KEW BULLETIN (2022) 77:905–913
DOI 10.1007/S12225-022-10059-8

ISSN: 0075-5974 (print)
ISSN: 1874-933X (electronic)

Garcinia siripatanadilokii (Clusiaceae), a new species from Peninsular Thailand

Chatchai Ngernsaengsaruay[1,2], Nattanon Meeprom[3,4], Weereesa Boonthasak[1], Voradol Chamchumroon[5], Aroon Sinbumroong[6], Paweena Wessapak[1] & Sutee Duangjai[7]

Summary. *Garcinia siripatanadilokii* Ngerns., Meeprom, Boonth., Chamch. & Sinbumr. (Clusiaceae), a new species discovered from tropical lowland evergreen rain forest, Peninsular Thailand, is described. A detailed morphological description and illustrations of the species are provided, along with information on recognition, distribution, specimens examined, habitat, conservation assessment, phenology, etymology, vernacular name and uses.

Key Words. *Garcinia* sect. *Brindonia*, dioecious plant, edible fruits, *Garcinia lanceifolia*, Khao Chong, plant taxonomy, species nova, yellow latex.

Introduction

Garcinia L. is a group of dioecious, sometimes polygamo-dioecious, evergreen trees, occasionally shrubs and the largest genus in the Clusiaceae Lindl. (Guttiferae Juss.). The genus consists of 403 accepted species, and is distributed throughout the tropics and subtropics (POWO 2022) with centres of diversity in Southeast Asia and Madagascar (Sweeney & Rogers 2008). In Asia, *Garcinia* is most diverse in the Malesian region but also spreads north into southern China, west to India and east to the Micronesian islands (Nazre *et al.* 2018). Previous studies on *Garcinia* revealed that the Malay Peninsula had c. 60 species (King 1890; Ridley 1922; Kochummen & Whitmore 1973; Whitmore 1973), India 40 species (Maheshwari 1964; Singh 1993; Srivastava 1994; Sabu *et al.* 2013; Sarma *et al.* 2016; Shameer *et al.* 2017, 2021), Indo-China 34 species (Gagnepain 1943), China 20 species (Li *et al.* 2007) and Java 8 species (Backer & Bakhuizen van den Brink 1963).

In Thailand, 20 species of the genus *Garcinia* were enumerated by Craib (1925), the northern region had 6 species (Gardner *et al.* 2000), and the peninsular region had 23 species (including 5 unidentified species) (Gardner *et al.* 2015). In 2016 and 2022, Ngernsaengsaruay & Suddee described two new species: *G. nuntasaenii* from north-eastern Thailand and *G. santisukiana* from eastern Thailand (Ngernsaengsaruay & Suddee 2016, 2022). In 2022 Ngernsaengsaruay *et al.* described *G. dumosa* King as a new record from Peninsular Thailand (Ngernsaengsaruay *et al.* 2022).

Garcinia is characterised by a dioecious habit, the plant sometimes apparently polygamo-dioecious; yellow, pale yellow, white, cream or clear latex secreted from cut boles, twigs, leaves and fruits; decussate leaves with scattered black or brown gland dots, or interrupted wavy lines of differing lengths; 4- or 5-merous flowers; many to numerous stamens, always united in a bundle at the centre of the flowers: 4 or 5 bundles, distinctly or weakly 4-lobed, 4-angled, a column or a ring; fruits berries, and seeds usually with thick or thin sarcotesta (Ngernsaengsaruay *et al.* 2022).

A taxonomic revision of the genus *Garcinia* has recently been undertaken by the first author as part of the *Flora of Thailand*. A. F. G. Kerr first found and collected specimens of a *Garcinia* with yellow fruits on 14 March 1928 from evergreen forest, Khlong Ton, Satun Province (originally labelled "*Garcinia* sp.", C. Ngernsaengsaruay identified this as *G. gracilis* Pierre, 2 June 2011). Mr Sarmrong then found and collected specimens of a *Garcinia* species with young fruits in Jan. 1969 from evergreen forest, Khao Chong, Trang Province (originally labelled "*G.* cf. *rostrata*"). Dr Chawalit Niyomdham then collected specimens of this species with yellow fruits (originally labelled "*G.* cf. *urophylla*") in May 2001 from Sirindhorn Waterfall, Narathiwat Province. Mr Pachok Puudjaa and Mr Chandee

Accepted for publication 18 August 2022. Published online 14 October 2022

[1] Department of Botany, Faculty of Science, Kasetsart University, Chatuchak, Bangkok, 10900, Thailand. e-mail: fsciccn@ku.ac.th
[2] Biodiversity Center Kasetsart University (BDCKU), Bangkok, 10900, Thailand.
[3] School of Biological Sciences, University of Reading, Reading, RG6 6AS, UK.
[4] Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK.
[5] Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation, Bangkok, 10900, Thailand.
[6] Protected Area Regional Office 4, Department of National Parks, Wildlife and Plant Conservation, Surat Thani, Thailand.
[7] Department of Forest Biology, Faculty of Forestry, Kasetsart University, Bangkok, 10900, Thailand.

