Bueng (**AAU**, **BK**); *Maxwell 85-362*, 2 April 1985, Songkhla, Rattaphum, Boriphat Waterfall (**BKF**, **E**, **L**, **PSU**); *Maxwell 85-615*, 21 June 1985, Songkhla, Mueang (**BKF**, **L**, **PSU**); *Maxwell 85-947*, 11 Oct. 1985, Trang, Khao Chong (**PSU**); *Maxwell 85-1077*, 8 Dec. 1985, Songkhla, Hat Yai, Kho Hong Hill (**L**, **PSU**); *Maxwell 86-964*, 21 Nov. 1986, Trang, Ban Khuan Pling (**BKF**, **L**, **PSU**) *Maxwell 86-1018*, 1 Dec. 1986, Phangnga, Takua Thung, Ban Ko Rat (**AAU**, **BKF**, **L**, **PSU**); *Maxwell 87-5*, 4 Jan. 1987, Songkhla, Hat Yai, Khao Kho Hong (**BKF**, **L**, **PSU**); *Maxwell 02-80*, 11 March 2002, Nakhon Nayok, Khao Yai National Park (**CMU**); *Maxwell 02-139*, 23 May 2002, Nakhon Ratchasima, Khao

Yai National Park (**CMU**); *Ngernsaengsaruay 167*, 3 Sept. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 179*, 13 Sept. 2002, Hat Yai, Khao Kho Hong (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 191*, *192*, 16 Sept. 2002, Hat Yai, Ton Nga Chang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 193*, *194*, 23 Sept. 2002, Nakhon Si Thammarat, Khao Luang, Krung Ching Waterfall (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 208*, 19 Oct. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 270*, 23 Feb. 2003, Sa Kaeo, Pang Sida National Park (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 346*, *347*, 7 June 2003, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 420*, 28 Sept. 2003, Chumphon, Phato, way to Heo Lom Waterfall (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 435*, 21 Oct. 2003, Yala, Than To, (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 438*, 23 Oct. 2003, Narathiwat, Hala-Bala Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 471*, 11 Nov. 2003, Nong Khai, Phu Wua Wildlife Sanctuary (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 503*, 18 March 2004, Trang, Thung Khai Botanic Garden (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Niyomdham & Kubat 1447*, 22 March 1987, Trang, Botanical Garden (**AAU**, **BKF**, **C**, **K**); *Niyomdham 4878*, 8 Nov. 1996, Nong Khai, Bung Khla (**BKF**); *Niyomdham, Pudjaa & Chonkunjana 5933*, 23 Nov. 1999, Narathiwat, Rueso (**AAU**, **BKF**); *Niyomdham s.n.*, June 1994, Surat Thani, Khao Sok (BKF 112411); *Phengklai et al. 13193*, 13 Dec. 2001, Krabi, Khao Pra Bang Khram (**BKF**); *Phusomsaeng 106*, 4 April 1969, Trang, Khao Chong (**K**, **L**); *Ploenchit 814*, 15 May 1954, Nakhon Si Thammarat, Thap Chang (**BKF**); *Put 266*, 7 June 1933, Trang, Kra Chong (**BKF**); *Put 498*, 19 Jan. 1927, Trat (**BK**, **BM**, **C**, **K**, **L**); *Put 716*, 28 May 1927, Surat Thani, Ko Samui (**BK**, **BM**, **C**, **K**, **L**); *Put 1303*, 17 Nov. 1927, Surat Thani, Ko Samui (**BK**, **BM**, **C**, **K**, **L**); *Put 2932*, 21 May 1930, Trat, Khao Kuap (**BK**, **BM**, **C**, **K**, **L**); *Put 3614*, 24 Jan. 1931, Narathiwat, Bukit (**BK**, **BM**, **C**, **K**, **L**); *Rabil 79*, 15 July 1928, Song Khla, Na Thawi (**BK**, **BM**, **C**, **K**, **L**); *Rabil 159*, 22 July 1929, Nakhon Si Thammarat, Thung Song (**BK**, **BM**, **C**, **K**, **L**); *Rabil 197*, 24 July 1929, Nakhon Si Thammarat, Thung Song (**BK**, **K**, **L**); *Rabil 368*, 5 Aug. 1929, Trang (**AAU**, **BK**, **BM**, **C**, **K**, **L**); *Ratanapongsai 1*, 26 April 2001, Nakhon Nayok, Khao Yai National Park (**CMU**); *Sakol 1152*, 28 June 1966, Surat Thani, Ko Samui (**BK**); *Sangkhachand 23*, 5 March 1974, Surat Thani, Tha Chang (**BKF**); *Sangkhachand 75*, 21 April 1960, Narathiwat, Bacho (**C**, **K**, **L**); *Sangkhachand 171*, 17 Aug. 1954, Chanthaburi, Makham (**C**); *Sangkhachand 416*, Trat, Ko Chang (**C**), *Sangkhachand 501*, 8 Oct. 1966, Narathiwat, Waeng (**BK**, **L**); *Sangkhachand & Nimanong 1309*, 4 Sept. 1966, Narathiwat, Waeng (**K**, **L**); *Sangkhachand 2009*, 22 July 1969, Trang, Khao Chong (**BK**); *Santisuk 1246*, 23 Aug. 1977, Ranong, Kapoe (**BKF**); *Seidenfaden 2666*, 25 Feb. 1935, Chanthaburi, Khao Sa Bap (**C**); *Sirirugsa 520*, 7 May 1982, Surat Thani, Ko Samui (**PSU**); *Smitinand 1419*, 22 Jan. 1952, Trat (**C**); *Smitinand 3323*, 20 April 1956, Chanthaburi (**C**); *Somsee & Sagon 18*, 29 Aug. 1980, Nakhon Si Thammarat, Ka Rom Falls (**PSU**); *Sutheesorn 2268*, 17 April 1967, Ranong, Kra Buri (**BK**); *Sutheesorn 3678*, 6 April 1976, Phangnga, Khao Nang Hong (**BK**); *Suvarnakoses 814*, 15 May 1954, Nakhon Si Thammarat (**C**); *Thaworn 179*, 21 May 1955, Nakhon Si Thammarat (**C**); *Thaworn 295*, 12 May 1955, Nakhon Si Thammarat, Khao Luang, Lan Sa Ka (**BKF**, **C**); *Thaworn 346*, 10 Aug. 1955, Surat Thani, Ban Na San (**C**); *Thaworn 382*, 14 Aug. 1955, Surat Thani, Na San (**C**); *Thaworn 727*, 1 July 1956, Nakhon Si Thammarat (**C**); *Thaworn 909*, 17 Feb. 1957, Nakhon Si Thammarat (**C**); *Vacharapong 066*, 18 Feb. 1968, Chumphon, Tha Sae (**BK**); *Vanpruk 665*, March 1915, Trang (**BKF**, **E**, **K**); *Winit 1769*, 26 July 1926, Nan (**BK**, **C**, **K**); *Winit 1858*, 24 Feb. 1928, Chiang Mai (**BK**, **BM**, **K**).

