

A Revision of *Brachylophon* Oliv. (Malpighiaceae) Based on Morphology, Phylogenetics, and Palynology Reveals a New Species Endemic to Thailand

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ABSTRACT.– We present a taxonomic revision of *Brachylophon* (Malpighiaceae) in Thailand, Southeast Asia, based on herbarium collections and a field trip conducted in 2024. Two previously accepted species, *B. anatomosans* Craib and *B. curtisii* Oliv., are reported, alongside the new species, *B. sirindhorniae* Chaisongkram & Ruchis., described and illustrated for the first time. The new species is characterized by having white petals, pedicels 2–5 mm long; filaments 1.5–2.5 mm long; and mericarp 6–7 mm long. A detailed description, illustrations, and a comparison with closely related species are provided to aid in its identification. The discovery of this new species highlights the ongoing need for further exploration and taxonomic study of the genus in Southeast Asia to fully understand its diversity and distribution.

KEYWORDS: Acridocarpeae, Endemic species, Flora of Thailand, Limestone, Malpighioideae

INTRODUCTION

The Malpighiaceae family is a large group of mostly tropical and subtropical flowering plants, comprising 72 genera and 1,499 accepted species globally (de Almeida et al., 2024). In Thailand, the family is represented by six genera and 19 species (Sirirugsa, 1991; Chaisongkram et al., 2022).

The genus *Brachylophon* is a small group of shrubs within the tribe Acridocarpeae R.F. Almeida (de Almeida et al., 2024). This tribe is notable for being the only one in the entire Malpighiaceae family composed exclusively of Paleotropical genera, including *Acridocarpus* and *Brachylophon*. *Brachylophon* is a genus native to tropical Asia, currently comprising two accepted species: *B. anatomosans* Craib and *B. curtisii* Oliv. (POWO, 2025). Both species have been recorded in Thailand (Sirirugsa, 1991).

Brachylophon is characterized by opposite leaves lacking glands, actinomorphic flowers, and brownish hairy nodes. Their mericarps are slightly winged, with a strongly reduced dorsal wing (Sirirugsa, 1991; de Almeida et al., 2024). This study aims to study the taxonomy of *Brachylophon* in Thailand, including the description of a new species, *B. sirindhorniae* Chaisongkram & Ruchis., based on detailed morphological examinations. The new species is distinguished from the previously known *B. anatomosans* and *B. curtisii* by its distinct leaf, flower, and fruit characteristics. This manuscript provides a comprehensive taxonomic treatment of the genus *Brachylophon* in Thailand, contributing to the understanding of its diversity and distribution in the region.

The pollen morphology of the genus *Brachylophon* has been studied and found to be distinctive character

within the Malpighiaceae family. The pollen grains of *Brachylophon* are oblate-spheroidal to subprolate in shape, with a tricolporate aperture arrangement (Chaisongkram et al., 2022). The exine surface is reticulate, with relatively thick muri and small, irregular shaped lumina being small and irregular in shape. These palyno-logical features, along with the unique vegetative and reproductive characteristics, help to distinguish *Brachylophon* from other genera within the Malpighiaceae.

MATERIALS AND METHODS

Taxonomic study

The morphological characteristics of *Brachylophon sirindhorniae* were examined from living specimens collected in the field. The morphology of the other two species was studied using herbarium specimens from ABD, BK, BKF, BM, E, K, L, P, PSU, QBG, SLR, TCD, and U, as well as from published descriptions in the literatures. The terminology used for morphological characters follows that of Beentje (2016) and de Almeida & de Moraes (2022).

Molecular phylogenetic study

To determine the phylogenetic relationships of *Brachylophon* spp., DNA material was collected from all species (Table 1), extracted, amplified, sequenced, and analysed using Bayesian Inference and Maximum Likelihood criteria. DNA extraction was performed following the Geneaid Genomic DNA Mini Kit (Plant) protocol, with a custom 50 µL DNA dilution to increase DNA concentration. PCR amplification of the Internal Transcribed Spacer (ITS) ribosomal marker was conducted using a 2x PCR master mix (i-Taq, iNtRON Biotechnology) in a total volume of 20 µL.

TABLE 1. List of Genbank accession number, voucher numbers, and location of DNA specimens of each species.

Species	Accession	Voucher	Location
<i>B. anastomosans</i> Craib	PV951703	<i>S. Ruchisansakun 2101</i> (SLR)	Yala, Thailand
<i>B. curtisii</i> Oliv.	AY137313	<i>Middleton et al. 387</i> (A)	Southeast Asia
<i>B. sirindhorniae</i> Chaisongkram & Ruchis.	PV915726	<i>S. Ruchisansakun et al. 2134</i> (SLR)	Trang, Thailand
<i>Acridocarpus macrocalyx</i> Engl.	AY137300	<i>C. Cav. Davis 99-17</i> (A)	Western Africa

Amplification was carried out on a SimpliAmp™ Thermal Cycler (Thermo Fisher Scientific Inc., Waltham, Massachusetts, USA) under the conditions outlined by Davis et al. (2002): 35 cycles of denaturation at 94°C for 30 sec, annealing at 50°C for 1 min, an initial extension at 72°C for 50 sec, and a final extension at 72°C for 6 min.

The resulting sequences were incorporated into the alignment matrix using Clustal W (Thomson et al., 1994). The evolutionary model was selected using IQ-TREE (Minh et al., 2020), with TN93+F identified as the best-fit model for the ML tree. A Bayesian Inference (BI) phylogeny was constructed using MrBayes version 3.2.7a (Ronquist et al., 2012). Default settings were used for MrBayes on CIPRES (Miller et al., 2010), with nst=2, rates=gamma, nchains = 4, the BEAGLE option enabled, and n=3M. Additionally, Maximum Likelihood (ML) analysis was performed using RAXML-NG, with bootstrap replication automatically selected by the software using autoMRE option. Phylogenetic trees were visualized using FigTree (version 1.4.4; Rambaut, 2018). Sequences were submitted to GenBank (Table 1).