Hemrat collected specimens with mature and ripe fruits (originally labelled "*G. urophylla* Scort. ex King") in Aug. 2009 from evergreen rain forest, Hala-Bala Wildlife Sanctuary, Waeng Distr., Narathiwat Province. Dr Voradol Chamchumroon *et al.* then collected specimens with ripe fruits (originally labelled "*Garcinia* sp.", identified by H. Toyama as *G. lanceifolia* Roxb.) in Dec. 2011 from evergreen forest, near the 24-ha long-term ecological research plot, Khao Chong, Na Yong Distr., Trang Province. During field work with Mr Nattanon Meeprom and Assist. Prof. Dr Sutee Duangjai, in July 2016 we collected specimens with a few ripe fruits from tropical lowland evergreen rain forest, near the 24-ha long-term ecological research plot, Khao Chong, Chong Subdistr., Na Yong Distr., Trang Province, but specimens were lost (photos were taken by C. Ngernsaengsaruay). The first author and others then collected specimens with young fruits in March 2018 from the same place. The first author and colleagues then collected specimens with female flowers, young, mature and ripe fruits in Feb. 2022 and March 2022 from Khao Chong Botanical Garden, Chong Subdistr., Na Yong Distr., Trang Province (Mr Preecha Puttarak collected a living plant from the natural habitat of Khao Chong and cultivated it in the nursery of Khao Chong Botanical Garden). From these, we selected the complete and well-preserved specimen *C. Ngernsaengsaruay, N. Meeprom, W. Boonthasak, J. Jarernrattawong & P. Puttarak* G26-18022022 as the holotype and isotypes, as it is in the best condition. These specimens did not match any existing species in Thailand or the surrounding regions and are described here as new to science.

Materials and Methods

The collected specimens were examined by consulting taxonomic literature (e.g. King 1890; Ridley 1922; Kochummen & Whitmore 1973; Whitmore 1973; Gardner *et al.* 2015), and by comparing with herbarium specimens deposited in the following herbaria AAU, BK, BKF, BM, C, CMUB, K, P, PSU, QBG, SING, and those included in the digital herbarium databases of AAU (https://www.aubot.dk/search_form.php), BM (https://www.nhm.ac.uk/our-science/collections/botany-collections.html), E (https://data.rbge.org.uk/search/herbarium/), K (http://www.kew.org/herbcat), JSTOR (https://plants.jstor.org/), L (https://bioportal.naturalis.nl/) and P (https://science.mnhn.fr/institution/mnhn/collection/p/item/search) were also examined. All acronyms follow Thiers (2022, continuously updated). The morphological characters, distribution, habitat, phenology and uses were described from our observations during field work and from label information of the specimens examined. The assessment of conservation status was performed following the IUCN Red List Categories and Criteria (IUCN Standards and Petitions Committee 2022) for a preliminary assessment of the conservation category in combination with GeoCAT analysis (Bachman *et al.* 2011) and field information. The calculation of Extent of Occurrence (EOO) and Area of Occupancy (AOO) are based on GeoCAT (http://www.geocat.kew.org).

Taxonomic Treatment

Garcinia siripatanadilokii *Ngerns., Meeprom, Boonth., Chamch. & Sinbumr.*, **sp. nov.** Type: Thailand, Trang Province, Khao Chong Botanical Garden, Chong Subdistr., Na Yong Distr., c. 60 m alt. (cultivated), small tree 2 m tall, with female flowers and young, mature and ripe fruits, 18 Feb. 2022, *C. Ngernsaengsaruay, N. Meeprom, W. Boonthasak, J. Jarernrattawong & P. Puttarak* G26-18022022 (holotype BKF!, dry and spirit collections; isotypes K!, QBG!).

