



The genus *Capparis* L. (Capparaceae) in Laos and Cambodia

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Summary. A taxonomic revision of the genus *Capparis* in Laos and Cambodia was undertaken. Based on examination of historical and recent herbarium collections coupled with field investigations, 25 species and 7 intraspecific taxa, all belonging to sect. *Monostichocalyx*, were recognised in the study area. Among these, a new species, *C. averyanoviï*, and a new subspecies, *C. acutifolia* subsp. *thamphae*, from central and northern Laos are described and illustrated. A key to the species is provided, along with descriptions, synonyms, distribution ranges, autecological and phenological data, and 31 lectotypes are selected. When available, vernacular names and traditional uses of the species are also given, based on information from herbarium labels or bibliography. The occurrence of various taxa known only from type material is underlined. Based on the available data, *C. diffusa* and *C. rotundifolia*, two species formerly recorded from Cambodia, are excluded from the flora of the study area.

Key Words. distribution, ecology, Indochina, new taxa, sect. *Monostichocalyx*.

Introduction

The genus *Capparis* L. includes about 150 species (POWO 2022) of small trees, shrubs and climbers occurring in a wide range of habitats in the tropical and subtropical areas of the Old World, with outliers in central Asia and the Mediterranean Region (Souvannakhoumane *et al.* 2020). In the Indo-Pacific area 82 species of the genus, belonging to four sections, i.e. sect. *Capparis*, sect. *Sodada* (Forssk.) Endl., sect. *Monostichocalyx* Radlk. and sect. *Busbeckea* (Endl.) Benth. & Hook.f., were recorded by Jacobs (1965). Recent surveys in south eastern Asia and the western Pacific have allowed the description of several new species from Thailand, Vietnam, Laos, Indonesia, Malaysia, Philippines and New Caledonia (Srisanga & Chayamarit 2004; Thuong *et al.* 2013, 2015, 2018, 2020; Fici 2012, 2016a, 2016b, 2017a, 2017b, 2021; Fici *et al.* 2018, 2020; Fici & Souvannakhoumane 2020; Souvannakhoumane *et al.* 2018, 2020; Julius 2022). The Indochinese Peninsula, comprising Myanmar, Thailand, Laos, Cambodia and Vietnam, is a major centre of speciation of *Capparis*, which includes several endemic species here (Jacobs 1965; Fici 2016a), but the diversity of the genus, and the distribution of its representatives, remain poorly investigated in most of this area. In Laos and Cambodia, a discordant number of intrageneric taxa was recorded by different authors (Gagnepain 1908b; Jacobs 1965; Callaghan 2004; Newman *et al.* 2007b; Inthakoun & Delang 2008; Lee 2016; Cho *et al.* 2016). In addition various *Capparis* species occurring in this area are characterised by complex variability in both vegetative and reproductive characters (Fici 2016a). Based on the above considerations, the taxonomic treatment of the genus in the study area is still critical. Therefore, the

present work aims to provide a revision of *Capparis* in Laos and Cambodia through studies of herbarium collections coupled with field investigations.

Materials and Methods

Herbarium research was carried out on the historical and recent collections of *Capparis* from Indochina kept at P (visited in person), coupled with investigations on the available online collections at A, BM, E, G, GH, K, KUN, L, LE, MO, MPU, NY, PE, SING, TI, U and US. The examination of type specimens was carried out through electronic images available at JSTOR Global Plants (n.d.) and, for recently described taxa, through study of the collections at FOF, HNL and PAL (herbaria visited in person). Field research was also undertaken in northern and central Laos from 2017 to 2019. The species concept adopted follows the one proposed by Jacobs (1965) in his revision of the genus *Capparis* in the Indo-Pacific area. The main diagnostic characters within the genus and the terminology of the vegetative and reproductive structures are based on the same revision. The observations were carried out using an optical microscope (Optika SZM-1). The descriptions and illustrations of new taxa were drawn up on herbarium material. When available the vernacular names of the species and their local uses, based on bibliographic sources or herbarium labels, are reported. The species recognised in the study area are arranged in alphabetical order. The herbarium acronyms follow Thiers (continuously updated), while authors and plant names are based on IPNI (2020). The conservation

status was assessed according to *IUCN Red List Categories and Criteria* (IUCN 2012); the taxa for which there are no data on the distribution and/or population status, and therefore the risks cannot be detected, were assessed as Data Deficient (DD).

Results and Discussion

In the present treatment 25 species of *Capparis*, 5 subspecies and 3 varieties, are recognised in the study area. Among these a new species,

C. averyanovii, and a new subspecies, *C. acutifolia* subsp. *thamphae*, are here described. All the treated taxa belong to sect. *Monostichocalyx*, which includes several species widespread in Africa, Asia, Australia and in the Pacific. Within this section, Jacobs (1965) recognised various “tentative” groups, mostly distinguished by the inflorescence and flower characters, which in several cases appear useful in discussing the relationships among the species, and are therefore mentioned in the following treatment.