Litsea variabilis Hemsl.

Kerr 5856, 17 April 1922, Phitsanulok, Nakhon Thai (**BK**, **BM**, **C**, **K**, **L**); *Kerr 20316*, 3 March 1931, Chaiyaphum, Nong Bua Daeng (**BK**, **BM**, **C**, **K**, **L**); *Kerr 20354*, 4 March 1931, Phetchabun

(**BK**, **BM**, **K**, **L**); *Maxwell 89-483*, 20 April 1989, Chiang Mai, Doi Chiang Dao (**AAU**, **L**); *Maxwell 89-536*, 29 April 1989, Chiang Mai, Doi Chiang Dao (**L**); *Maxwell 89-812*, 25 June 1989, Chiang Mai, Doi Chiang Dao (**L**); *Ngernsaengsaruay 213*, 7 Nov. 2002, Loei, Phu Luang (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Winit 1716*, 21 June 1926, Lampang (**BK**, **BKF**, **K**); *Winit 1840*, 4 June 1927, Lampang, Mae Yom (**BK**, **BKF**, **K**).

Litsea verticillata Hance

Beusekom & Geesink 3300, 22 Oct. 1971, Nakhon Ratchasima, Sakaerat (**BKF**, **C**, **K**, **L**); *Charoenchai 400*, 20 Aug. 1997, Nakhon Nayok, Khao Yai National Park (**CMU**); *Charoenphol, Larsen & Warncke 4369*, 31 Oct. 1970, Khao Yai, Nakhon Nayok, Pha Kluai Mai Waterfall (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Charoenphol, Larsen & Warncke 4424*, 1 Nov. 1970, Khao Yai (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Charoenphol, Larsen & Warncke 4492*, 3 Nov. 1970, Trend Camp near Pak Thong Chai, Eastern part of Khao Yai (**AAU**, **BKF**, **K**, **L**); *Hardial 596*, 2 Sept. 1967, Khao Yai (**BKF**, **K**, **L**); *Kerr 17814*, 26 Dec. 1929, Trat, Khao Kuap (**BK**, **BM**, **C**, **K**); *Larsen, Santisuk & Warncke 3309*, 11 Aug. 1968, Khao Yai (**AAU**, **BKF**, **C**, **E**, **K**, **L**); *Maxwell 01-374*, 4 Sept. 2001, Nakhon Nayok, Khao Yai National Park (**CMU**); *Ngernsaengsaruay 127*, 6 July 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 149*, *150*, *158*, 18 Aug. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 166*, 3 Sept. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 168*, 4 Sept. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 202*, *203*, 2 Oct. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 209*, 210, 211, 20 Oct. 2002, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Ngernsaengsaruay 257*, *258*, *259*, 24 Jan. 2003, Khao Yai (**BKF**, Herb. of the Department of Botany, Kasetsart University); *Phengklai 427*, 10 Dec. 1962, Nakhon Ratchasima (**BKF**, **K**, **L**); *Shimizu, Toyokuni, Koyama, Yahara & Santisuk 19540*, 8 Oct. 1979, Nakhon Nayok, Khao Yai, near Pha Kluai Mai Waterfall (**BKF**); 19559 (**AAU**, **BKF**); *Smitinand & Robbins 7483*, 6 Oct. 1962, Nakhon Nayok, Khao Yai (**BKF**, **C**); *Smitinand & Robbins 7519*, 7 Oct. 1962, Nakhon Nayok, Khao Yai (**BKF**, **C**); *Umpai 157*, 26 Sept. 1964, Khao Yai (**BK**).