http://www.ipni.org/urn:lsid:ipni.org:names:77304120-1

Shrub or small evergreen tree, 2 – 4 m tall, 7 – 15 cm girth; latex yellow, sticky; branches decussate, horizontal; branchlets 4-angular, dark brown. *Bark* scaly, dark brown; inner bark pale yellow. *Terminal bud* concealed between the bases of the uppermost pair of petioles. *Leaves* decussate; lamina elliptic or oblong-elliptic, 6 – 13.3 × 2.6 – 4.7 cm, apex caudate or acuminate, base slightly attenuate, margin undulate, subcoriaceous, slightly bullate, shiny dark green above, paler below, glabrous on both surfaces, with a few scattered black gland dots below, sometimes on both surfaces, midrib raised above and below, secondary veins 4 – 9 pairs, curving towards the margin connected in distinct loops and united into an intramarginal vein, flattened above, slightly raised below, with intersecondary veins, veinlets finely reticulate, distinctly on both surfaces; petiole 4 – 8 mm long, 1 – 1.7 mm in diam., grooved above, twisted, glabrous, with a small basal appendage clasping the branch; young leaves shiny red, greenish-red, turning pale green and petiole pale green or greenish-red; fresh leaves crispy when crushed; leaves turning yellow and falling off. *Flowers* unisexual, plants dioecious, 4-merous, sepals and petals decussate, concave, glabrous. *Male flowers* not seen. *Female flowers* terminal, solitary, 0.7 – 1 cm in diam., fully opened flowers with an apical opening; bracts 4, decussate, pale green, turning pale yellow, caducous, longer pair lanceolate, 3 – 5 × 0.8 – 1.3 mm, apex acute, shorter pair narrowly triangular or lanceolate, 1.5 – 3 × 0.8 – 1.2 mm, apex acute; pedicel pale green, turning pale yellow, 2.5 – 4 mm long, 1.5 – 2 mm in diam. glabrous; sepals 4, pale yellow, coriaceous, suborbicular, 4.5 – 7 × 4 – 6.5 mm, the outer pair slightly smaller than the inner pair, apex rounded; petals 4, pale yellow, coriaceous, suborbicular, 5.5 – 7.5 × 5 – 7 mm, subequal, apex rounded; staminodes 4 – 7; filaments 1 – 1.5 mm long, basally united in a number of bundles surrounding the base of ovary but distally

free; anthers c. 0.5 × 0.5 – 0.8 mm; pistil mushroom-shaped (fungiform), 3 – 4 mm long; ovary pale green, depressed subglobose, 2.8 – 3.5 mm in diam., very shallowly lobed or indistinctly lobed, 8 – 11-locular; stigma creamy white, sessile, convex, 3 – 4.5 mm in diam., radiate, shallowly 8 – 11-lobed, papillate. *Fruit* a berry, subglobose or depressed globose, 2.7 – 3.8 × 2.8 – 4.5 cm, usually asymmetrical, not lobed (very shallowly lobed or indistinctly lobed in young fruits), apex usually concave, green, greenish-yellow, turning bright yellow when ripe, glabrous, glossy, pericarp 4 – 6.5 mm thick, cut fruits with sticky, yellow latex; persistent stigma dark brown, flattened, 5 – 6 mm in diam., radiate, shallowly 8 – 11-lobed, papillate; persistent sepals pale green, greenish-yellow, turning pale yellow, larger than in flowering material; fruiting stalk 2 – 3.5 mm long, 2 – 3.5 mm in diam., colour same as persistent sepals. *Seeds* 1 – 4 or often aborted, brown, compressed, reniform, 1.2 – 1.5 cm × 6 – 9 mm, 2.7 – 3.8 mm thick, obtuse at both ends, with white sarcotesta. Figs 1 – 3.

RECOGNITION. *Garcinia siripatanadilokii* is similar to *G. lanceifolia* in its habit (shrub or small tree), 4-merous flowers, sepals and petals decussate and concave, stigma radiate, shallowly lobed, papillate, fresh leaves crispy when crushed, fruits and leaves have a sour taste. Differences between these two related species are shown in Table 1.

DISTRIBUTION. Known only from Peninsular Thailand: Khao Chong, Trang Province, Khlong Ton, Satun Province and Hala-Bala Wildlife Sanctuary, Narathiwat Province, but to be expected in Peninsular Malaysia (Map 1). *Garcinia lanceifolia* is distributed from India (Assam), Bangladesh (Chittagong hills), Myanmar to Indochina. In Thailand, this species is known from north-eastern (Bueng Kan), south-western (Kanchanaburi), south-eastern (Chachoengsao, Rayong, Chanthaburi, Trat) and peninsular (Ranong, Surat Thani, Phangnga).

