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Source: *Novon*, Vol. 15, No. 4 (Nov., 2005), pp. 555-558

Published by: [Missouri Botanical Garden Press](#)

Stable URL: <http://www.jstor.org/stable/3393463>

Accessed: 06-03-2015 02:54 UTC

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A New Species of the Genus *Actinodaphne* with Four New Synonyms of the Genus *Litsea* (Lauraceae)

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ABSTRACT. Work in progress for the Lauraceae volume of the *Flora of China* has yielded one undescribed species and several new synonyms. In this contribution, a new species, *Actinodaphne menghaiensis* J. Li, is described from Yunnan, Southwest China, and its affinities are discussed. Four new synonyms are proposed: *Litsea garrettii* Gamble, *L. euosma* W. W. Smith, *L. atrata* S. Lee, *L. magnoliifolia* Yang & P. H. Huang for *L. maritabanica* (Kurz) Hooker f., *L. mollis* Hemsley, *L. salicifolia* (Nees) Hooker f., *L. semecarpifolia* (Nees) Hooker f., respectively. Lectotypes are designated for *Litsea garrettii* Gamble, *L. mollis* Hemsley, and *L. euosma* W. W. Smith.

Key words: *Actinodaphne*, China, Lauraceae, *Litsea*.

Lauraceae are a large tropical family of trees and shrubs with small and inconspicuous flowers, which has rendered the family inaccessible for the non-specialist. Although the Chinese species of Lauraceae have been reported in the *Flora Reipublicae Popularis Sinicae* (FRPS) (Li et al., 1984), the taxonomic treatments are incomplete and poorly understood because of the insufficient knowledge about infraspecific variation and distribution, as well as specific delimitations, and the entire family in China needs much work. During the preparation of the Lauraceae treatment for the *Flora of China*, a large number of Lauraceae specimens in KUN and the collections received on loan from various herbaria (E, K, IBSC, YUKU) have been examined. As a result, one previously undescribed species is presented here, and four synonyms are made. They are arranged in alphabetical sequence.

Actinodaphne menghaiensis J. Li, sp. nov.

TYPE: China. Yunnan: Jin-bo-a-ka village, Meng-a district, Meng-hai, in dense humid valley forest, 1500 m, 10 Sep. 1961, Y. H. Li 3603 (holotype, KUN). Figure 1.

Actinodaphne obovatae affinis, sed gemmis, ramulis foliisque glabris; fructibus minoribus, ad 2.5×1.5 cm; pedunculis fructiferis gracilioribus, ad 1 cm longis, ca. 2 mm in diam. differt.

Tree, 8 m tall; twigs terete, ca. 0.8–1.2 cm diam., glabrous; terminal buds sub-globose, brownish glabrous. Five to six leaves verticillate at the top of branchlets; lamina thin coriaceous, obovate or elliptic, 15–30(–40) \times 6–12(–15) cm, the base cuneate, the apex acuminate, both surfaces glabrous, lucid on the upper surface, pale green on the lower surface, triplinerved; midrib prominently raised on both surfaces; lateral veins 7 or 8 on each side, 2 basal lateral veins beginning at ca. 0.2–1.2(–1.5) cm of the leaf base, the parallelodromous tertiary veins slightly raised on the lower surface. Petioles 2–4(–6) cm long, glabrous. Flower unknown. Inflorescences racemiform, up to 4 cm long, with yellow-brown pubescence. Fruit ellipsoid, up to 2.5 cm long, 1.5 cm diam., becoming purple-red when mature; cupule flat, up to 1 cm diam.; fruit pedicel slender, up to 1 cm long, ca. 2 mm diam. Fruiting in September.