Palynology

Pollen grains of Thai *Brachylophon* were examined to support taxonomic distinctions within the genus. Pollen samples of *B. sirindhorniae* were collected from the field in Trang Province, Peninsular Thailand, while those of *B. anastomosans* and *B. curtisii*, were studied primarily based on the work of Chaisongkram et al. (2022) (Table 2). Pollen of *B. sirindhorniae* was prepared using the acetolysis method of Erdtman (1960). Acetolysed pollen grains for light microscopy (LM) were mounted in silicon oil, while those for scanning electron microscopy (SEM) were dried using critical point drying (CPD), mounted directly onto

aluminum stubs with double-sided adhesive tape, and sputter-coated with a gold-palladium mixture. In the palynological study, at least 20 pollen grains were examined for symmetry, polarity, size class, shape, amb, aperture type, and sculpturing pattern. Measurements included the polar axis (P), equatorial diameter (E), colpus length, and pore diameter. The mean and standard deviation were calculated, and the P/E ratio was used to determine pollen shape. The reference collection of permanent slides is kept at Udon Thani Rajabhat University, Thailand. The terminology of palynological characters follows Erdtman (1966), Punt et al. (2007), and Hesse et al. (2009).

Species Distribution Map

Distribution data for all species based on herbarium specimens housed at BK, BKF as referenced in taxonomic studies, and online database, were compiled. The Extent of Occurrence (EOO) and Area of Occupancy (AOO) were calculated using GeoCAT (Bachman et al., 2011) for IUCN Red List assessments (IUCN Standards and Petitions Committee, 2024).

RESULTS

Taxonomy

Genus *Brachylophon* Oliv.

Brachylophon Oliv., Hooker's Icon. Pl. 16: t. 1566. 1887; Niedenzu in Engler & Prantl, Pflanzenfam. ed. 1.3. 4: 59. 1897 & in Engler, Pflanzenr. 93: 249. 1928. Jacobs in Fl. Males. I. 5: 138. 1955. de Almeida in Phytokeys. 242:95. 2024— Type species: *Brachylophon curtisii* Oliv.

Shrubs or small trees, costate, glabrous or puberulous; young branches angular; nodes bearded; multicellular simple hairs. Leaves opposite decussate; eglandular; short petiole, lamina elliptic-lanceolate or elliptic-oblong, apex acute or acuminate, base cuneate, lateral veins 5–12 pairs, anastomosing 2–12 mm from the margin; stipule 2, acicular or narrowly-triangular. *Inflorescences* thyrses with 1-flowered cincinni, terminal or axillary; peduncle less than 1 mm long, subtended by a bract and 2 bracteoles, eglandular.

TABLE 2. List of collections used in palynological study.

Species	Publication and voucher
<i>B. anastomosans</i> Craib	Chaisongkram et al. (2022)
<i>B. curtisii</i> Oliv.	Chaisongkram et al. (2022)
<i>B. sirindhorniae</i>	Ruchisansakun et al. 2134 (QBG)
Chaisongkram & Ruchis.	

TABLE 3. A summary of morphological characters of *Brachylophon* species.

	<i>B. sirindhorniae</i> Chaisongkram & Ruchis.	<i>B. anastomosans</i> Craib	<i>B. curtisii</i> Oliv.
Habit	shrub, 0.5–3 m tall	shrub, up to 1 m tall	small tree, up to 5 m tall
Brach diameter	1.5–2.5 mm	1.5–2 mm	4–6 mm
Branch texture	costate, glabrous to puberulent	costate, puberulous	costate, glabrous
Leaf petiole size	2–3 by 1.2–1.5 mm	2–5 by 1–1.5 mm	2–3 by 1.5–2 mm
Leaf blade size	8–12 by 3–4.5 cm	10–15 by 4–5 cm	10–20 by 4–7 cm
Leaf blade texture	coriaceous, glabrous	membranous, glabrous	coriaceous, glabrous
Leaf blade shape	lanceolate to elliptic	elliptic-oblong to oblanceolate	elliptic to elliptic-oblong
Number of lateral veins	5–6 pairs	7–9 pairs	7–12 pairs
Distance of lateral nerves from leaf margin when anastomosing	2–4 mm	5–12 mm	2–3 mm
Inflorescence length	1–2 cm long	4–12 cm long	2–4 cm long
Rachis diameter	ca. 0.5 mm	0.5–0.7 mm	1–5 mm
Rachis length	1.5–1.7 mm	1.5–2.5 mm	1.5–2.5 mm
Pedicel length	2–5 mm	3.5–5 mm	20–30 mm
Cincinnus peduncle	less than 1 mm	less than 1 mm	less than 1 mm
Cincinnus bract size	1–1.5 by 0.4–0.6 mm	0.7–0.9 by 0.2–0.4 mm	2.2–2.6 by 0.8–1.4 mm
Cincinnus bracteoles size	0.8–0.9 by 0.4–0.5 mm	0.3–0.4 by 0.3–0.35 mm	minute
Sepal size	1.5–2 by 1.1–1.2 mm	1.5–2.5 by 1–1.5 mm	1.5–2.5 by 0.8–1.2 mm
Petal size	9–9.5 by 5–6 mm	8–12 by 4–5 mm	9–10 by 3–6 mm
Petal colour	white	yellow	yellow
Outer whorl Filament's length	1.5–2.5 mm	ca. 4 mm	5–7 mm
Anther length	3–4 mm	ca. 4 mm	3–5 mm
Style length	0.5–0.7 cm	0.8–1 cm	0.9–1.1 cm
Ovary length	2–3 mm	2–3 mm	2–3 mm
Mericaip length	6–7 mm	4–5 mm	1–1.5 cm

Flowers actinomorphic. *Sepals* 5–6, eglandular. *Petals* 5, usually oblong, clawed at base, white to yellow, glabrous. *Stamens* 1 or 2 whorl, with filaments of the outer whorl longer than the inner or equal; anthers glabrous, opening by apical pores. *Ovary* trilobed, usually glabrous; *styles* 3, free, filiform, curved at the tip; *stigmas* lateral. *Mericarps* 3, sometimes only 1 or 2 develop to a mature fruit, with crest at the apex. (Table 3)

Three species in Thailand and Malaysia. All of them are found in Thailand.