ADDITIONAL SPECIMENS EXAMINED. **THAILAND**. **PENINSULAR**. Trang [Khao Chong, in evergreen forest, shrub 3 m tall, fruits green, 30 Jan. 1969 [as *Garcinia* cf. *rostrata*], *Sarmrong* (*S. P.*) 35 (BKF!, C!); near 24-ha long-term ecological research plot, Khao Chong (information from Dr Voradol Chamchumroon) (originally "Ton Plio Waterfall, Na Yong Distr., in evergreen forest, 103 m alt." on the label), tree c. 4 m high, fruits yellow, 5 Dec. 2011 (as *Garcinia* sp., H. Toyama then identified as *G. lanceifolia*, 12 May 2019), *V. Chamchumroon, N. Suphuntee, S. Sirimongkol & J. S. Strijk* 5217 (BKF!); near 24-ha long-term ecological research plot, Khao Chong, Chong Subdistr., Na Yong Distr., in tropical lowland evergreen rain forest, 125 m alt., small tree 2.5 m tall, young fruits green, 17 March 2018, *C. Ngernsaengsaruay, N. Meeprom, P. Wessapak & W. Boonthasak* G25-17032018 (BKF!, dry and spirit collections, QBG!); Khao Chong Botanical Garden, Chong Subdistr., Na Yong Distr., c. 60 m alt. (cultivated), small tree 2 m tall, with female flowers and young, mature and ripe fruits, 8 March 2022, *C. Ngernsaengsaruay, W. Boonthasak, P. Sutthaporn, J. Jarernrattawong & P. Puttarak* G30-08032022 (BKF!, dry and spirit collections, QBG!)]; Satun [Khlong Ton, in evergreen forest, c. 200 m alt., small tree, fruits yellow, 14 March 1928 (as *Garcinia* sp., C. Ngernsaengsaruay then identified as *G. gracilis*, 2 June 2011), *A. F. G. Kerr* 14580 (BM!, K!)]; Narathiwat [Sirindhorn Waterfall, 150 m alt., shrub 2 m high, fruits yellow, 8 May 2001 (as *G.* cf. *urophylla*), *C. Niyomdham* 6495 (BKF!); Hala-Bala Wildlife Sanctuary, Waeng Distr., shady evergreen rain forest, 60 m alt., shrub c. 3 m high, fruits green, yellow when ripe, 25 Aug. 2009 (as *G. urophylla*), *P. Puudjaa & C. Hemrat* 1530 (BKF!)].

HABITAT. In tropical lowland evergreen rain forest, 50 – 200 m alt.

CONSERVATION STATUS. This species is known only from three localities and three provinces in Peninsular Thailand. A small number of mature individuals were found in each locality. It has a relatively small Extent of Occurrence (EOO of 4,918.60 km^2) and a small Area of Occupancy (AOO of 12 km^2). We therefore consider the conservation assessment as Endangered [EN B1B2ab(ii, iv, v)].

PHENOLOGY. Flowering and fruiting more than once, flowering October to July; fruiting December to August.

ETYMOLOGY. The specific epithet and Thai name are in honour of Dr Somkid Siripatanadilok, the former Associate Professor of the Department of Forest Biology, Faculty of Forestry. He taught the forest biology component of courses in field forest biology (in Peninsular Thailand, Khao Chong Botanical Garden is one of several study areas of the course), anatomy of trees, plant tissue culture and research techniques in forest biology (plant microtechniques) when the first author was an undergraduate student and a graduate student at Kasetsart University. He encouraged and supported the first author to work in the laboratory for plant tissue culture as an undergraduate student (1994 – 1997). He was the former co-advisor of the first author in his master's degree (1997 – 2000). He was a superb and a brilliant teacher, actively involved in many aspects of forest science in Thailand.

VERNACULAR NAME. Som Kaeo Somkid (ส้มแก้วสมคิด) (suggested here); Som Kaeo (ส้มแก้ว) (Satun) (from *A. F. G. Kerr* 14580).

USES. The ripe fruits are edible. The pericarp, sarcotesta, young shoots, leaves and flowers have a sour taste. It is suitable for cultivation as an ornamental.

NOTES. *Garcinia siripatanadilokii* belongs to *Garcinia* sect. *Brindonia* (Thouars) Choisy with *Garcinia lanceifolia*. The section is characterised by the follow-