In the past, *Actinodaphne obovata* (Nees) Blume was erroneously supposed to be distributed in Northeast India, Southeast Tibet, South and Southeast Yunnan (Hooker, 1886; Li et al., 1984). After a careful study of the collection from South Yunnan, we have found that it is not the same as those from Northeast India, Southeast Tibet, and Southeast Yunnan that have rusty pubescence on the branchlets and leaves. In fact, *A. obovata* is distributed at both ends of the Tanaka-Line (Tanaka, 1954; Li & Li, 1997); the same distribution pattern can be seen in *Litsea chingpingensis* Yang & P. H. Huang (Li & Pai, 1983), *Dipterocarpus retusus* Blume (Li et al., 2002), and so on. Such a distribution pattern may be a result from the northward movement of the Burma-Malaya plate (Audley-Charles, 1987). The

NOVON 15: 555–558. PUBLISHED ON 12 DECEMBER 2005.

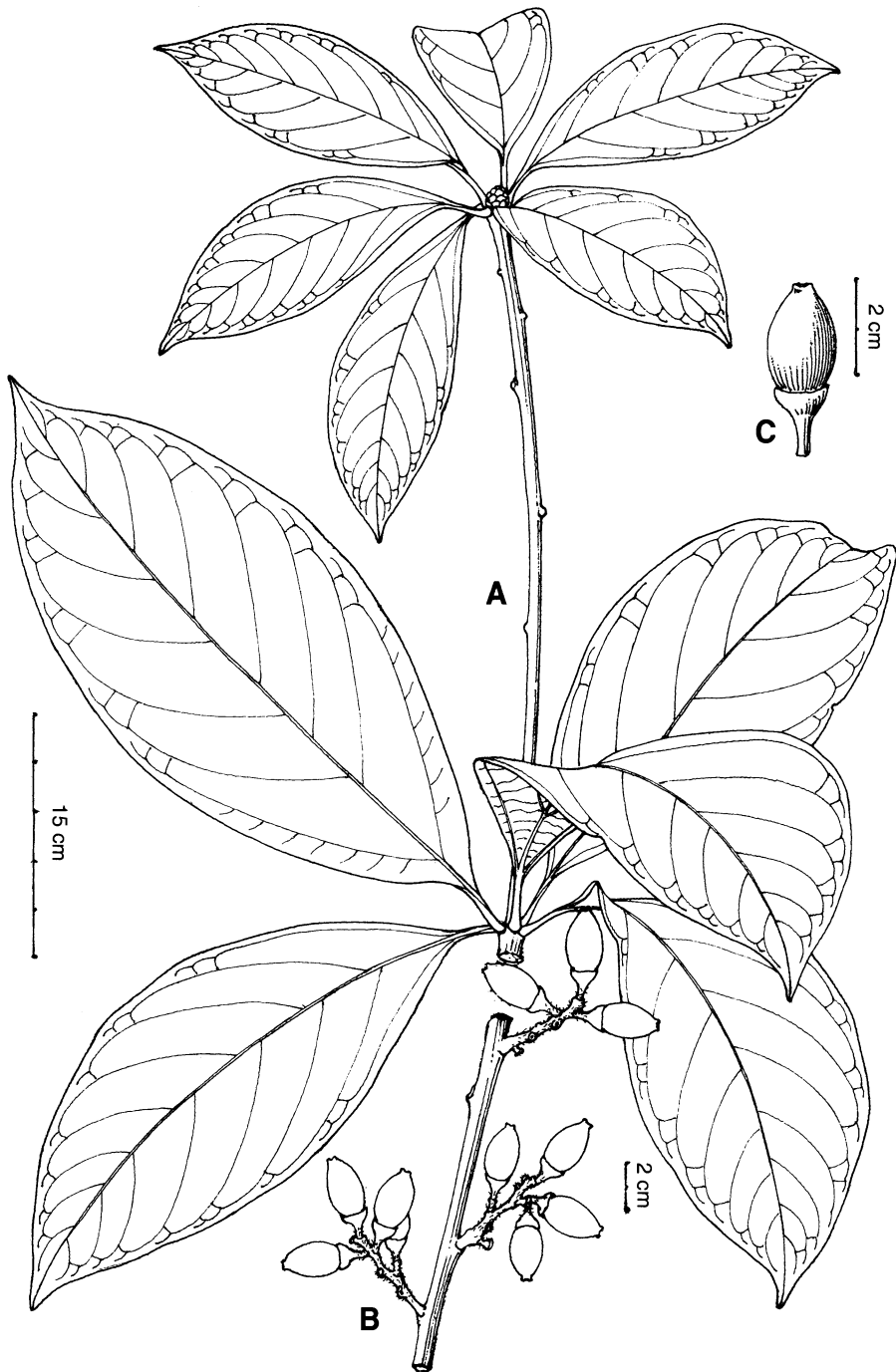


Figure 1. *Actinodaphne menghaiensis* J. Li, sp. nov. —A. Vegetative branch, with leaves. —B. A portion of the branch with three infructescences. —C. Fruit. Drawn from the type specimen, Y. H. Li 3603 by Xi-lin Wu.

species *Actinodaphne menghaiensis* from South Yunnan, as defined here, has a totally different floristic origin from *A. obovata*, which is from North-east India, Southeast Tibet, and Southeast Yunnan.

At present, *Actinodaphne menghaiensis* is known only from the type collection in Menghai, Yunnan, China. It resembles closely *A. obovata* and differs from the latter in having glabrous buds, branchlets,

and leaves, smaller fruits (up to 2.5×1.5 cm), as well as slender fruit pedicels (up to 1 cm long and 2 mm diam.).

Litsea martabanica (Kurz) Hooker f., Fl. Brit. India 5: 164. 1886. *Tetranthera martabanica* Kurz, For. Fl. 2: 301. 1877. TYPE: Burma. Tenasserim & Martaban, in the drier hill forest, 4000–6000 ft., Kurz (holotype, K).

Litsea garrettii Gamble, in Kew Bull. 204. 1913. Syn. nov. TYPE: [Thailand.] Siam, H. B. G. Garrett 63 (lectotype, designated here, K).