Key to the species

1. Pedicels 20–30 mm long; peduncles and rachis stout, 1–5 mm in diameter. Leaves with lateral nerves anastomosing 2–3 mm from the margins 2. *B. curtisii*
1. Pedicels 2–5 mm long; peduncle and rachis slender, less than 1 mm in diameter. Leaves with lateral nerves anastomosing 2–12 mm from the margins 2
2. Inflorescence 4–12 cm long; petals yellow. Leaves with lateral nerves anastomosing 5–12 mm from the

- margins, 7–9 pairs of lateral veins. 1. *B. anastomosans*
2. Inflorescence 1–2 cm long; petals white. Leaves with lateral nerves anastomosing 2–4 mm from the margins, 5–6 pairs of lateral veins. 3. *B. sirindhorniae*

1. *Brachylophon anastomosans* Craib

Brachylophon anastomosans Craib, Bull. Misc. Inform. Kew. 4: 157. 1926 & in Fl. Siam. En. 1: 204. 1926; Niedenzu in Engler, Pflanzenr. 93: 250. 1928; Sirirugsa in T. Smitinand & K. Larsen, Fl. Thailand 5(3): 297. 1991.— Type: Thailand: Yala, Bannang Sata, 23 Jul. 1923, *Kerr 7306* (lectotype K000739258!, designated by Chaisongkram et al. (2022); isoelectotypes ABDUH:2/113!, BK257153!, BM000611530!, BM000611531!, K000739258!, K000739259!, TCD0013234!).

Shrub up to 1 m tall; nodes bearded with brownish hairs. *Leaves* opposite decussate; petioles 2–5 mm long, sulcate; lamina elliptic-oblong to oblanceolate, 10–15 by 4–5 cm, apex acuminate, base cuneate, membranous, unequal-sided; lateral veins 7–9 pairs,

anastomosing 5–12 mm from margin, prominent on lower surface; stipules 2, acicular, ca 3 mm long. *Inflorescences* thyrses, 4–12 cm long; peduncle slender, ca. 1 mm in diameter; rachis slender; cincinnus peduncle less than 1 mm long, ca. 1 mm in diam.; pedicels 3–7 mm long; bracts 1, triangular, 0.7–0.9 by 0.2–0.4 mm; bracteoles 2, triangular, 0.3–0.4 by 0.3–0.35 mm; margin ciliate, persistent. *Sepals* 5, ovate, 1.5–2.5 by 1.0–1.5 mm, apex obtuse, imbricate, green, finely ciliate. *Petals* 5, obovate to elliptic, 8–12 by 4–5 mm, apex rounded, base clawed, yellow, glabrous. *Stamens* 10, arranged in 2 whorls, with filaments of inner whorl straight, 2 mm long; those of outer whorl curved, about twice as long; anthers ca. 4 mm long; pollen grains subcircular, 3-colporate, with perforate ornamentation. *Ovary* ovoid, ca. 2 mm long; styles 3, 0.8–1.0 cm long. *Mericarps* 4–5 mm long, with dorsal crest, nut reticulate, hairy.

Thailand.—Narathiwat [Sukirin, 300 m alt., 17 Apr. 1996, *Niyomtham & Puudjaa* 4743 (BKF109769)]; Pattani [Banang Sta, 50 m alt., 23 Sep. 1923, *Kerr* 7306 (BK257153, BM000611530, BM000611531, K000739258, K000739259, TCD0013234)].

Distribution.—Endemic to Thailand.

Ecology.—Scattered in evergreen forests on limestones, 50–300 m alt.

Phenology.—Flowering from March to August.

Conservation status proposed.—*Brachylophon anastomosans* is currently known from a few fragmented locations. Its extent of occurrence (EOO) is approximately 530 km² and its area of occupancy (AOO) is 16 km² (GeoCAT, Bachman et al., 2011). Habitat quality is declining due to increasingly warmer and drier conditions. We recommend classifying *B. anastomosans* as Endangered (EN; B1+B2ab(iii)) under the IUCN Red List Categories and Criteria (IUCN Standards and Petitions Committee, 2024).

Vernacular.—Tang hu no ra (ต้างหูโนรา) (Office of the Forest Herbarium, 2014).

Note.—This species was propagated and sold as an ornamental plant in the market.

2. *Brachylophon curtisii* Oliv.

Brachylophon curtisii Oliv., Hooker's Icon. Pl. 16: t. 1566. 1877; King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 62(2): 197. 1893; Ridl., Fl. Malay Penins. 1:

329. 1922; Henderson, Gard. Bull. Str. Settle. 4: 233. 1928; Niedenzu in Engler, Pflanzenr. 93: 250. 1928; Jacobs in van Steenis, Fl. Males. I. 5: 138. 1955; Sirirugsa in T. Smitinand & K. Larsen, Flora of Thailand 5(3): 297. 1991.—Type: Malaysia, Penang, Timur Laut, Batu Feringgi, Coast, May 1886, *Curtis* 231 (lectotype K000370466!, designated here; isolectotypes K000370466!, K000370468!, K000501130!, SING0065718, SING0090474, SING0090475, SING0090509).

Brachylophon hullettii King, J. Asiat. Soc. Bengal. Pt. 2, Nat. Hist. 62(2): 196. 1893; Ridley, Fl. Malay. Penins. 1: 329. 1922; Niedenzu in Engler, Pflanzenr. 93: 252. 1928; Blatter, J. Indian Bot. Soc. 9: 150. 1930, syn in Ridl, 1922.—Type: Malacca on Mount Ophir, *Hullet* 782 (lectotype K000501128!, designated here).

Brachylophon scortechinii King, J. Asiat. Soc. Bengal. Pt. 2, Nat. Hist. 62(2): 197. 1893; Niedenzu in Engler, Pflanzenr. 93: 252. 1928; Blatter, J. Indian Bot. Soc. 9: 150. 1930, syn in Ridl, 1922.—Type: Perak, *King's collector* 6472 (lectotype E01124864!, designated here; isolectotypes L2166564!, P04769975!, US261779!) *Scortechini* s.n. (syntypes P04769976!, U0257680!) *Scortechini* 1672 (syntype K000501129!), *Wrayi* s.n. (syntype).

Small tree, up to 5 m tall; nodes bearded with copious, shiny brown hairs. *Leaves* opposite decussate; petioles 2–3 mm long, sulcate, broader at base; lamina elliptic to elliptic-oblong, 10–20 by 4–7 cm, apex acuminate, base cuneate, coriaceous; lateral veins 7–12 pairs, anastomosing 2–3 mm from the margin; Stipules 2, narrowly-triangular, ca 2 mm long. *Inflorescences* thyrses, ca 1–2 cm long; peduncles stout, 1–5 mm in diameter; rachis stout; cincinnus peduncles less than 1 mm long, ca. 1 mm in diam.; pedicels 2–3 cm long; bracts 1, triangular, 2.2–2.6 by 0.8–1.4 mm, margin ciliate, caducous and bracteoles 2, minute, *Sepals* 5, triangular, 2–3 by 1.2 mm, apex obtuse, finely ciliate. *Petals* 5, elliptic, 9–10 by 3–6 mm, apex rounded, base cuneate to clawed, yellow, glabrous. *Stamens* 10, arranged in 2 whorls, with filaments of outer whorl, 5–7 mm long, slightly longer and broader than the inner whorl; anthers 3–5 mm long; pollen grains subcircular, 3-colporate, with perforate ornamentation. *Ovaries* ovoid, ca 2–3 mm long; styles ca 1 cm long. *Mericarps* with dorsal crest, 1–1.5 cm long, nut reticulate, glabrous.