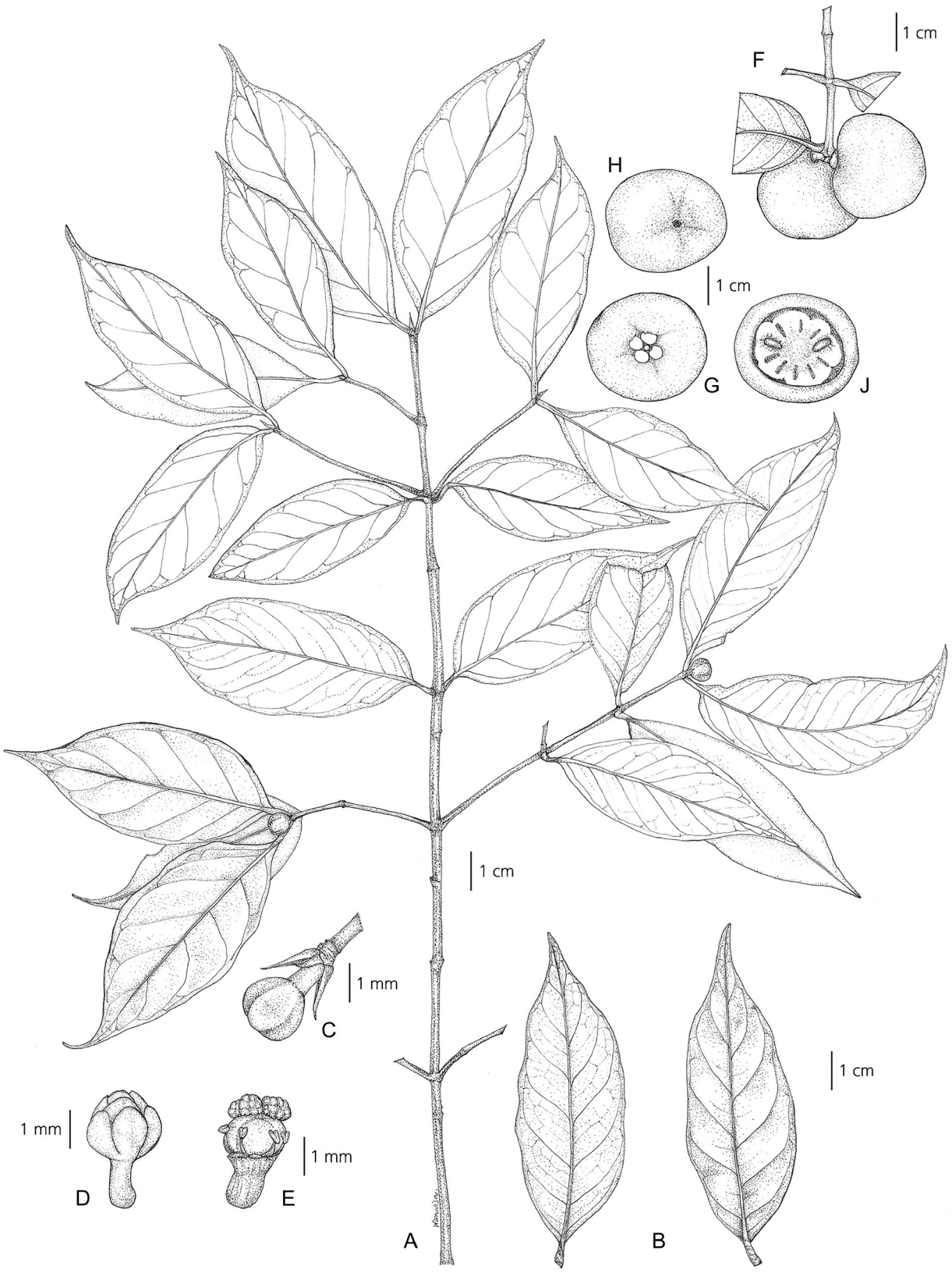


Fig. 1. *Garcinia siripatanadilokii*. **A** branches, leaves and female flower buds; **B** upper surface of leaf (left) and lower surface of leaf (right); **C** female flower bud with bracts; **D** female flower; **E** female flower showing pistil and staminodes (sepals and petals removed); **F** fruiting branch; **G** fruit with persistent sepals; **H** fruit with persistent stigma; **J** transverse section of fruit. Materials from *C. Ngernsaengsaruay et al*. G26-18022022. DRAWN BY WANWISA BHUCHAISRI.

Fig. 2. *Garcinia siripatanadilokii*. **A** habitat and habit; **B** outer bark and inner bark with yellow latex; **C** branches, young and mature leaves; **D** branches and mature leaves; **E** female flower bud with bracts; **F** female flower; **G** branches, leaves and young fruits with persistent sepals; **H** – **K** branches, leaves and ripe fruits. PHOTOS: CHATCHAI NGERNSAENGSARUAY.