Key to the species of *Capparis* in Laos and Cambodia *

1. Flowers in supra-axillary rows2
 - Flowers solitary or in terminal or lateral inflorescences.....12
2. Shoots without cataphylls 3
 - Shoots with cataphylls at the base10
3. Innovations tomentose with stellate, often reddish or brownish hairs.....4
 - Innovations glabrous or tomentose with simple, fulvous-brownish or whitish hairs8
4. Leaf blade gradually caudate; stamens (12 –) 14 – 20.....**C. urophylla**
 - Leaf blade not caudate; stamens \geq 205
5. Leaf blade acuminate with tip 0.7 – 1.7 cm long..... 6
 - Leaf blade when acuminate with tip 0.3 – 0.5 mm long.....7
6. Pedicels glabrous; petals glabrous or tomentose; ovary up to 2.2 (– 3) mm long.....**C. acutifolia**
 - Pedicels hairy, especially in the distal part; petals hairy-floccose; ovary 1 – 1.2 mm long.....**C. pyrifolia**
7. Stipular thorns 2.5 – 6 mm long; filaments 2 – 3.5 (– 5) cm long; gynophore (2 –) 3.5 – 5 (– 6.5) cm long, pubescent at the base.....**C. zeylanica**
 - Stipular thorns 1.5 – 2.5 mm long; filaments (1.4 –) 1.8 – 2.2 cm long; gynophore 1.9 – 2.3 cm long, glabrous or glabrescent.....**C. lianosa**
8. Sepals (6 –) 7 – 10 mm long; stamens c. 47 – 61.....**C. florida**
 - Sepals less than 5.5 mm long; stamens up to 18 (– 21).....9
9. Inner pair of sepals glabrous outside; fruit (0.5 –) 0.7 – 1 (– 1.3) cm in diam., pericarp smooth.....**C. tenera**
 - Inner pair of sepals pubescent outside; fruit 1 – 1.5 (– 2) cm in diam., pericarp covered with small knobs.....**C. echinocarpa**
10. Sepals 2 – 2.5 cm long; petals 3.5 – 4.5 cm long.....**C. macrantha**
 - Sepals up to 1.3 cm long; petals up to 2.5 cm long.....11
11. Twigs firstly pubescent or puberulous, later glabrous; petiole 0.6 – 1 (– 1.5) cm long.....**C. micrantha**
 - Twigs glabrous, densely warty; petiole 4 – 6 mm long**C. radula**
12. Flowers axillary, solitary.....13
 - Flowers in umbels, subumbels, panicles, racemes or conferted at the top of twigs.....14
13. Petiole (2 –) 3 – 4 (– 7) mm long; petals c. 8 – 9 mm long; stamens 6 – 12.....**C. flavicans**
 - Petiole (4 –) 6 – 10 (– 13) mm long; petals (13 –) 20 – 25 (– 27) mm long; stamens c. 36 – 46.....**C. siamensis**
14. Twigs glabrous; leaf-blade more than 7 times as long as wide15
 - Twigs pubescent, puberulous or glabrescent; leaf-blade less than 4 times as long as wide16
15. Leaf blade 15 – 18 × 1.8 – 2.5 cm; sepals 2 – 3 mm long; gynophore 3 – 4 mm long.....**C. lanceolatifolia**
 - Leaf blade (10 –) 10.5 – 15 × (0.9–) 1 – 1.6 cm; sepals 3 – 3.5 mm long; gynophore 8 – 11 mm long.....**C. averyanovii**
16. Twigs sparsely puberulous, with stellate hairs, or glabrescent; cataphylls present**C. hinnamnoensis**
 - Twigs pubescent or puberulous, without stellate hairs, or glabrescent; cataphylls lacking.....17
17. Sepals 8 – 12 (– 13) mm long; stamens c. (30 –) 60 – 70.....**C. trinervia**
 - Sepals up to 8 mm long; stamens up to 4518
18. Thorns when present recurved, 1 – 8 mm long; inflorescence short, terminal or lateral umbel or subumbel, or flowers conferted at the top of lateral twigs.....19
 - Thorns when present straight, c. 1 mm long; inflorescence terminal or subterminal panicle or raceme, more

- than 9 cm long25
19. Petiole 8 – 18 mm long; flowers conferted at the top of lateral twigs.....**C. khuamak**
– Petiole up to 7 (– 10) mm long; flowers in terminal or lateral umbels or subumbels.....20
20. Leaf blade (11.8 –) 15 – 19 (– 20.5) cm long; petals c. 9 – 10 mm long; ovary 2.3 – 3 mm long.....
.....**C. laotica**
– Leaf blade up to 10.5 (– 12.5) cm long; petals up to 9 mm long; ovary up to 2 mm long.....21
21. Twigs glabrous; petals 7 – 9 mm long.....**C. pranensis**
– Twigs firstly pubescent or puberulous, later glabrescent; petals up to 6 (– 7.5) mm long22
22. Gynophore mostly puberulous at base; ovary 1.5 – 2 mm long; fruit 4 – 10 (– 12) mm in diam.....
.....**C. sepiaria**
– Gynophore glabrous; ovary 1 – 1.5 mm long; fruit (8 –) 10 – 18 mm in diam.....23
23. Leaf blade (1.2 –) 1.4 – 3 (– 4) cm long; ovary with pronounced beak.....**C. thorelii**
– Leaf blade (3 –) 5.5 – 10.5 (– 12.5) cm long; ovary without pronounced beak24
24. Petiole 4 – 6 (– 10) mm long; pedicels 0.4 – 2 cm long; stamens 20 – 45.....**C. cantoniensis**
– Petiole 2 – 4 mm long; pedicels 2 – 5 cm long; stamens 12 – 15 (– 20).....**C. diffusa**
25. Twigs densely pubescent with simple hairs; leaves (5.2 –) 6 – 11 (– 14) cm long; inflorescence terminal panicle.....**C. mekongensis**
– Twigs sparsely pubescent with 2-armed hairs; leaves (12 –) 15 – 21 (– 31) cm long; inflorescence terminal or subterminal raceme.....**C. assamica**

* *Capparis diffusa* Ridl., excluded from the species here treated because its record from Cambodia (Jacobs 1965) is erroneous, is included in the key since it occurs in a locality of Vietnam lying a short distance from the Cambodian border. A new species recently discovered in central Laos, *Capparis phatadke* Fici, Lanors., Lamxay & Souvann., was recently published (Fici *et al.* 2022).

Taxonomic Treatment

1. *Capparis acutifolia* Sweet (1830: 585).