Thailand.—Pattalung [Ta-mot, 200 m alt., 9 Aug. 1986, *Maxwell* 86-558 (BKF084692, L2166568, L2166569, P04769828); *ibid.*, 5 Jun. 1992, *K. Larsen* 42681; *ibid.*, *Sirirugsa* 1022 (BKF090330)]; Satun

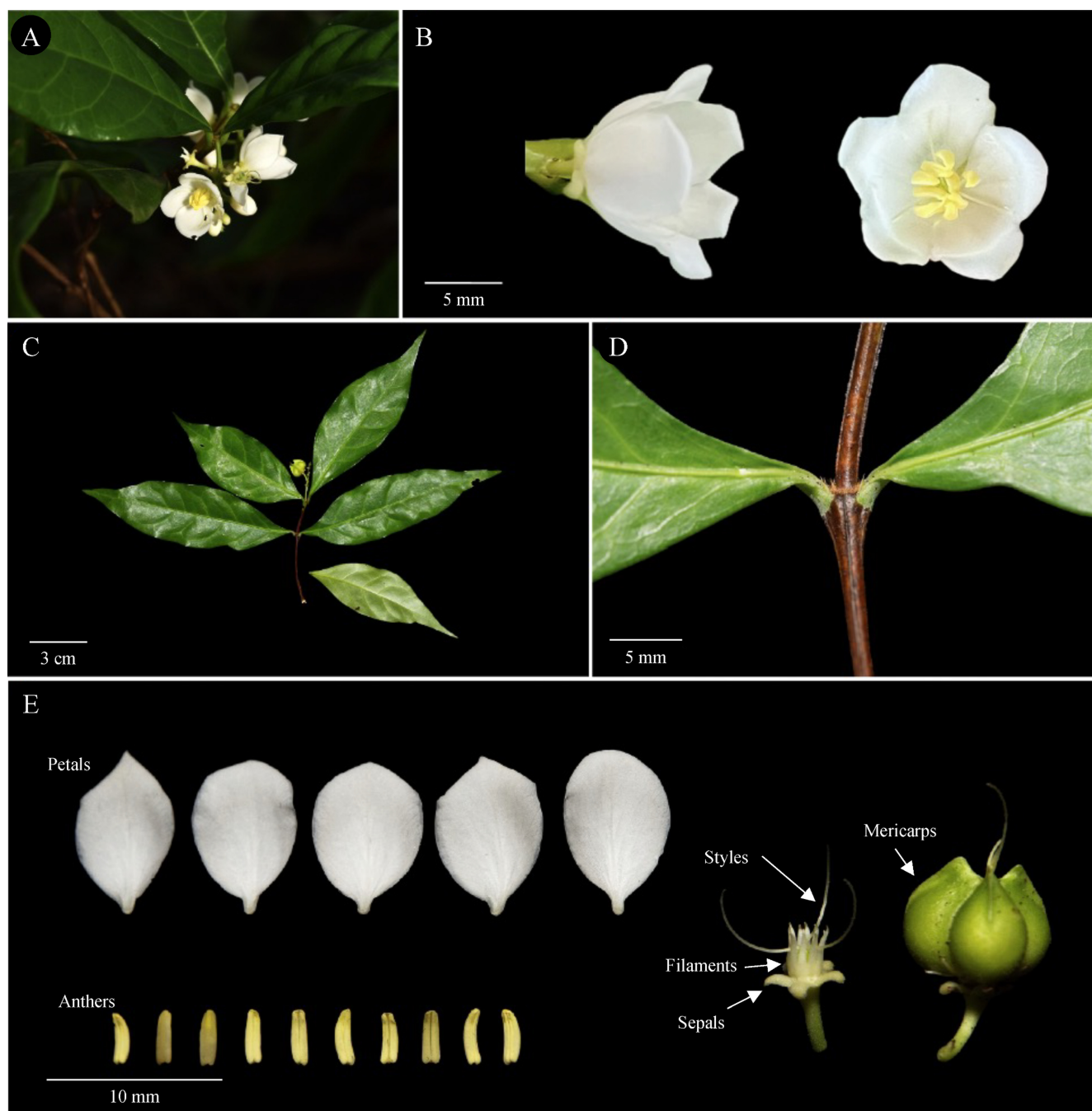


FIGURE 1. *Brachylophon sirindhorniae* Chaisongkram & Ruchis. **A.** inflorescence, **B.** flowers, **C.** a branch with fruit, **D.** stipule, and **E.** dissected flower and a fruit.

[Ton Pliew waterfall, 75–150 m alt., 6 Jun. 1992, *K. Larsen* 42706 (P04769827)]; Songkla [Kampeng pet, ca 50 m alt., 28 Sep. 1928, *A.F.G. Kerr* 15974 (L2166570, P04769830)].

Distribution.— Malay Peninsula (type), Sumatra, and Lingga Archipelago.

Additional specimens examined.— INDONESIA: Sumatra [Indragiri, *Curtis* 3549 (SING); Lingga Island, Singkep Isl., *Bünnemeijer* 7226 (BO, L1168903, L116

8904, L2166571)]. MALAYSIA: Johor [Sg. Kayu, 3 Mar. 1937, *Kiah* SFN32302 (SING0090469); on Mount Ophir, *Hullet* s.n. (BM000611520!); Malacca [G. Mering, Jun. 1892, *HN. Ridley* 3254 (SING0090472)]; Negeri Sembilan [Pedas, Gunong Angsi Forest Reserve, 18 Feb. 1971, *Zainuddin* FRI14617 (L2166566, SING0090507)]; Pahang, Lesong FR, 17 Feb. 1971, *Samsuri* SA435 (RB00210973, SING0090508); Penang [Timur Laut, Batu Feringgi, Mar. 1900, *Curtis* 195 (K000370467, SING0090505, SING0090506, SING0090517, SING0090518)]; Perak [Kledang