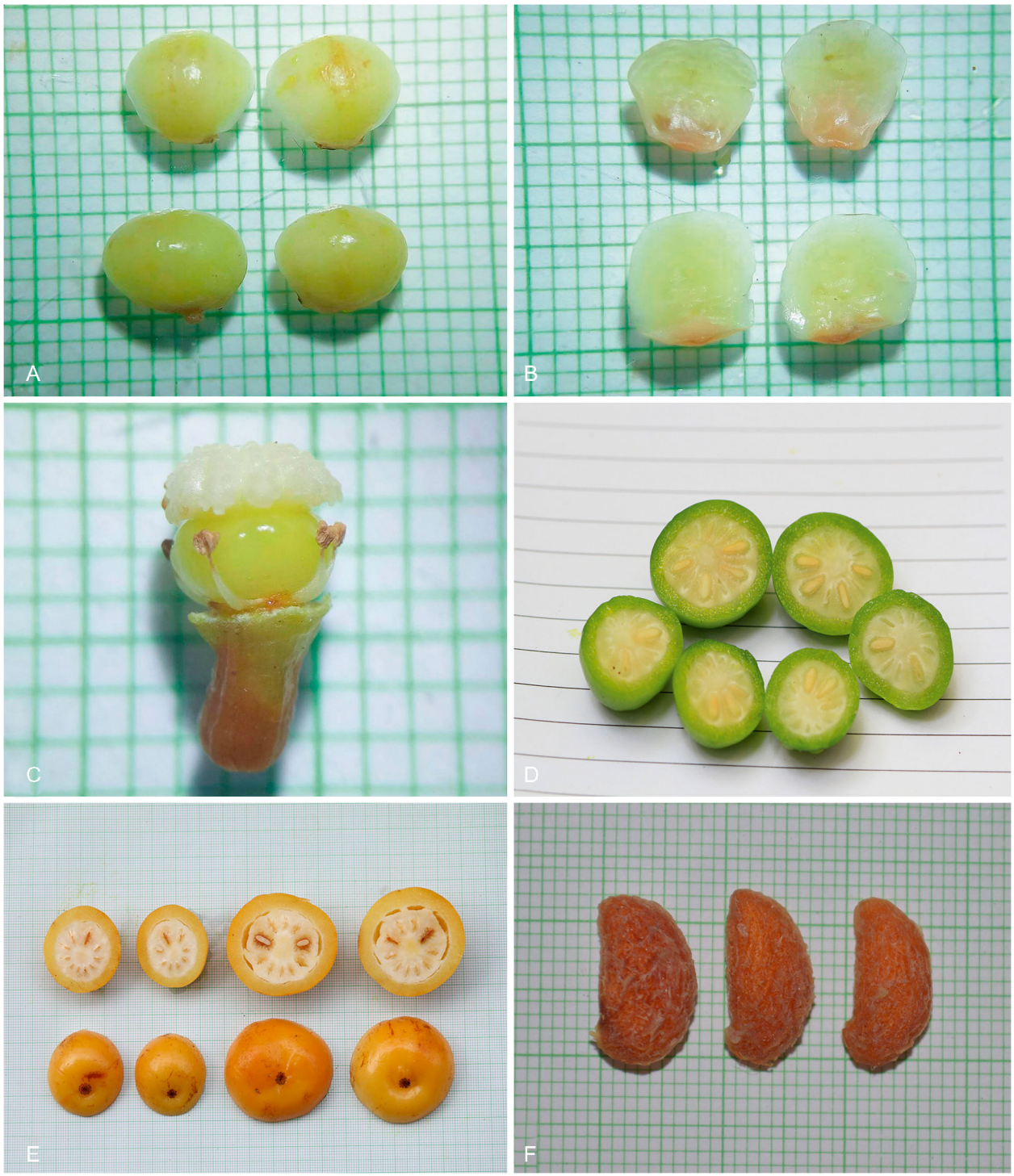
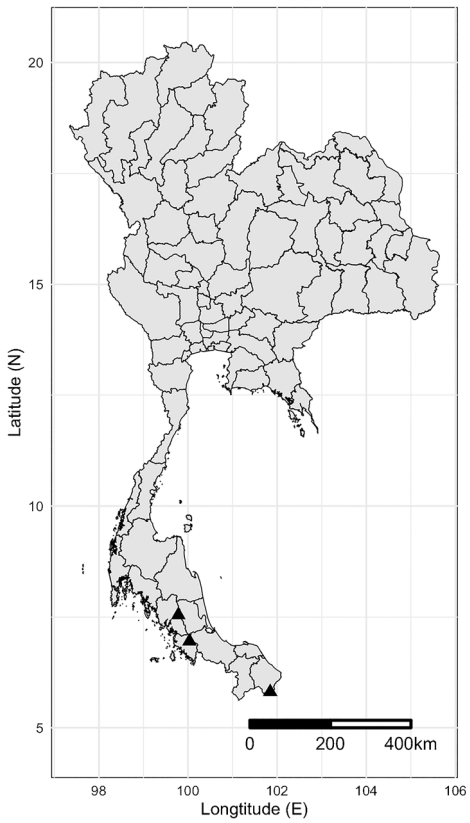


Fig. 3. *Garcinia siripatanadilokii*. **A** outer pair of sepals (lower) and inner pair of sepals (upper); **B** outer pair of petals (lower) and inner pair of petals (upper); **C** female flower showing pistil and staminodes (sepals and petals removed); **D** transverse section of young fruits; **E** transverse section of ripe fruits; **F** seeds. PHOTOS: **A – C**, **F** WEEREESA BOONTHASAK; **D – E** CHATCHAI NGERNSAENGSARUAY.

ing: stamens in one central mass or column or in a ring (*G. atroviridis* Griff. ex T.Anderson); anthers 4-thecous, ellipsoid or rectangular; pollen colporate, reticulate; stigma generally completely divided into the same number of rays as there are locules of the ovary, verrucose; sepals and petals 4; pistillode absent (except in *G. atroviridis*). One feature distinguishes *Garcinia* sect. *Brindonia* from all others, namely, the 4-

Table 1. Morphological differences between *Garcinia siripatanadilokii* and the related species, *G. lanceifolia*.