In 1972, Kostermans determined Edinburgh's specimens of *Litsea garrettii* collected from Yunnan, China, Myanmar, and Thailand as *L. martabanica*, considering that the former was a synonym of the latter. A study of the available collections of *L. garrettii* in K and KUN, including the syntypes, shows that this species has all the characters of *L. martabanica*, especially for the foliage indumentum and racemiform pseudo-umbels. We agree with Kostermans's treatment and regret that he did not publish his opinion during his life, and therefore publish the new synonymy here.

Litsea martabanica is distributed in Thailand, Myanmar, and South to Southwest Yunnan, China, 550–2500 m. It is more or less sympatric, overlapping in its range with *L. semecarpifolia* listed below. Such a distribution pattern shows that there is a close floristic relationship between Myanmar and South Yunnan, China, which may be the result of the northward movement of the Burma-Malaya plate (Audley-Charles, 1987).

H. B. G. Garrett 63 (K) is designated as a lectotype of *Litsea garrettii* Gamble for it is the only collection with staminate flowers among syntypes and the epithet is named after the collector.

Additional specimens examined (all specimens at KUN). CHINA. **Yunnan:** Menghai, C. W. Wang 73484, H. T. Tsai 5910403, K. M. Feng 14240, Sino-Russ. Exped. 003, P. Y. Chiu 56449, Y. H. Li 3628, P. I. Mao 7141; Jinghong, C. W. Wang 75500, K. M. Feng 14478; Mengla, H. T. Tsai 59–11094, C. J. Pei 59–9481, Y. H. Li 1098, W. T. Wang 10390; Jingdong, M. K. Li 561, C. Y. Wu 209, S. G. Xu 3407, S. Y. Bao 366; Simao, Chinese Forest Inst. L01488, P. I. Mao 5790; Menglian, Menglian Exped. 9580; Lincang, T. P. Zhu 009, J. S. Xing 366; Gengma, T. P. Zhu 312, Y. H. Li 2108, S. T. Li 805; Cangyuan, Y. H. Li 11843; Shuangjinag, J. S. Xing 941; Longling, H. T. Tsai 55790; Luxi, C. Chen 452, R. L. Xiong 580155; Ruili, S. Chow 528; Longchuan, G. D. Tao 13565; Fugong, H. T. Tsai 58903.

