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The Lauraceae of Thailand: one new species and two new combinations

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ABSTRACT

One new species of Lauraceae from Thailand is described, *Alseodaphne hirsuta*, and two new combinations are made, *Cinnamomum thailandicum* and *Syndiclis siamensis*.

KEYWORDS: *Alseodaphne*, *Cinnamomum*, *Syndiclis*, *Temmodaphne*.

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INTRODUCTION

The species of the Lauraceae have been revised for the Flora of Thailand resulting in the recognition of 159 species in 19 genera. The family is otherwise taxonomically not well known in the region. The first systematic study for Indochina was done by H. Lecomte who wrote one major paper (Lecomte, 1913) along with his account of the family in the fifth volume of the Flore Générale de l'Indo-Chine (Lecomte, 1914). Since then, a small number of botanists have worked on the family, the most important being Liou Ho who published his PhD thesis on the Lauraceae of Indochina and South China in 1932 (Liou Ho, 1932). This work includes many species found in Thailand. Important contributions were also made by Caroline Allen, who wrote several papers (Allen, 1938, 1939, 1941) mainly on Chinese Lauraceae, but they also contain important contributions to our knowledge of the family in Thailand.

During the course of his work on the Lauraceae for the Flora of Thailand, Kostermans described 34 new species and made five new combinations in a series of papers (Kostermans, 1973a, 1973b, 1974, 1975). For Thailand he recognized 17 genera and 125 species, which he thought where at least half the true number of species to occur in the country. In the end, his account was never published but a copy of the manuscript is kept in the Kostermans archives at Naturalis Biodiversity Center, Leiden, The Netherlands. More recent, and important for understanding Thai Lauraceae, are the accounts in the Flora of China (Li *et al*., 2008) and the Flora of Vietnam (Nguyễn Kim Đào, 2017). There have also been several recent regional revisions, in particular those for the genera *Actinodaphne* Nees by Tanaros *et al*. (2010), *Beilschmiedia* Nees by Tetsana (2005) and de Kok (2021), *Cryptocarya* R.Br. by de Kok (2015), and *Litsea* Lam. by Ngernsaengsaruay *et al.* (2011). Several new species have recently been described in the genera *Cryptocarya* R.Br. (Zhang *et al*., 2020), *Machilus* Rumphius ex Nees (Mase *et al*., 2020), *Cinnamomum* Schaeff and *Lindera* Thunb. (Tagane *et al*. 2015).

The aim of this paper is to describe a new species discovered during this research and to make two new necessary taxonomic combinations. For all other species in the region, full descriptions, keys and notes on distribution and ecology will be given in the forthcoming account in the Flora of Thailand.

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MATERIALS AND METHODS

The revisions for the account for the Flora of Thailand are based on herbarium collections that are housed at BO, BK, BKF, BM, E, K, KEP, L, P, QBG and SING. In the species description, all measurements and colour descriptions are from mature material; all measurements and information about the position of the veins relative to the remainder of the leaf are taken from dried material. All collections cited have been seen by the author. Type material which was not available at institutions visited by the author was studied online via JSTOR (https://plants.jstor.org/plants) and accessed in October 2023. For the conservation assessment, the Area of Occupancy (AOO) and Extent of Occurrence (EOO) were calculated using the standard settings of the GeoCAT (http://geocat.kew.org) from October 2023.

TAXONOMIC TREATMENT

DESCRIPTION

Alseodaphne hirsuta de Kok, **sp. nov.**

This species differs from the morphologically similar *Alseodaphne birmanica* Kosterm. by having larger leaves (21–23 × 9–12.5 cm vs 11–21 × 3.5–9 cm in *A. birmanica*) with an acuminate apex (obtuse or only shortly acuminate in *A. birmanica*) and 15–20 pairs of secondary veins (8–10 pairs of secondary veins in *A. birmanica*); velutinous stout twigs, 6.5–7 mm thick (twigs glabrous and 2–3.5 mm thick in *A. birmanica*); and velutinous terminal leaf buds (densely hairy in *A. birmanica*). Type: Thailand, Trang, Khao Chong, May 2001, *A. Sinbumroong & S. Davies 57* (holotype **BKF** [SN159832]). Fig. 1.