Shrubs, small trees or climbers 1 – 7 (– 10) m tall. *Innovations* pubescent with minute stellate hairs; twigs early or late glabrous or glabrescent. *Stipular thorns* lacking or 1 – 4 mm long, straight or slightly retrorse. Petiole 3 – 7 (– 11) mm long. *Leaf blade* herbaceous or subcoriaceous, 1.9 – 4 (– 7) times as long as wide, (4.5 –) 5 – 13 (– 22.5) × (1.5 –) 2 – 5 (– 6.7) cm, widest at or below the middle; base acute, cuneate, blunt or rounded, top acuminate, the tip up to c. 1.7 cm long; surfaces glabrous, in some cases tomentum persistent along the main nerves; nerves (4 –) 5 – 10 pairs. *Flowers* serial, 2 – 5 (– 6) in supra-axillary rows or axillary, solitary; pedicels (0.5 –) 0.6 – 2.5 (– 4) cm long; sepals (3.5 –) 4 – 8 (– 9) × (1.7 –) 2 – 4 mm, outer pair boat-shaped, inner pair elliptic, glabrous or tomentose on the surfaces, ciliate at margins; petals white, obovate, oblong or linear, (5 –) 6 – 12 (– 14) × (1.8 –) 2 – 5 mm, tomentose at margins, glabrous or tomentose on the surfaces; stamens 20 – 35, with filaments (1.5 –) 2 – 2.5 (– 3) cm long; gynophore (1.2 –) 1.5 – 2.7 (– 3.2) cm, glabrous; ovary pear-shaped, ovoid or elongate, 1 – 2.2 (– 3) × 0.5 – 1 mm, beaked, glabrous or in some cases sparsely hairy at the apex. *Fruit* globose, c. 0.8 – 1.5 cm in diam., pericarp thin.

DISTRIBUTION. India, Bhutan, Sikkim, China, Taiwan, Myanmar, Thailand, Laos, Vietnam.

NOTES. Various slightly differentiated species were described in the past in southern Asia on the basis of vegetative characters, often variable, e.g. the kind of pubescence, the presence and size of stipular thorns, the shape of the leaf, etc. During the present investigation, the types of all the taxa belonging to this group and a large amount of herbarium material were examined, and observations of populations in the field were carried out. Based on the data obtained, I consider that the phenotypical characters of these taxa fall within the variation of a single species, split into subspecies. The present treatment therefore follows Jacobs (1965), who in his revision of the genus *Capparis* from the Indus to the Pacific, adopted a large species concept recognising a single species, *Capparis acutifolia*, subdivided into five subspecies. Chayamarit (1991), in her treatment of the genus *Capparis* for *Flora of Thailand*, adopted a narrower species concept, reporting in this country two separate species, i.e. *C. acutifolia* and *C. sabiifolia* Hook.f. & Thomson, distinguished by vegetative characters, whereas the flower and fruit features of these species largely overlap in the descriptions furnished by the author. It is also to be underlined that a relevant character, i.e. the presence of cataphylls at the base of the shoots, was reported by Chayamarit (1991: 242) for *C. sabiifolia*, and regarded as distinctive from *C. acutifolia*, in which cataphylls are lacking; this is however a critical character, since cataphylls are not

present in the type specimens of *C. sabiifolia* and in other material from the wide distribution range examined during the present study. More recently other authors (Zhang & Tucker 2008; Maurya *et al.* 2020) treated the entities belonging to this group in China and India as separate species, differentiated by vegetative characters. Lastly Julius (2022) recognised in Malaysia a single species, *C. acutifolia*, but underlined that “there are five subspecies treated under this species (Jacobs 1965), but the other four have all been elevated to species rank”.

With regard to other groups of similar complexity in the genus *Capparis*, the species concept adopted for *C. spinosa* and its allies has been long debated. The representatives of this group were alternatively treated by several authors (Boissier 1867; Zohary 1960; Maire 1965; St. John 1965; Jacobs 1965; Higton & Akeroyd 1991; Inocencio *et al.* 2006; Fici 2014, 2015) as species or as subspecies and varieties. Recent molecular analyses carried out in the Mediterranean and Middle East (Gristina *et al.* 2014; Rhimi *et al.*

2019; Ahmadi *et al.* 2020) confirmed the opportunity to adopt for this group a broad species concept recognising a single species, *C. spinosa*, split into subspecies. At present genomic studies are in progress (Mercati *et al.* 2019), aimed at investigating the phylogeny of the genus *Capparis*, and the data obtained will also be useful in elucidating the taxonomic treatment of the *C. acutifolia* group.

With regard to the study area, three subspecies of *Capparis acutifolia*, i.e. subsp. *acutifolia*, subsp. *viminea* M.Jacobs and subsp. *sabiifolia* (Hook.f. & Thomson) M.Jacobs, were recorded by Jacobs (1965) and Fici (2016a). Furthermore, a new subspecies, characterised by the reduced size of the flower and ovary, is here described from northern Laos.

Based on the terminology adopted by Jacobs (1965), in the present treatment the term innovation refers to the “very young twigs with leaves as well as the young inflorescences”. The following key includes the subspecies recognised in the study area.

Key to the subspecies of *Capparis acutifolia* in the study area

1. Twigs pubescent, later glabrescent; leaves c. 1.9 – 2.5 times as long as wide, base somewhat decurrent along the petiole.....subsp. **viminea**
 - Twigs early glabrous; leaves \geq 2.4 times as long as wide, base not decurrent.....2
2. Pedicels up to 2.5 (– 4) cm long; petals glabrous inside.....subsp. **acutifolia**
 - Pedicels up to 1.1 cm long; petals tomentose inside.....3
3. Leaf base acute or cuneate; sepals (3.5 –) 4 – 5 mm long; ovary up to 1.5 mm long, sparsely hairy at apex.....subsp. **thamphae**
 - Leaf base rounded, blunt or acutish; sepals 5 – 6 mm (– 6.5) long; ovary up to 2 (– 2.5) mm long, glabrous..... subsp. **sabiifolia**

1.1. *Capparis acutifolia* Sweet subsp. **acutifolia**. Type: [icon] “*C. acuminata* (non Willd.) Lindl., *Bot. Reg.* 16 (1830) t. 1320” (lectotype selected by Jacobs (1965: 427)).

Capparis acuminata Lindl. (Lindley 1830: 1320), non Willd. (Willdenow 1799: 1131). Fig. 1.

Capparis membranacea Gardner & Champ. (Gardner 1849: 241). Type: Hong Kong, *Champion* s.n. (lectotype K 000380482 digital image!, selected by Jacobs (1965: 427)).