Litsea mollis Hemsley, in J. Linn. Soc. Bot. 26: 383. 1891, non *L. mollis* (Blume) Boerlage, in Handl. Fl. Ned. Ind. 3: 141. 1900. TYPE: China. Hupeh, A. Henry 3177 (lectotype, designated here, K).

L. euosma W. W. Smith, in Notes Bot. Gard. Edinburgh 13: 166. 1921. Syn. nov. TYPE: China. Yunnan, G. Forrest 9333 (lectotype, designated here, E).

On the basis of the descriptions, the differences between *Litsea euosma* and *L. mollis* are as follows: the former is characterized by ovate to elliptic leaves, acuminate apex, round base, sparse indumentum on lower surface, and 4 fasciculate pseudo-umbels; the latter by oblong leaves, acute apex, cuneate base, dense indumentum on lower surface, and 2 or 3 fasciculate pseudo-umbels. After checking the syntypes in K and E as well as a large number of collections in KUN, we consider that the differences are too overlapping to distinguish them. Traditionally, the specimens at KUN from tropical areas are determined as *L. euosma*, those from subtropical as *L. mollis*. After a careful study of these two species, we consider they are the same; the diagnostic characters for *L. euosma* fall in the range of *L. mollis*, and hence the new synonymy is proposed. *Litsea mollis* is distributed in South to Southwest China and North Vietnam, 200–2700 m.

A. Henry 3177 (K) is designated as the lectotype of *Litsea mollis* Hemsley, for it is the more complete collection among the three syntypes seen by the authors. G. Forrest 9333 (E) is designated as the lectotype of *L. euosma* W. W. Smith, for it is mentioned first by the describing author.

Additional specimens examined (all at KUN). CHINA. **Yunnan:** Jinping, K C. Wang 3, H. Q. Sha 101, J. X. Zhang 177, Y. C. Hsu 282, Sino-Russ. Exped. 1873; Pingbian, P. I. Mao 3478, Sino-Russ. Exped. 4495, K. M. Feng 4848; Xichou, S. Z. Wang 414, C. W. Wang 85969, C. A. Wu 7273; Hekou, K. H. Cai 998, K. M. Feng 21722; Mengla, Y. H. Li 771, C. J. Pei 59–9481; Jingdong, C. A. Wu 9106, P. Y. Chiu 53020, M. K. Li 3022, X. F. Deng 044; Shuangjiang, J. S. Xing 1046; Cangyuan, Y. H. Li 12232; Longling, H. T. Tsai 56672, C. Chen 619; Tengchong, C. Chen 301, W. C. Yin 60–1228, R. L. Xiong 580950; Luxi, R. L. Xiong 580241; Lianghe, R. L. Xiong 580861; Fugong, H. T. Tsai 54981; Gongshan, Q. Lin 790853, K. M. Feng 24240; Yangbi, Sino-Amer. Exped. 520. **Guangxi:** Rongshui, S. H. Chen 16688, T. C. Chen 797; Longzhou, S. H. Chen, 12845. **Guangdong:** Ruyuan, L. Teng 44158; Lianxian, P. C. Tam 60118; Yangshan, P. C. Tam 60290. **Jiangxi:** Anfu, J. S. Yue 3057; Xunwu, C. M. Hu 1249; Suichuan, S. K. Lai et al. 5523. **Hunan:** Ningyuan, P. C. Tsong 908; Xinning, L. H. Liu 15044. **Zhejiang:** Taishun, S. Y. Zhang 5543. **VIETNAM. Vinhphu:** Sino-Viet. Exped. 2041.

Litsea salicifolia (Nees) Hooker f., Fl. Brit. India 5: 167. 1886. *Tetranthera salicifolia* Nees, Pl. Asiat. Rar. 2: 66. 1831. TYPE: Himalayas, Wallich 2536 (lectotype, designated by J. D. Hooker, 1886: 167, K).