Tree 18–25 m tall, dbh c. 60 cm. *Twigs* stout, 6.5–7 mm thick, round in cross-section, velutinous; hairs reddish to yellowish, erect; terminal leaf bud ovoid, 4–8 mm long, apex acute, velutinous. *Leaves* closely spirally arranged, clustered at ends of twigs; blade elliptic to oblanceolate, 21–23 × 9–12.5 cm, apex acuminate, base cuneate, thinly leathery; secondary veins 15–20 pairs, tertiary veins scalariform; upper surface sparsely hairy, densely hairy on major veins, midrib sunken, secondary veins raised, tertiary veins distinct; lower surface glaucous, sparsely hairy, densely hairy on major veins, tertiary veins distinct; hairs erect, reddish; petiole half-terete 2–3.8 cm long, velutinous, not swollen. *Inflorescences* 7–12 cm long, axillary, velutinous; bracteoles elliptic ca 3 mm long, velutinous, caducous. *Flowers*: male flowers unknown; female flowers with perianth lobes elliptic, glabrous, apex rounded, brown-yellow, outer lobes slightly more than half size of inner ones; outer ones 0.6–1 × 1–1.5 mm; inner ones 1–1.3 × 1.4–1.5 mm; ovary ca 1 mm long, glabrous, style ca 0.6 mm long, stigma club shaped. *Fruit* ellipsoid, 22–24 × 16–17 mm, apex rounded, glabrous, bright red when mature; cupule ca 9.6 mm diameter, margin lobed; lobes linear, ca 2 mm long, apex acuminate, glabrous but with a tuff of hairs at apex; stalk swollen, up 6.5 mm diameter, glabrous.

Thailand.— PENINSULAR: Ranong [Rak Sa Warin Arboretum, 6 Sept. 1984, *Nanakorn WN 640* (**BKF** 2 sheets)], Trang [Khao Chong, May 2001, *Sinbumroong & Davies 57* (**BKF**); Khao Chong, May 1969, *SP* [*S. Phusomsaeng*] *s.n.* (**BKF**)].

Distribution.— Endemic.

Ecology.— Growing in lowland seasonal wet evergreen rain forest, between 50–125 m altitude. Flowering in May; fruiting in September.

Etymology.— The epithet refers to the hairy twigs, terminal leaf buds and leaves of this species.

Provisional conservation assessment.— Endangered (EN B2ab(i,ii,iii)). This species is only known from three specimens, two from Khao Chong, Trang and one from the Rak Sa Warin Arboretum, Ranong (AOO = 8 km² & EOO < 5000 km²). Only one locality is in a protected area and the remaining natural vegetation in both Trang and Ranong is under threat of deforestation and habitat destruction. Given these threats and the fact that it is only known from two localities in a small area, it is considered Endangered.

Notes.— The morphological generic distinction between *Alseodaphne* Nees and *Alseodaphnopsis* H.W.Li & J.Li is fluid at the moment. The genus *Alseodaphnopsis* was proposed mainly based on DNA evidence and some morphological characters (Mo *et al*., 2017). The set of morphological characters has since been augmented by van der Werff (2019) (see Table 1). Given that this new species has unisexual flowers, stout twigs and large fruits it may be better placed in the genus *Alseodaphnopsis*. However, all other characters (short inflorescence, slender petiole, terminal leaf bud not perulate) rather place it within