Capparis membranacea var. *angustissima* Hemsl. (Hemsley 1895: 145). Type: Formosa, Bankinsing, Henry 471 (lectotype K 000380487 digital image!, selected by Fici (2016a: 169); isolectotype A 00042259 digital image!).

Capparis kikuchii Hayata (1913: 21). Type: Formosa, Tôkô, 6 June 1913, *Kikuchi* s.n. (lectotype TI 00010596 digital image!, selected by Jacobs (1965: 429); isolectotype L 0035302 digital image!).

Capparis leptophylla Hayata (1913: 22). Type: Formosa, Akô, Makinshô, 24 March 1910, *Sasaki* s.n. (lectotype TI 00010601 digital image!, selected by Jacobs (1965: 429); isolectotype L 0035301!).

Capparis tenuifolia Hayata (1913: 23). Type: Formosa, Akô, Tokô, 25 April 1907, *Mori* 2930 (lectotype TI

00010604 digital image!, selected by Jacobs (1965: 429); isolectotype L 0035303 digital image!).

Shrub or climber. *Twigs* early glabrous. *Stipular thorns* lacking or 1 – 3 (– 4) mm long, straight. *Petiole* 4 – 7 (– 11) mm long. *Leaf blade* chartaceous or subcoriaceous, (2.4 –) 3 – 4 (– 7) times as long as wide, (4.5 –) 7 – 13 (– 22.5) \times (1.5 –) 2.2 – 4 (– 5) cm, broadest at or below the middle; base acute or cuneate, top acuminate, the tip up to c. 0.7 – 1 cm long; surfaces glabrous; nerves c. 8 – 10 pairs. *Flowers* 2 – 5 (– 6) in supra-axillary rows or solitary; pedicels 0.8 – 2.5 (– 4) cm long; sepals boat-shaped, (4 –) 5 – 8 (– 9) \times 2.5 – 4 mm, glabrous, ciliate at margins; petals obovate, (6 –) 7 – 12 (– 14) \times (2 –) 3 – 5 mm, tomentose at margins and in some cases outside towards the top; stamens 20 – 35, filaments c. (1.8 –) 2 – 2.3 (– 3) cm long; gynophore (1.3 –) 1.7 – 2.7 (– 3.2) cm long, glabrous; ovary pear-shaped, c. 1.5 – 2.2 (– 3) \times 0.5 – 1 mm, with beak c. 0.2 – 0.7 mm long, glabrous or with sparse hairs at the apex. *Fruit* globose c. 1 – 1.5 cm in diam.

DISTRIBUTION. China (Fujian, Guangdong, Hunan, Jiangxi, Zhejiang), Taiwan, Vietnam and Laos (Jacobs



Fig. 1. Illustration of *Capparis acuminata*. (From Lindley 1830).

1965; Zhang & Tucker 2008; Fici 2016a). In the study area known from the Khammouan Province, in central Laos.

SPECIMENS EXAMINED. LAOS. Khammouan Province, Nakai Distr., Oudom Souk, 8 April 2005, *Nanthavong* 144 (L 0407821).

HABITAT. Forests, thickets and open woody formations, up to c. 1200 m. In Laos collected in degraded forest dominated by *Pinus merkusii* Jungh. & de Vriese, at 533 m (*Nanthavong* 144).

CONSERVATION STATUS. Due to the scanty information available on this subspecies in the study area, it is here assessed as Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering in March – May (Jacobs 1965; Chayamarit 1991). Material from Laos flowering in April.

VERNACULAR NAME. Lao: Xa-duang (Inthakoun & Delang 2008).

NOTES. In the protologue of *Capparis acuminata*, Lindley (1830) reported: “This beautiful species of Caper was sent from China by John Reeves, Esq. to the Horticultural Society, in whose Garden it blossomed in September 1828. It is a tender greenhouse shrub, with neat foliage, and handsome scentless flowers...”. Lindley (1830) described the flowers as axillary, solitary, a feature clear in his illustration (Fig. 1). The solitary flowers are explained by Jacobs (1965) as a kind of depauperation, occasionally occurring in the species. In the examined material from Laos (*Nanthavong* 144) the flowers are solitary or 2 in supra-axillary rows, and the ovary is c. 1.7 – 2 mm long.

With regard to Indochina, Jacobs (1965) recorded only a few collections of this subspecies from Annam. Of these, *Schmid* 9 has 2 – 5 flowers in supra-axillary rows in the upper part of twigs and solitary flowers at the axil of lower leaves, pedicels 2 – 2.8 cm long, sepals 5 – 6 × 3 – 4 mm, petals 8 – 9 × 3.5 – 4 and ovary c. 1.8 mm long; in *Chevalier* 40389 the flowers are solitary or 2 – 3 in rows, the pedicels are 2 – 2.5 cm long, the sepals 5 – 6 × 2.5 – 3 mm, petals c. 8 – 9 × 4 mm and ovary c. 1.7 mm long.

Along its wide distribution range this subspecies shows high variability in both vegetative and reproductive characters, in some cases intergrading with subsp. *sabiifolia*. The type of *C. membranacea* (*Champion* s.n.), from Hong Kong, has leaves 7.5 – 8 cm long, petals 8 – 9 × 3 mm and ovary 2 × 0.7 – 0.8 mm. In Taiwan Chung *et al.* (2004) reported 1 – 3 flowers in rows, ovary 2.5 – 3 mm long and stigma with few hairs. The type of *C. membranacea* var. *angustissima* (*Henry* 471), from Taiwan, shows anomalous, narrow leaves 8.5 – 20 × 0.5 – 0.8 cm, petals 8 – 9 × 2.5 – 3 mm and ovary 1.8 – 2 × 0.7 – 0.8 mm.

1.2. *Capparis acutifolia* subsp. *sabiifolia* (*Hook.f. & Thomson*) *M.Jacobs* (1965: 432). Type: [INDIA] Khasia,

13 July 1850, *Hook. f. & Thomson* 1692 (lectotype K 000247295 digital image!, selected by Maurya *et al.* (2021: 129); isolectotype K 000247296 digital image!). *Capparis sabiifolia* Hook.f. & Thomson (*Hooker f. & Thomson* 1872: 179).