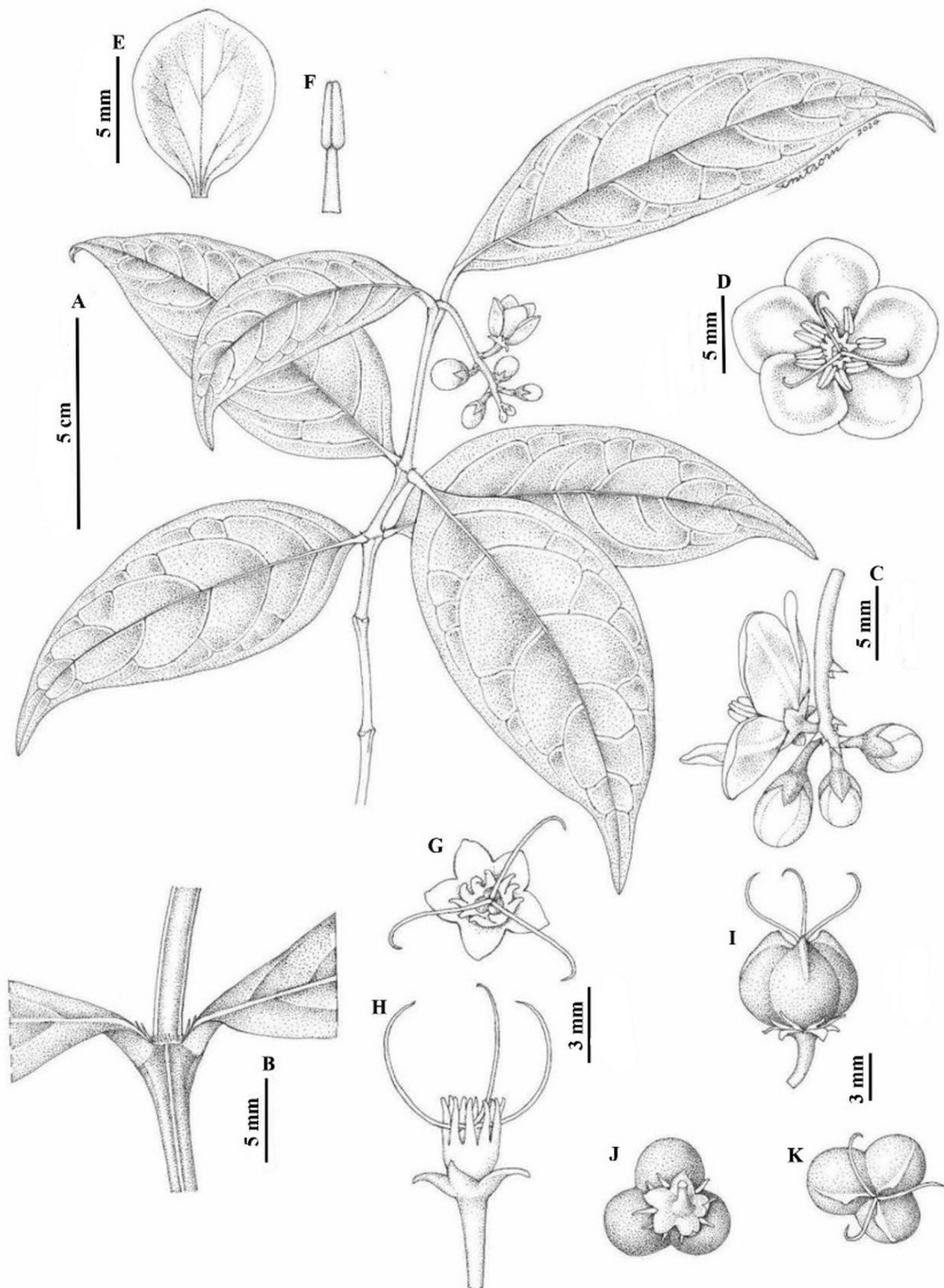


FIGURE 2. *Brachylophon sirindhorniae* Chaisongkram & Ruchis. **A.** habit, **B.** stipule, **C.** inflorescence, **D.** flower (top view), **E.** petal, **F.** stamen, **G.** **H.** flower (petal removed) (top and side view), and **I–K.** fruit (side, below, and top view). Drawn by Sunitorn Pimpasalee.