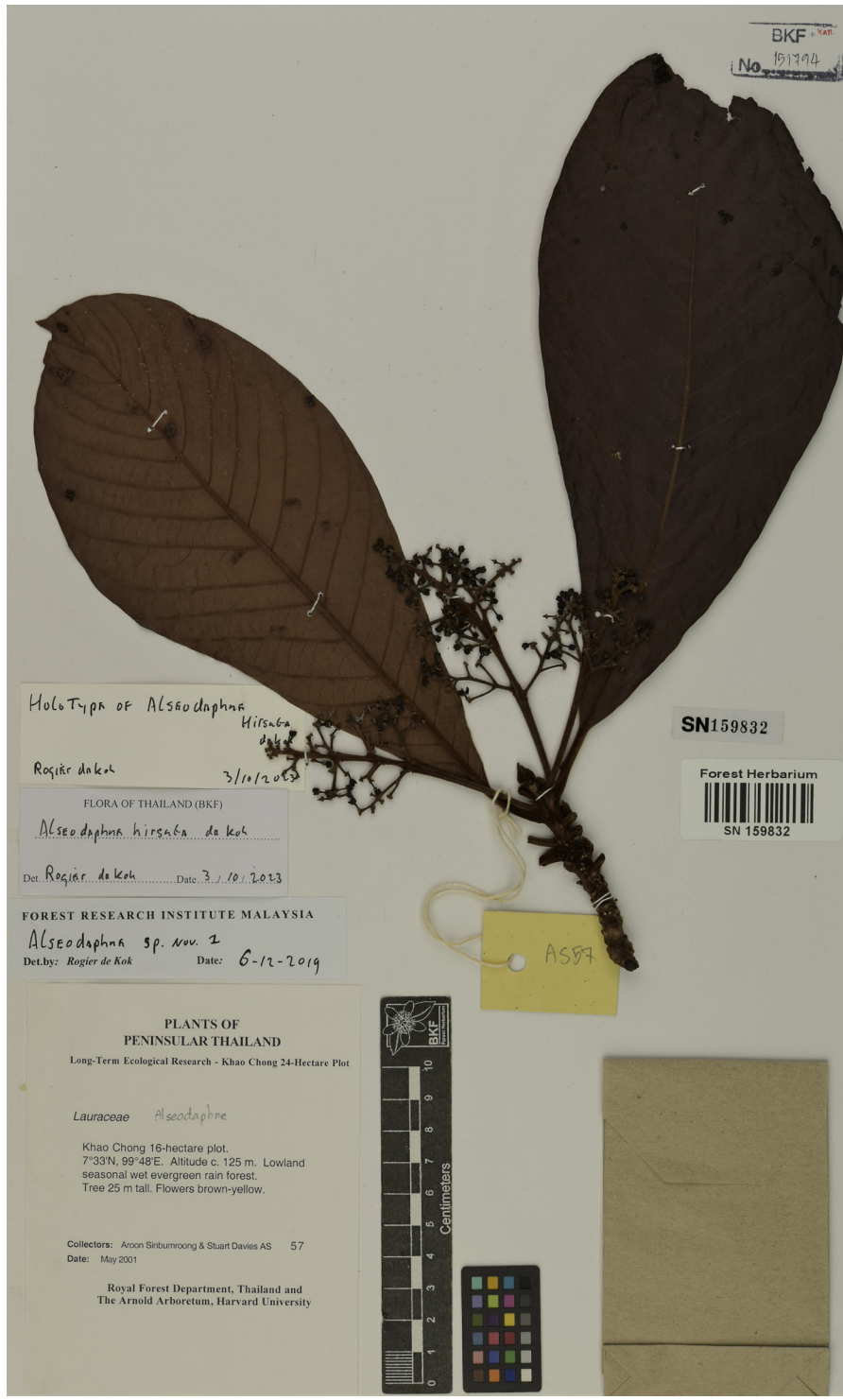

Figure 1. Holotype of *Alseodaphne hirsuta* de Kok. (*Sinbumroong & Davies 57*, **BKF**).

Table 1. Differences between *Alseodaphne s.str*. and *Alseodaphnopsis*.

Characters	*Alseodaphne s.str.*	*Alseodaphnopsis*
Twigs	1.5–8.6 mm diam.	(1.2–)4.2–7 mm diam.
Terminal leaf buds	Not or rarely perulate	Perulate
Petiole	Slender	Slender to robust
Midrib upper surface	Sunken, rarely raised	Raised or sunken
Flower	Bisexual	Unisexual
perianth lobes	Usually deciduous in young fruit	± Persistent at least in young fruit
Inflorescence size	2.8–14 cm long, 1–2 orders of branching, few-flowered	(3.5–)10–35 cm long, 3–4 orders of branching, many-flowered
Fruit size	13–22(–30) × 10–22(–45) mm	(12–)20–50 × (9–)20–40 mm

Alseodaphne. Given the current uncertainty about the generic delimitation, I have decided to place it in the more species-rich genus and the only one that is currently recorded from Peninsular Thailand.

NEW COMBINATIONS

1. Cinnamomum thailandicum (Kosterm.) de Kok, **comb. nov.**

Temmodaphne thailandica Kosterm., Nat. Hist. Bull. Siam Soc., 24(3–4): 479 (Jan. 1973); Kostermans, Bot. Tidsskr. 67(4): 319 (Aug. 1973); Rohwer in Kubitzki *et al*., Fam. Gen. Vasc. Pl. 2: 381 (1993). Type: [Thailand, Trat], Baw Rai, Kerat, 19 Nov. 1924, *Kerr 9472* (holotype **BM** [BM000950955]; isotypes **BK** [257964], **K** [K000350945]).

The monotypic genus *Temmodaphne* Kosterm. was described as endemic to Southeastern Thailand (Kostermans, 1973c) but has since been treated as a synonym of *Cinnamomum* (see Rohwer, 1993). However, I cannot find any record that the new combination for this species has previously been made.

2. Syndiclis siamensis (Kosterm.) de Kok, **comb. nov.**

Potameia siamensis Kosterm. Nat. Hist. Bull. Siam Soc., 25(3–4): 243 (1975 [‘1974’]). Type: Thailand, Nakhon Si Thammarat, Khao Luang, 27 Jan. 1966, *Hansen & Smitinand 12131* (holotype **C** [no barcode]; isotypes **BKF** [SN031835], **E** [E00765319], **K** [K000778484], **L** [L0036890, L0036891])

The genus *Syndiclis* Hook.f. is often included, based on flower morphology, in the Madagascan genus *Potameia* Thouars. However, recent studies using molecular data, a study of flower morphology (four staminodes per flower in *Syndiclis*, while *Potameia* only has two), and a study of leaf anatomy, have all indicated that *Syndiclis* is best kept separate from *Potameia* (see Li, 1979; Yang *et al*., 2012; Zeng *et al*., 2017). The new combination is made here.

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