Capparis vientianensis Gagnep. (*Gagnepain* 1939: 599). Type: [Laos] Borikhane, Wieng Chan [Vientiane], 27 March 1932, *Kerr* 20748 (lectotype P 04022327 digital image!, selected here; isolectotypes BM 000629301 digital image!, K 000643974 digital image!).

Shrub, small tree or climber. *Twigs* early glabrous. *Stipular thorns* straight or pointing upwards, 1.5 – 2 (– 4) mm long, often lacking on the young twigs. *Petiole* 4 – 6 (– 8) mm long. *Leaf blade* chartaceous, 2.4 – 3 (– 4) times as long as wide, (5.2 –) 7.5 – 10 (– 14.5) × (2 –) 2.5 – 4 (– 4.7) cm, widest at or below the middle; base rounded, blunt or rarely acutish, top acuminate, tip c. 0.7 – 1.5 cm long; surfaces glabrous; nerves (6 –) 7 – 8 (– 10) pairs. *Flowers* 2 – 5 in supra-axillary rows or solitary; pedicels (0.5 –) 0.7 – 1.1 cm long; sepals 5 – 6 (– 6.5) × (2 –) 2.5 – 3 mm, ciliate at margins, glabrous or puberulous outside, glabrous or densely tomentose inside; petals oblong, 6 – 8 (– 10) × 2 – 3 mm, densely tomentose inside or on both surfaces; stamens c. 20 – 30, with filaments c. 2 – 2.5 cm long; gynophore 1.8 – 2.4 (– 2.6) cm long, glabrous; ovary pear-shaped or elongate, c. (1.5 –) 1.7 – 2 (– 2.5) × 0.5 – 0.8 mm, with beak 0.3 – 0.5 mm long, glabrous. *Fruit* globose, c. 1 – 1.5 cm in diam. Fig. 2.

DISTRIBUTION. North-eastern India, China (Hainan, Xizang, Yunnan), Taiwan, Myanmar, Thailand, Laos, Vietnam (Jacobs 1965; Chung *et al.* 2004; Zhang & Tucker 2008). In the study area reported from northern and central Laos.

SPECIMENS EXAMINED. LAOS. Borikhane, Wieng Chan, 29 March 1932, *Kerr* 20748 (P 04022327, BM 000629301, K 000643974); Viang Chan [Vientiane] Mun., Saithani Distr. Laopako c. 35 km NE of Viangchan [Vientiane] at Nam Ngum, 16 April 1996, *Klackenberg* 1014 (P 00937747); Laos, Khammouan Province, Nong Ping, 30 March 2018, *Fici* 1850 (PAL).

HABITAT. Along its wide distribution range this taxon is recorded from thickets, open scrubby slopes, evergreen and deciduous mixed forest between 200 and 2000 m (Jacobs 1965; Chayamarit 1991). In Laos it has been collected in scrub (*Kerr* 20748), at the base of karst formations at c. 190 m (*Fici* 1850) and in secondary vegetation with remnants of primary forest at c. 170 m (*Klackenberg* 1014).

CONSERVATION STATUS. Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). Based on the available information and on field observations, the populations from Laos are not exposed to threats.



Fig. 2. *Capparis acutifolia* subsp. *sabiifolia*. PHOTO: SOULIVANH LANORSAVANH.

PHENOLOGY. Flowering in March – May (Jacobs 1965; Chayamarit 1991). Based on the available material, flowers in March in Laos.

VERNACULAR NAME. Lao: *Sai su* (Gagnepain 1939).

NOTES. The plant is described as a straggling shrub on the type of *Capparis vientianensis* (Kerr 20748). In some cases the branches are reported as lacking stipular thorns (Chung *et al.* 2004; Zhang & Tucker 2008); in the specimens from Laos straight thorns up to 4 mm long are present, but in *Fici* 1850 the thorns are developed only on the older branches, lacking on the fertile twigs. In the latter specimen the sepals are tomentose inside, as reported by Chayamarit (1991) and Chung *et al.* (2004), and the petals are densely tomentose on both surfaces.

1.3. *Capparis acutifolia* subsp. *viminea* M.Jacobs (1965: 429). Type: Sikkim, *Hooker f.* 48 (lectotype K 000247292 digital image!, selected here; isolectotypes GH 00042264 digital image!, K 000247291 digital image!, L 0035305 digital image!).

Capparis viminea Hook.f. & Thomson (Hooker f. & Thomson 1872: 179), nom. illegit., non Hook.f. & Thomson ex Oliv. (Oliver 1868: 97).

Capparis membranifolia Kurz (1874: 70). Type: [Myanmar] Chymenah [Choungmenah], Kurz 1826 (lectotype K 000247293 digital image!, selected here; isolectotype CAL not seen).

Ficus marchandii H.Lév. (Léveillé 1913: 533). Type: [China] Kweichow, *Esquirol* s.n. (lectotype A 00039182 digital image!, selected by Jacobs (1965: 431)).

Capparis viminea var. *ferruginea* B.S.Sun (1964: 112). Type: [China] Yunnan, Foo-ning, C. W. Wang 88961 (holotype PE, not seen).

Shrub or climber. *Twigs* densely pubescent, later glabrescent. *Stipular thorns* mostly present on the older branches, straight, up to 4 mm long. *Petiole* (4 –) 6 – 7 (– 11) mm. *Leaf blade* herbaceous to subcoriaceous, c. 1.9 – 2.5 times as long as wide, (5.5 –) 6 – 10.5 (– 13.5) × (2.8 –) 3 – 5 (– 6.7) cm, widest at or below the middle; base somewhat decurrent along the petiole, top acuminate, tip to 1.7 cm long; surfaces glabrous, but tomentum persistent along the main nerves; nerves 5 – 7 pairs. *Flowers* 2 – 5 in supra-axillary rows or solitary; pedicels 0.7 – 1 (– 1.8) cm; sepals c. (4.5 –) 5 – 6 (– 6.5) × 2.5 – 3.5 mm, outside and inside shortly tomentose to glabrescent, ciliate at margins; petals (5.5 –) 6.5 – 9 (– 10) × (2 –) 2.5 – 3 mm long, densely tomentose on both surfaces or glabrescent outside, tomentose at margins; stamens 20 – 35, filaments c. 1.7 – 2.5 (– 3) cm long; gynophore (1.2 –) 1.5 – 2.3 cm long; ovary pear-shaped or elongate, c. 1.2 – 1.5 × 0.6 – 0.8 mm, with beak 0.2 – 0.4 mm long, glabrous. *Fruit* globose, dark-coloured, 0.8 – 1.5 cm in diam.