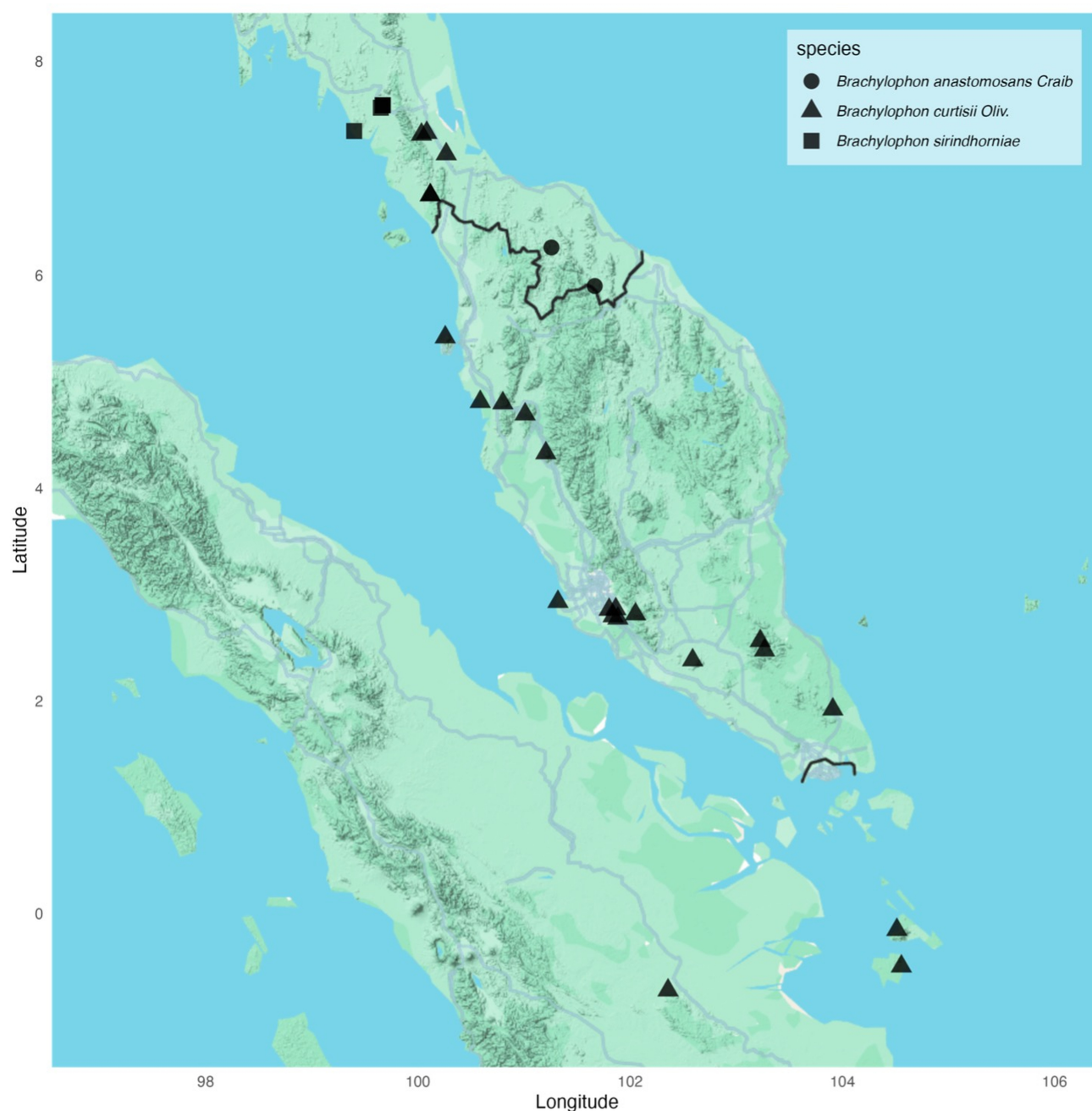


FIGURE 3. The distribution map of all accepted species of *Brachylophon*.

Saiong FR, Batu Gajah., 1894, *Wray* 4266 (L2166563, SING0090516); Larut & Matang, Sg. Larut, Jul. 1888, *Wray* 2358 (SING0090510, SING0090511, SING0090512, SING 0090513)]; Selangor [Semenyih, 20 Jul. 1921, *Hume* 8168 (SING0090514)]; Sg. Lalang, Kajang, 14 Mar. 1930, *Symington* 22835 (SING0090471)].

Ecology.— Scattered along streams in evergreen forests, ca 50–200 m alt.

Phenology.— Flowering and fruiting from April to August.

Conservation status proposed.— *Brachylophon curtisii* is the most widespread species in the genus, currently known from many locations. Its extent of occurrence (EOO) exceed 20,000 km² and its area of occupancy (AOO) is 56 km² (GeoCAT, Bachman et al., 2011). Based on these factors, we recommend classifying *B. curtisii* as Least Concern (LC) under the IUCN Red List Categories and Criteria (IUCN

TABLE 4. Summary of pollen characters of *Brachylophon* species. Measurements are represented as mean, with minimum and maximum ranges and standard deviation. All measurements are in μm .

Species	<i>B. sirindhorniae</i> Chaisongkram & Ruchis.	<i>B. anastomosans</i> Craib (Chaisongkram et al., 2022)	<i>B. curtisii</i> Oliv. (Chaisongkram et al., 2022)
Polar Axis (P)	8–11 (9.35±1.46)	9–11 (10.10±0.74)	10–13 (12.40±1.26)
Equatorial diameter	7–9 (8.93±0.86)	8–10 (9.50±0.97)	10–15 (12.60±1.51)
Size class	very small–small	very small–small	small
P/E (shape)	1.05 (PS)	1.06 prolate spheroidal (PS)	0.98 oblate spheroidal (OS)
Outline of pollen as seen in a polar view (Amb)	subcircular	subcircular	subcircular
Aperture type	3-colporate	3-colporate	3-colporate
Colpus length (CL)	6–8 (6.37±1.09)	6–8 (6.60±0.89)	6–8 (7.00±0.82)
Pore diameter (PD)	1–2 (1.25±0.83)	1–2 (1.60±0.55)	1–2 (1.40±0.48)
Ornamentation	perforate	perforate	perforate

Standards and Petitions Committee, 2024; de Kok, 2024).

Vernacular.—Nora ton (โนราตัน). (Office of the Forest Herbarium, 2014).

Note.— In the protologue of *B. curtisii*, the author cited “Penang, on the coast, *C. Curtis*” without further details. The specimen K000370466 closely resembles the drawing in Plate 1566, and the label specifies “Coast”. Therefore, we have designated the specimen *Curtis* 231 (K000370466) as the lectotype.

Regarding the type of *B. hulletii*, King’s protologue states “Malacca: on Mount Ophir, *Hullett*” but provides no further details. The specimen *Hullett* 782 (K000501128) is complete and specifically mentions “Malacca” whereas *Hullett s.n.* (BM000611520) does not reference Malacca. Therefore, we designated the specimen *Hullett* 782 (K000501128) as the lectotype.

In the protologue of *B. scortechinii*, the type cited as being collected from Perak by Scortechini, Wrayi, King’s collector. Among them, the specimen *King’s collector* 6472 (E01124864) is the most complete, and the label description corresponds with the protologue. Thus, we designated this specimen as the lectotype.

Although the Flora of Thailand (Siriragsa, 1991) states that this species occurs in Sarawak, we have not found any supporting evidence to confirm this.

3. *Brachylophon sirindhorniae* Chaisongkram & Ruchis., sp. nov.

urn:lsid:ipni.org:names:77369316-1
(Figs 1–4)

Brachylophon sirindhorniae resembles *B. curtisii*, but differs in having white petals (vs. yellow petals); shorter pedicels (2–5 mm vs. 20–30 mm long); stamens arranged in 1 whorl (vs stamens arranged in 2 whorls); and smaller mericarp (6–7 mm vs. 10–15 mm long).

Type.— Thailand: Trang Province, 7°35′22.7″N 99°40′04.0″E, 120 m alt, 28 Jun. 2024, *Ruchisansakun, Phromkhlabin, Simachai & Suparat* 2134 (holotype QBG!: isotypes PSU!, SLR!).