Litsea atrata S. Lee, in Acta Phytotax. Sin. 8(3): 195. 1963. Syn. nov. TYPE: China. Hainan: Po-ting Hisen, F. C. How 72739 (holotype, IBSC).

Litsea salicifolia, as accepted here, has wide distribution and large morphological variation, just as Hooker (1886: 168) stated “leaves very variable, pale brown or darker above when dry, smooth and usually obscurely reticulated above, nerves beneath strong with faint nervules.” Characters for *Litsea atrata* (Lee, 1963) are just in the range of *L. salicifolia*, especially for *L. salicifolia* var. *laurifolia* Hooker f.; the differences in leaf shape and color are rather subtle. We decided to accept this species in its broad sense and conclude that the two species are the same; therefore the new synonymy is proposed. *Litsea salicifolia* is distributed in India, Nepal, Sikkim, Bangladesh, Myanmar, South China, and North Vietnam, 200–1200 m.

Additional specimens examined (all at KUN). CHINA. **Yunnan:** Pingbian, H. T. Tsai 61373, P. I. Mao 3972, Sino-Russ. Exped. 3678; Jinping, Sino-Russ. Exped. 2554, Luchun Exped. 1025; Luchun, Luchun Exped. 288; Funing, C. W. Wang 89685; Malipo, S. Z. Wang 818; Jinghong, Sino-Russ. Exped. 9803; Mengla, Y. H. Li 18644; Cangyuan, Y. H. Li 11673. **Guizhou:** Luodian, S. Guizhou Exped. 774; Anlong, Anshun Exped. 88; Xingyi, Z. S. Zhang 6144. **Guangxi:** Longzhou, S. H. Chen 11629; Fusu, S. H. Chen 12157; Bose, Z. T. Li 601024. VIETNAM. **Ninhbinh:** Sino-Viet. Exped. 2363.

Litsea semecarpifolia (Nees) Hooker f., Fl. Brit. India 5: 165. 1886. *Tetranthera semecarpifolia* Nees, Pl. Asiat. Rar. 3: 31. 1832. TYPE: Burma. Wallich 6345B (lectotype designated by J. D. Hooker, 1886: 165, K).

L. magnoliifolia Yang & P. H. Huang, in Acta Phytotax. Sin. 16(4): 52, pl. 3, f. 2. 1978. Syn. nov. TYPE: China. Gengma, Yunnan Univ. Exped. 302 (holotype, YUKU).

After comparison of the specimens from Myanmar with those from China, there is no doubt that the two species are the same, and hence the new synonym is made. *Litsea semecarpifolia*, as accepted here, is distinguished by its elliptic leaves (11–20 × 5–10 cm), with obtuse apex and cuneate base; its racemiform pseudo-umbels on axillary shortened branchlets; perianth segments 8; 12 to 14 fertile stamens; and cup-shaped cupules. Six perianth segments are typically seen in *Litsea*. The

presence of eight perianth segments in *Litsea semecarpifolia* is unusual within the genus. Four perianth segments have been reported in *L. khasyana* by Meissner (in DC. Prodr. XV. 1: 185. 1864); with no perianth segments seen in *L. glutinosa* by J. D. Hooker (in Fl. Brit. Ind. 5: 157. 1886). *Litsea semecarpifolia* is distributed in South to Southwest Yunnan, China, Myanmar, and East Bangladesh, 740–1400 m.

Additional specimens examined. CHINA. **Yunnan:** Gengma, Y. H. Li 2133 (KUN); Jinghong, C. W. Wang 79156 (KUN), Chinese Forest Inst. Exped. 101614 (KUN). MYANMAR. Maymyo, Bhamo, Subonchaung to Kunbaung, J. H. Luce 5285 (E); C. Gilbert Rogers 667 (E).

Acknowledgments. We thank the curators of E, IBSC, K, KUN, and YUKU for their kind help and Xi-lin Wu for his skillful drawing. Thanks are also due to Jens Rohwer and Henk van der Werff for their helpful comments. Jie Li acknowledges grant support from YNSF (2001C0008R), CASTALENTS (20010713093959), and CEF (498) in China

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