DISTRIBUTION. North-eastern India, Sikkim, Bhutan, China (Guangdong, Guangxi, Guizhou, Hainan, Hunan, Xizang, Yunnan), Myanmar, Thailand, Laos, Vietnam (Jacobs 1965; Zhang & Tucker 2008). Recorded also from Cambodia by Zhang & Tucker (2008), but during the present research no material from this country has been examined.

A few specimens of this subspecies from Laos are kept at P; among these the only ascertained locality is Paklay in Sayaboury Province.

SPECIMENS EXAMINED. LAOS. Paklai [Paklay], 1866 – 1868, *Thorel* s.n. (P 05454038); Cahn Trap, *Spire* 1210 (P05454031); without locality, *Spire* s.n. (P 05454032).

HABITAT. Thickets, forests, dry and moist, sandy or loamy soil. In Sikkim recorded up to 1500 m, elsewhere up to 500 m (Jacobs 1965).

CONSERVATION STATUS. Due to the scanty information available on the population of this subspecies in the study area, it is here assessed as Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering January – April (Zhang & Tucker 2008).

VERNACULAR NAME. Laos: Dok Su Dong (*Spire* 1210).

NOTES. Few specimens of this subspecies were examined from Laos. *Thorel* s.n. is a sterile branch, with leaves 7.5 – 9.5 × 3 – 4.2 cm. *Spire* 1290 and *Spire* s.n. are two flowering specimens with leaves 5.5 – 8.5 × 2.8 – 4.2 cm, flowers solitary or 2 – 4 in supra-axillary rows, pedicels 0.7 – 1 cm long, sepals c. 5 – 5.5 × 3 mm, petals 6.5 – 7 × (2 –) 2.5 mm, filaments 1.7 – 2 cm long, gynophore 1.5 – 2.2 cm long and ovary 1.2 – 1.5 × 0.6 – 0.7 mm.

1.4. *Capparis acutifolia* subsp. **thamphae** *Fici, Lanors. & Souwann. subsp. nov. Type: Laos, Xiangkhoang Province, Nong Tang, 25 March 2019, *Fici & Giannitrapani* 1915 (holotype PAL!).*

<http://www.ipni.org/urn:lsid:ipni.org:names:77307774-1>

Erect shrub up to c. 2.5 (– 3) m tall. *Trunk* up to c. 10 cm in diam., bearing knobs with thorns; twigs early glabrous. *Stipular thorns* straight or pointing upwards, 1 – 3 mm long, mostly wanting on the young twigs. *Petiole* (3 –) 4 – 6 (– 7) mm long, glabrous, often puberulous along the furrow. *Leaf blade* herbaceous, 2.4 – 3.4 times as long as wide, (6 –) 6.5 – 10.5 (– 13.5) × (1.8 –) 2.4 – 4.3 (– 5.3) cm, broadest at or below the middle; base acute or cuneate, top acuminate, the tip up to 1.5 cm long; surfaces glabrous, in some cases puberulous along the nerves; nerves (4 –) 5 – 6 (– 7) pairs. *Flowers* 2 – 4 (– 6) in supra-axillary rows; pedicels 0.6 – 0.9 (– 1) cm long; sepals (3.5 –) 4 – 5 × (1.7 –) 2 – 3 mm, glabrous outside, densely tomentose inside, ciliate at margins; petals linear or oblong, (5 –) 5.5 – 7

(– 8) × (1.8 –) 2 – 2.4 mm, tomentose on both surfaces and at margins; stamens c. (20 –) 23 – 27, filaments 1.5 – 2.3 cm long; gynophore (1.2 –) 1.7 – 2.3 cm long, glabrous; ovary ovoid, 1 – 1.5 × 0.6 – 0.8 mm, including a beak c. 0.2 – 0.4 mm long, glabrous, sparsely hairy at the apex. *Fruit* unknown. Fig. 3.

RECOGNITION. Differs from *Capparis acutifolia* subsp. *acutifolia* in the lower number of nerves, (4 –) 5 – 6 (– 7) pairs vs c. 8 – 10, pedicels up to 0.9 (– 1) cm long vs up to 2.5 (– 4) cm, sepals densely tomentose inside vs glabrous, petals tomentose on both surfaces and at margins vs tomentose only at margins and in some cases outside towards the top, and shorter ovary, 1 – 1.5 mm long vs c. 1.5 – 2.2 (– 3) mm.

DISTRIBUTION. Known from two localities of the Xiangkhoang Province, at 19°30'56"N, 102°53'48"E (*Fici & Giannitrapani* 1915), and at c. 19°33'02"N, 103°39'56"E (*Hiep et al.* LA-VN 1005).

SPECIMENS EXAMINED. LAOS. Xiangkhoang Province, Nong Tang, c. 33 km NW of Phonsavan, 25 March 2019, *Fici & Giannitrapani* 1915 (holotype PAL); Xiangkhoang Province, Huad village, Phou tat Vinh Mt, 4 April 2015, *Hiep et al.* LA-VN 1005 (LE 01077282, P 00980813).

HABITAT. Open scrub with *Toddalia asiatica* (L.) Lam. and *Rubus* sp. at the base of limestone formations, at 1150 m elevation (*Fici & Giannitrapani* 1915), and broad-leaved evergreen dry forest on alluvial valley and on foothills of limestone remnant mountains at 700 – 750 m (*Hiep et al.* LA-VN 1005).