Characteristics	*G. siripatanadilokii*	*G. lanceifolia*
Habit	dioecious	dioecious, sometimes polygamo-dioecious
Bark	outer bark scaly, dark brown; inner bark pale yellow	outer bark smooth or longitudinally very shallowly fissured, greyish-brown; inner bark reddish-brown
Leaves	elliptic or oblong-elliptic, 6 – 13.3 × 2.6 – 4.7 cm, base slightly attenuate, margin undulate, lamina slightly bullate, midrib raised on both surfaces	elliptic, narrowly elliptic, oblong-elliptic or ovate, 4.5 – 10 × 1.5 – 3 cm, base cuneate, margin repand or entire, lamina smooth, midrib shallowly grooved above, raised below
Young leaves	shiny red, greenish-red, turning pale green and petiole pale green or greenish-red	shiny pale green and petiole red or greenish-red
Female flowers	terminal, solitary, pale yellow; ovary 8 – 11-locular; stigma radiate, shallowly 8 – 11-lobed; fully opened flowers with an apical opening (broader)	terminal or axillary, cymose, in fascicles of 2 – 3 flowers or solitary, orangish-red or red; ovary 5 – 7-locular; stigma radiate, shallowly 5 – 7-lobed; fully opened flowers with a small apical opening (look like flower buds)
Ripe fruits	bright yellow, persistent sepals pale yellow	orange or bright red, persistent sepals red



Map 1. Distribution of *Garcinia siripatanadilokii,* known only from three localities and three provinces in Peninsular Thailand: Trang (Khao Chong), Satun (Khlong Ton) and Narathiwat (Hala-Bala Wildlife Sanctuary).

thecous anthers (Jones 1980), but Ngernsaengsaruay (2022) recorded 2-thecous anthers (of 4 pollen sacs) of *G. atroviridis*, *G. lanceifolia* and *G. pedunculata* Roxb. ex Buch.-Ham. in agreement with Maheshwari (1964), Singh (1993) and Gogi & Das (2016). This section is one of the largest and best known of *Garcinia* because several species are cultivated for their edible fruits. The section is widespread in Southeast Asia, with its range extending from India and Sri Lanka through Indo-China as far as southern China and throughout Indonesia and the Philippines (Jones 1980).

We have never seen male flowers of the species, but the female plants can produce fruits with or without seeds (abortion). We therefore expect the species to be apomictic, forming seed asexually without fertilisation.

Acknowledgements

We would like to thank the curators and staff of the following herbaria AAU, BK, BKF, BM, C, CMUB, K, P, PSU, QBG and SING for their assistance during visits and allowing access to the herbarium specimens, and those included in the digital herbarium databases of AAU, BM, C, E, JSTOR, K, L and P. Special thanks go to Miss Wanwisa Bhuchaisri for the line drawings. We are grateful to Mr Prapot Sutthaporn (Head of Khao Chong Botanical Garden), Mr Janya Jarernrattawong and Mr Preecha Puttarak, staff of Khao Chong Botanical Garden for their facilitation and kind help in the field work. This research was funded by the Basic Research Fund (BRF), Faculty of Science,

Kasetsart University (2022) and The Carlsberg Foundation, Denmark (2018) managed by Professor Dr Henrik Balslev.

Declarations

Conflict of Interest. The authors declare that they have no conflict of interest.

References

Bachman, S., Moat, J., Hill, A. W., de la Torre, J. & Scott, B. (2011). Supporting Red List Threat Assessments with GeoCAT: Geospatial Conservation Assessment Tool. In: V. Smith & L. Penev (eds), e-Infrastructures for data publishing in biodiversity science. *ZooKeys* 150: 117 – 126.

Backer, C. A. & Bakhuizen van den Brink, R. C. (1963). *Flora of Java* Vol. 1. N. V. P. Noordhoff, Groningen.

Craib, W. G. (1925). *Florae Siamensis Enumeratio: A List of the Plants Known from Siam with Records of Their Occurrence Vol. 1 Polypetalae*. Bangkok Times Press, Bangkok.

Gagnepain, F. (1943). Guttiféres. In: H. Humbert & F. Gagnepain (eds), *Supplément A La Flore Générale de L'Indo-Chine* T. 1. Fasc. 3: 254 – 277. Muséum National D'Histoire Naturelle, Phanérogamie, Paris.

Gardner, S., Sidisunthorn, P. & Anusarnsunthorn, V. (2000). *A Field Guide to Forest Trees of Northern Thailand*. Kobfai Publishing Project, Bangkok.

____, ____ & Chayamarit, K. (2015). *Forest Trees of Southern Thailand* Vol. 1 (A – Es). Kobfai Publishing Project, Bangkok.

Gogi, G. & Das, A. K. (2016). Detailed flora morphology of *Garcinia pedunculata* Roxburgh ex Buchanan-Haminton (Clusiaceae) from Northeast India. *Pleione* 10: 351 – 355.