Terrestrial shrub, 0.5–3 m tall; stems 5–8 mm in diameter, laxly branched, reddish brown to grey in the lower part, glabrous to puberulent with simple hairs; nodes bearded with shiny brown multicellular simple hairs, hairs 0.4–1 mm long. *Leaves* opposite decussate; petioles 2–3 mm long, 1.2–1.5 mm diam., sulcate, broader at base, green, glabrous; lamina lanceolate to elliptic, 8.0–12.0 by 3.0–4.5 cm, apex acute to acuminate, base cuneate, coriaceous; lateral veins 5–6 pairs, anastomosing 2–4 mm from the margin; stipules 2, narrowly triangular, 1–1.5 by 0.2–0.3 mm, apex acute, green. *Inflorescences* thyrses, terminal, pendulous; peduncles slender, 1–2 cm long, 1–1.4 mm in diameter; rachis slender, 1–2 mm long, 1.0–1.4 mm in diam., green, densely pilose with short simple hairs; cincinnus peduncles less than 1 mm long, ca. 1 mm in diam., green, pilose with short hairs; bracts 1, triangular, 1–1.5 by 0.4–0.6 mm; bracteoles 2, triangular, 0.8–0.9 by 0.4–0.5 mm; margin ciliate, persistent. *Flowers* actinomorphic, 1.2–1.3 by 1.2–1.3 cm; pedicels 2–5 mm long, ca. 0.5 in diam., green, densely pilose with short simple hairs. *Sepals* 5, ovate, 1.5–2 by 1.1–1.2 mm, apex obtuse, greenish to yellowish, finely ciliate at margins. *Petals* 5, broadly ovate, 9–9.5 by 5–6 mm, apex rounded, base clawed, white glabrous. *Stamens* 10, arranged in 1 whorl; filaments 1.5–2.5 mm long, white to pale green, fused at the base; anthers 3–4 by 0.8–1.2 mm, yellow, glabrous pollen grains subcircular, 3-colporate, with perforate ornamentation. *Ovaries* ovoid, 2–3 mm long, trilobed, greenish; styles 3, 5–7 mm long, whitish. *Mericarps* 3 lobed, with 1 dorsal crest, 6–7 mm long; nut reticulate, slightly pilose with Y-shape hair; calyx and filaments persistent in mature fruits.

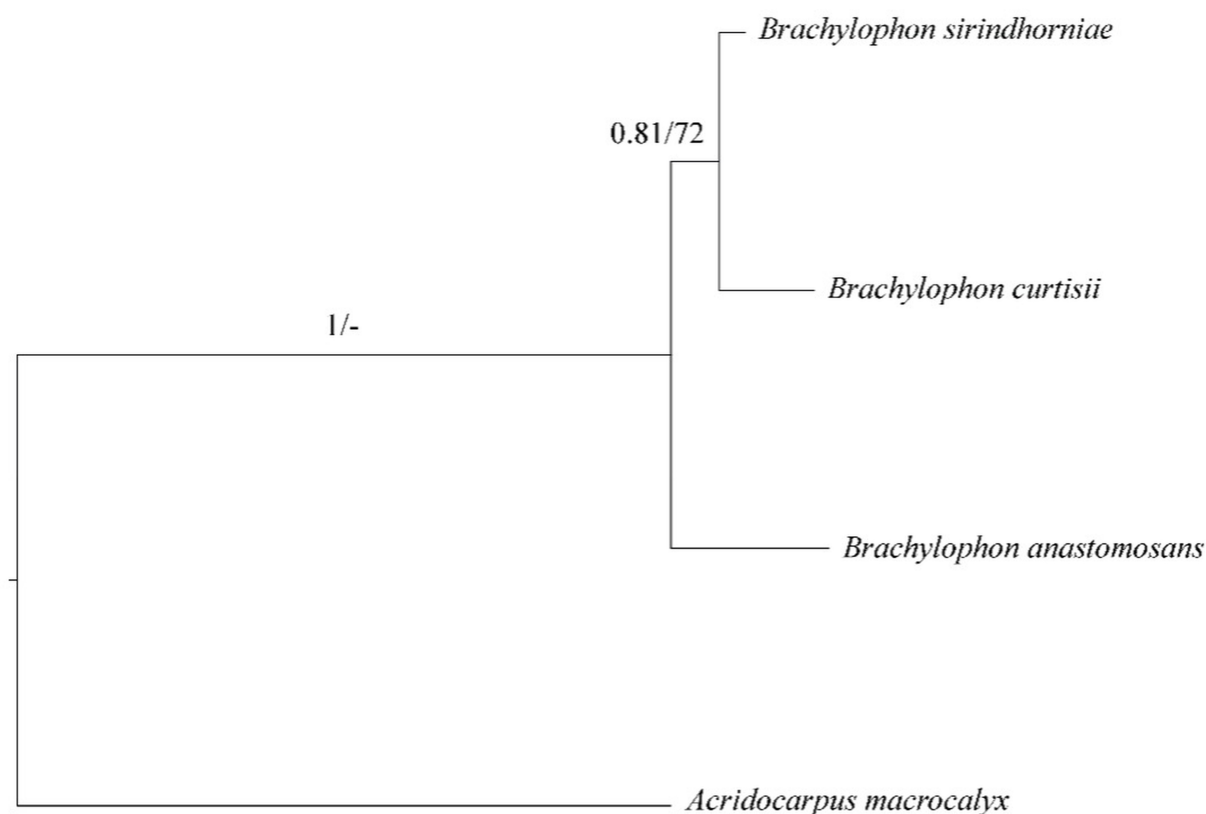


FIGURE 4. Phylogenetic relationship within the genus *Brachylophon* based on ITS sequences. Posterior probability values (PP) are shown on the left, and the bootstrap support values (BS) are shown on the right.

Thailand.—Trang [Sikao, Khao Na Kha, 10 Aug. 2005, *Pooma et al.* 5610 (BKF166962, E00500430, L3925476); Nayong, Wat Hua Khao, 60 m. alt. 24 Dec. 2006, *Pooma et al.* 6583 (E00295369, L3925503); Na Muen Si, Khao Chang Hai, 120 m. alt. 28 Jun. 2024, *Ruchisansakun et al.* 2134].

Distribution.—Endemic to the Trang Province, Thailand.

Ecology.—Scattered in evergreen forests on limestones, 50–150 m alt.

Phenology.—Flowering and fruiting from June to July.

Conservation status proposed.—*Brachylophon sirindhorniae* is currently known from only three fragmented locations. It has an extent of occurrence (EOO) of approximately 4 km² and an area of occupancy (AOO) of 10 km² (GeoCAT, Bachman et al., 2011). The quality of its habitat is steadily declining due to increasingly warmer and drier conditions. Considering these significant threats, we therefore strongly recommend classifying *B. sirindhorniae* as Endangered (EN;

B1+B2ab(iii)) under the IUCN Red List Categories and Criteria (IUCN Standards and Petitions Committee, 2024).