CONSERVATION STATUS. The new subspecies is known only from two localities, where a few individuals were observed. Given the very small area of occupancy known, it is assessed as Vulnerable (VU D2) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering in March – April, based on the available material.

ETYMOLOGY. The subspecific epithet is named after Tham Pha, a cave complex close to the type locality, housing a large sitting Buddha as well as hundreds of Buddha images and the ruins of ancient Buddhist temples.

NOTES. *Capparis acutifolia* subsp. *thamphae* is characterised by the erect habit, glabrous twigs, sepals densely tomentose inside, petals tomentose on both surfaces and short ovary. The ovary of the new subspecies is glabrous with sparse hairs at the apex, a character in some cases occurring also in subsp. *acutifolia* in Laos. The new subspecies is also differentiated from *C. acutifolia* subsp. *sabuiifolia* by the leaf base acute or cuneate vs rounded, blunt or acutish, lower number of nerves, (4 –) 5 – 6 (– 7) pairs vs c. 7 – 8 (– 10), shorter sepals, (3.5 –) 4 – 5 mm long vs 5 – 6 (– 6.5) mm, and shorter ovary, 1 – 1.5 mm long vs c. (1.5 –) 1.7 – 2 (– 2.5) mm, sparsely hairy at the apex vs glabrous.

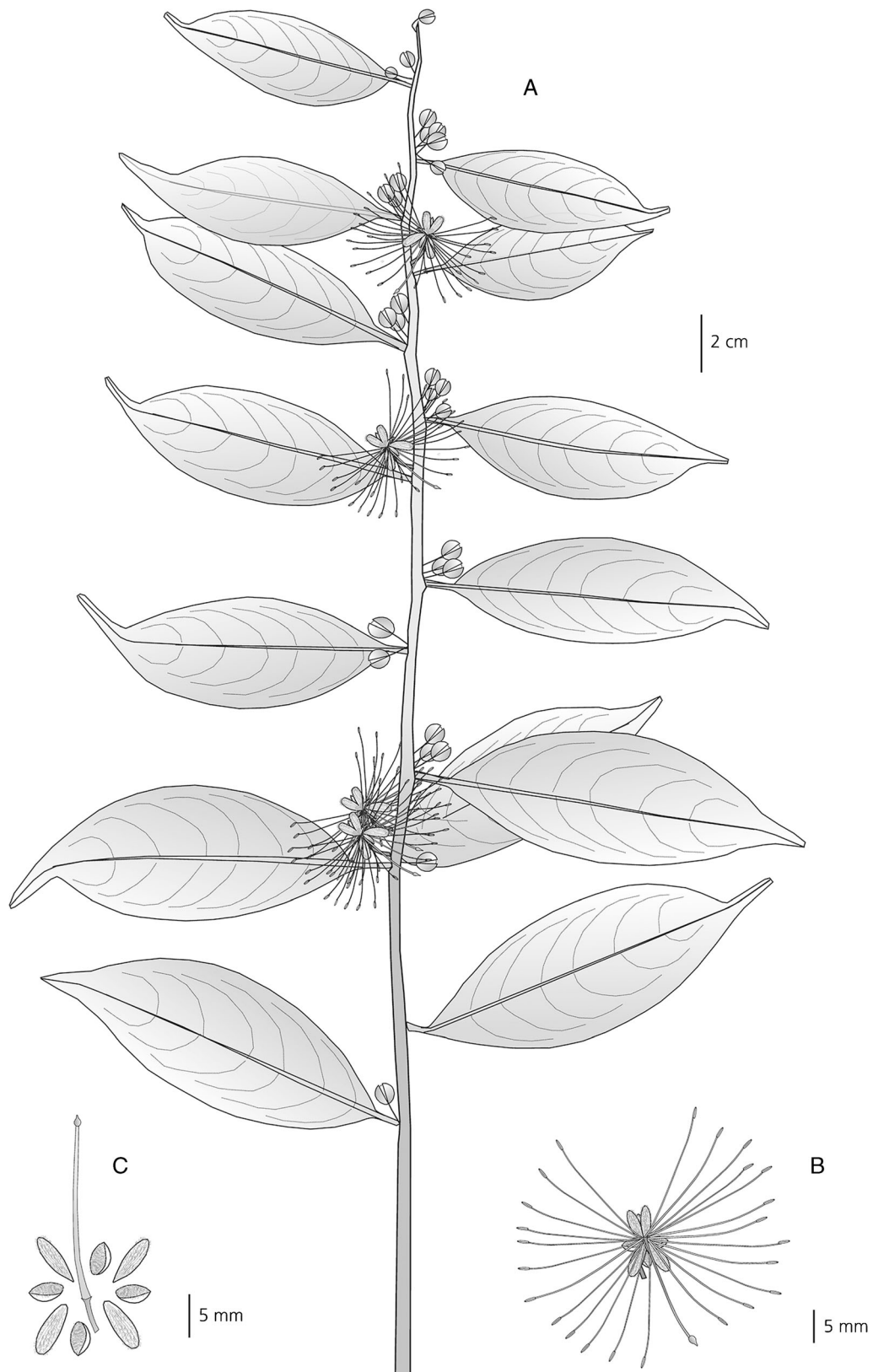


Fig. 3. *Capparis acutifolia* subsp. *thampae*. A flowering branch; B flower; C dissected flower showing sepals, petals, gynophore and ovary. All from Fici & Giannitrapani 1915 (holotype PAL). DRAWN BY SILVIO FICI.

2. **Capparis assamica** *Hook.f. & Thomson* (Hooker & Thomson 1872: 177). Type: [India] East Bengal, Griffith 602 (lectotype K 000247299 digital image!, selected by Jacobs (1965: 434)).

Capparis gallatyi King (King & Brühl 1896: 118). Type: [Myanmar] Tenasserim, Moolar Plain, 25 April 1877, Gallatyi 880 (lectotype K 000247298 digital image!, selected here; isolecotypes BM 010769786 digital image!, CAL not seen).