IUCN Standards and Petitions Committee (2022). *Guidelines for Using the IUCN Red List Categories and Criteria. Version 15*. https://www.iucnredlist.org/resources/redlistguidelines. [Accessed 20 Feb. 2022].

Jones, S. W. (1980). *Morphology and Major Taxonomy of Garcinia (Guttiferae)*. Ph.D. Thesis, University of Leicester and British Museum (Natural History), London.

King, G. (1890). Materials for a flora of Malay Peninsula. *J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist.* 59 (2): 113 – 206.

Kochummen, K. M. & Whitmore, T. C. (1973). Notes on the Systematy of Malayan Phanerogams XVIII – XXII. *Gard. Bull. Singapore* 26 (2): 269 – 287.

Li, X. W., Li, J., Robson, N. K. B. & Stevens, P. (2007). Clusiaceae (Guttiferae). In: C. Y. Wu, P. H. Raven & D. Y. Hong (eds), *Flora of China* Vol. 13: 1 – 47. Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.

Maheshwari, J. K. (1964). Taxonomic studies on Indian Guttiferae III. the genus *Garcinia* L. s.l. *Bull. Bot. Surv. India* 6: 107 – 135.

Nazre, M., Newman, M. F., Pennington, R. T. & Middleton, D. J. (2018). Taxonomic revision of *Garcinia* section *Garcinia* (Clusiaceae). *Phytotaxa* 373 (1): 1 – 52.

Ngernsaengsaruay, C. (2022). Lectotypifications of three names in *Garcinia*, synonymy of *Garcinia pedunculata* and detailed descriptions of three species in *Garcinia* Section *Brindonia* (Clusiaceae). *Diversity* 14 (7): 1 – 29. https://doi.org/10.3390/d14070556

____, Duangnamon, D. & Boonthasak, W. (2022). *Garcinia dumosa* (Clusiaceae), a new record for Thailand, with associated lectotypifications. *Thai Forest Bull., Bot.* 50 (1): 66 – 74.

____ & Suddee, S. (2016). *Garcinia nuntasaenii* (Clusiaceae), a new species from Thailand. *Thai Forest Bull., Bot.* 44 (2): 134 – 139.

____ & ____ (2022). *Garcinia santisukiana* (Clusiaceae), a new species from Thailand. *Kew Bull.* 77: 121 – 125.

POWO (2022). *Plants of the World Online*. Facilitated by the Royal Botanic Gardens, Kew. http://www.plantsoftheworldonline.org [Accessed 14 Feb. 2022]

Ridley, H. N. (1922). Guttiferae. In: *The Flora of the Malay Peninsula* Vol. 1: 166 – 192. L. Reeve & Co. Ltd., London.

Sabu, T., Mohanan, N. N., Krishnaraj, M. V. N., Shareef, S. M., Shameer, P. S. & Roy, P. E. (2013). *Garcinia pushpangadaniana* (Clusiaceae), a new species from the southern Western Ghats, India. *Phytotaxa* 116 (2): 51 – 56.

Sarma, J., Shameer, P. S. & Mohanan, N. N. (2016). A new species of *Garcinia* (Clusiaceae) from Assam, North East India. *Phytotaxa* 252 (1): 73 – 76.

Shameer, P. S., Sabu, T. & Mohanan, N. N. (2017). *Garcinia gamblei* (Clusiaceae), a new species from the southern Western Ghats, India. *Phytotaxa* 297 (1): 71 – 76.

____, Sarma, J., Mohanan, N. N. & Begum, A. (2021). *Garcinia sibeswarii* (Clusiaceae), a new species from Assam, India. *Phytotaxa* 507 (2): 191 – 197.

Singh, N. P. (1993). Clusiaceae (Guttiferae nom. alt.). In: B. D. Sharma & S. Sanjappa (eds), *Flora of India* Vol. 3: 86 – 151. Deep Printers, Ramesh Nagar, New Delhi.

Srivastava, S. K. (1994). *Garcinia dhanikhariensis* (Clusiaceae), a new species from Andaman Islands, India. *Nord. J. Bot.* 14: 51 – 53.

Sweeney, P. W. & Rogers, Z. S. (2008). Nomenclatural notes on *Garcinia* (Clusiaceae) from Madagascar and the Comoros. *Novon* 18 (4): 524 – 537.

Thiers, B. (2022, continuously updated). *Index Herbariorum: A Global Directory of Public Herbaria and Associated Staff*. New York Botanical Garden's Virtual Herbarium. http://sweetgum.nybg.org/science/ih/ [Accessed 20 Feb. 2022]

Whitmore, T. C. (1973). Guttiferae. In: T. C. Whitmore (ed.), *Tree Flora of Malaya* Vol. 2: 62 – 236. Wing Tai Cheung Printing Co. Ltd., Hong Kong.

Publisher's Note