Vernacular.—Tang hu sirindhorn (ต่างหูลีรินธร).

Etymology.—The specific epithet “*sirindhorniae*” is named in honor of Her Royal Highness Princess Maha Chakri Sirindhorn in recognition of her support and encouragement of the botanical research in Thailand.

Phylogenetics position of *B. sirindhorniae*

Our phylogenetic analysis based on ITS regions indicates that all three *Brachylophon* species form a monophyletic group and are a sister clade to the genus *Acridocarpus*, with the posterior probability values (PP) = 1. Among them, *B. sirindhorniae* is most closely related to *B. curtisii* with the posterior probability values (PP) = 0.81 and the bootstrap support values (BS) = 72 (Fig. 4).

Palynology

The palynological characteristics of *Brachylophon* species are generally monads, isopolar and bilaterally

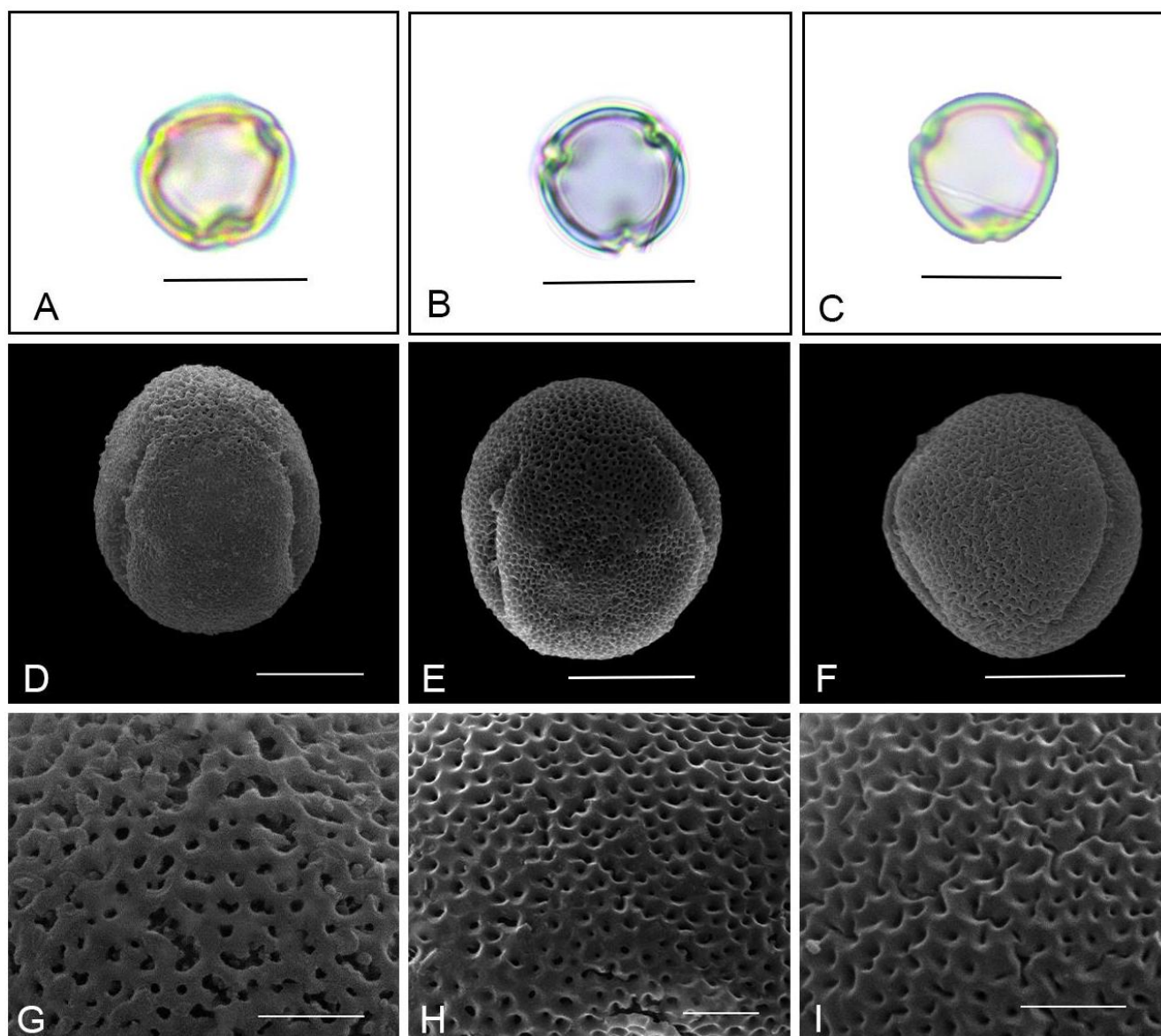


FIGURE 5. Pollen of *Brachylophon* species. **A–C.** LM micrographs in polar view, **D–F.** SEM micrographs in equatorial view, and **G–I.** SEM micrographs of the exine surface. **A, D, G.** *B. anastomosans*, **B, E, H.** *B. curtisii*, and **C, F, I.** *B. sirindhorniae*. **A, B, G, H** are adapted from Chaisongkram et al. (2022). Scale bars: 10 μm for **A–C**, 4 μm for **D–F** and 2 μm for **G–I**.

symmetry with subcircular amb. In terms of size and shape, *B. sirindhorniae* closely resembles *B. anastomosans*, exhibiting very small to small size pollen grain with a prolate spheroidal shape, as reported by Chaisongkram et al. (2022). The exine sculpture is perforate, with a tri-colporate aperture, common feature observed within this genus (Table 4 and Fig. 5).

DISCUSSION

The genus *Brachylophon* consists of three species, all of which are distributed exclusively in Southeast Asia (Siriragsa, 1991). *Brachylophon sirindhorniae* is the new species, confirmed both by morphological

characteristics and molecular data. It belongs to the tribe Acridocapeae (de Almeida et al., 2024). The pollen morphology in *Brachylophon* is highly consistent, which limits its usefulness for taxonomic differentiation. However, these palynological traits provide valuable insights into the broader morphological patterns of the genus. Furthermore, they contribute to better understanding of phylogenetic relationships among taxa within *Brachylophon* and their affinities with other genera in the family. Among these species, only *B. curtisii* has a relatively wide distribution (de Kok, 2024). In contrast, *B. anastomosans* and *B. sirindhorniae* have a narrow distribution.

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