Shrub up to c. 3 m tall. *Twigs* sparsely pubescent, with 2-armed hairs, but early glabrescent. *Stipular thorns* often lacking or c. 1 mm long, straight. *Petiole* 5 – 9 mm long. *Leaf blade* subcoriaceous, 2.4 – 3.5 times as long as wide, (12 –) 15 – 21 (– 31) × (3.5 –) 4 – 7 (– 8.5) cm, widest at or above the middle; base acute, top acuminate, tip up to 1.3 cm long; surfaces glabrous; nerves 8 – 10 pairs. *Inflorescence* a terminal or subterminal, multiflorous raceme 11 – 20 (– 28) cm long, with subulate bracts 1 – 2 mm long at the base and subtending the flowers, rhachis sparsely puberulous; pedicels c. (0.5 –) 1 – 1.7 (– 2) cm long, puberulous; sepals subequal, 3 – 4 (– 5) × 1.5 – 2.5 mm, puberulous outside; petals white, ovate, 3 – 4 × 1.5 – 2 mm, puberulous at the base; stamens 12 – 20, filaments c. (5 –) 8 – 10 mm long; gynophore 6 – 9 (– 11) mm long, glabrous; ovary ovoid, c. 1.5 – 2 × 1 mm, glabrous. Fruit globose, 6 – 9 mm in diam., red.

DISTRIBUTION. North eastern India, Bhutan, Myanmar, China (Guangdong, Hainan, Xizang, Yunnan), Thailand, Vietnam, Laos (Chayamarit 1991; Zhang & Tucker 2008). Based on Tucker *et al.* (2012) the species is possibly present in eastern Nepal. In the study area, recorded from a single locality (Jacobs 1965) in central Laos (Khammouan Province), at 17°54'23"N, 104°34'11"E.

SPECIMENS EXAMINED. LAOS. Ban Sao, prov. Thakhek [Khammouan Province], 13 April 1950, Vidal 1247 (P 04746663, P 04746216).

HABITAT. Dense, evergreen forest, from lowlands up to c. 1200 m (Jacobs 1965; Chayamarit 1991; Zhang & Tucker 2008). In Laos collected in humid forest on limestone at c. 180 m (Vidal 1247).

CONSERVATION STATUS. In the study area the species was collected in a single locality of central Laos. Due to the scanty information available, it is here assessed as Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering in (January) March – April (Zhang & Tucker 2008). In Laos collected in flower in April (Vidal 1247).

VERNACULAR NAME. Laos: Mao (Vidal 1247).

NOTES. The single collection examined from Laos shows leaves 2.4 – 3.5 times as long as wide, widest above the middle, 15 – 16.8 × 4.2 – 6.8 cm, with tip up to 1.3 cm long and 8 – 9 pairs of nerves; the inflorescence is 20 cm

long, with subulate bracts c. 1 mm long and flower buds on short pedicels, c. 5 – 6 mm long. Jacobs (1965) stated that *Capparis assamica* is found “always in the jungle”. If considering the richness of suitable forest habitats, the species is likely more widespread in central Laos.

3. **Capparis averyanovii** *Fici, Lanors. & Souwann., sp. nov.* Type: Laos, Khammouan prov., Boualapha Distr., Nong Seng village, 4 May 2018, *Averyanov et al.* AL 606 (holotype LE 01049156!).

<http://www.ipni.org/urn:lsid:ipni.org:names:77307778-1>

Small climber. *Twigs* glabrous. *Stipular thorns* lacking in the available material. *Petiole* 5 – 6 (– 7) mm long. *Leaf blade* subcoriaceous, narrowly lanceolate or linear, 9.4 – 12.5 times as long as wide, (10 –) 10.5 – 15 × (0.9 –) 1 – 1.6 cm; base acute, top narrowly acute; surfaces glabrous; nerves c. 11 – 12 pairs. *Inflorescence* a terminal multiflorous raceme 9 – 10.9 cm long in the available material, with subulate bracts up to 2 mm long, densely conferted at the base and subtending the flowers, rhachis sparsely puberulous; pedicels 1.5 – 1.9 cm long; sepals 3 – 3.5 × 1.5 – 2 mm, glabrescent or ciliate at margins; petals white, oblong or obovate, 3 – 4 × 1.5 – 2.5 mm, pubescent or puberulous, the upper pair with reddish or pink honey-guide; stamens c. (10 –) 13 – 15, with filaments c. 1.1 – 1.4 cm long; gynophore 8 – 11 mm long, glabrous; ovary ellipsoid or pear-shaped, 1 – 1.2 × 0.5 – 0.8 mm, glabrous, shortly beaked. *Fruit* unknown. Fig. 4.

RECOGNITION. *Capparis averyanovii* is related to *C. assamica*, differing in several characters, such as the innovations glabrous vs sparsely pubescent, leaf blades narrowly lanceolate or linear, 9.4 – 12.5 times as long as wide vs 2.4 – 3.5 times, nerves c. 11 – 12 pairs vs 8 – 10, inflorescence 9 – 10.9 cm long vs 11 – 20 (– 28) cm, filaments c. 1.1 – 1.4 cm long vs c. (0.5 –) 0.8 – 1 cm, ovary 1 – 1.2 mm long vs c. 1.5 – 2 mm.

DISTRIBUTION. Known only from the top of Phou Chuang (Poujeuang) Mt in central Laos, at c. 17°35'00.3"N, 105°47'35.6"E.

SPECIMENS EXAMINED. LAOS. Khammouan prov., Boualapha Distr., Nong Seng village, southern sandstone slopes at summit of Phou Chuang (Poujeuang) Mt, 4 May 2018, *Averyanov et al.* AL 606 (holotype LE 01049156).

HABITAT. Primary evergreen mixed and coniferous dense forest, on sandstone slopes at 1000 – 1400 m.

CONSERVATION STATUS. *Capparis averyanovii* is known only from the type locality, where it is reported as occasional by the collectors. Lacking information to evaluate its risks, the new species is assessed as Data Deficient (DD).

PHENOLOGY. Flowering in May.

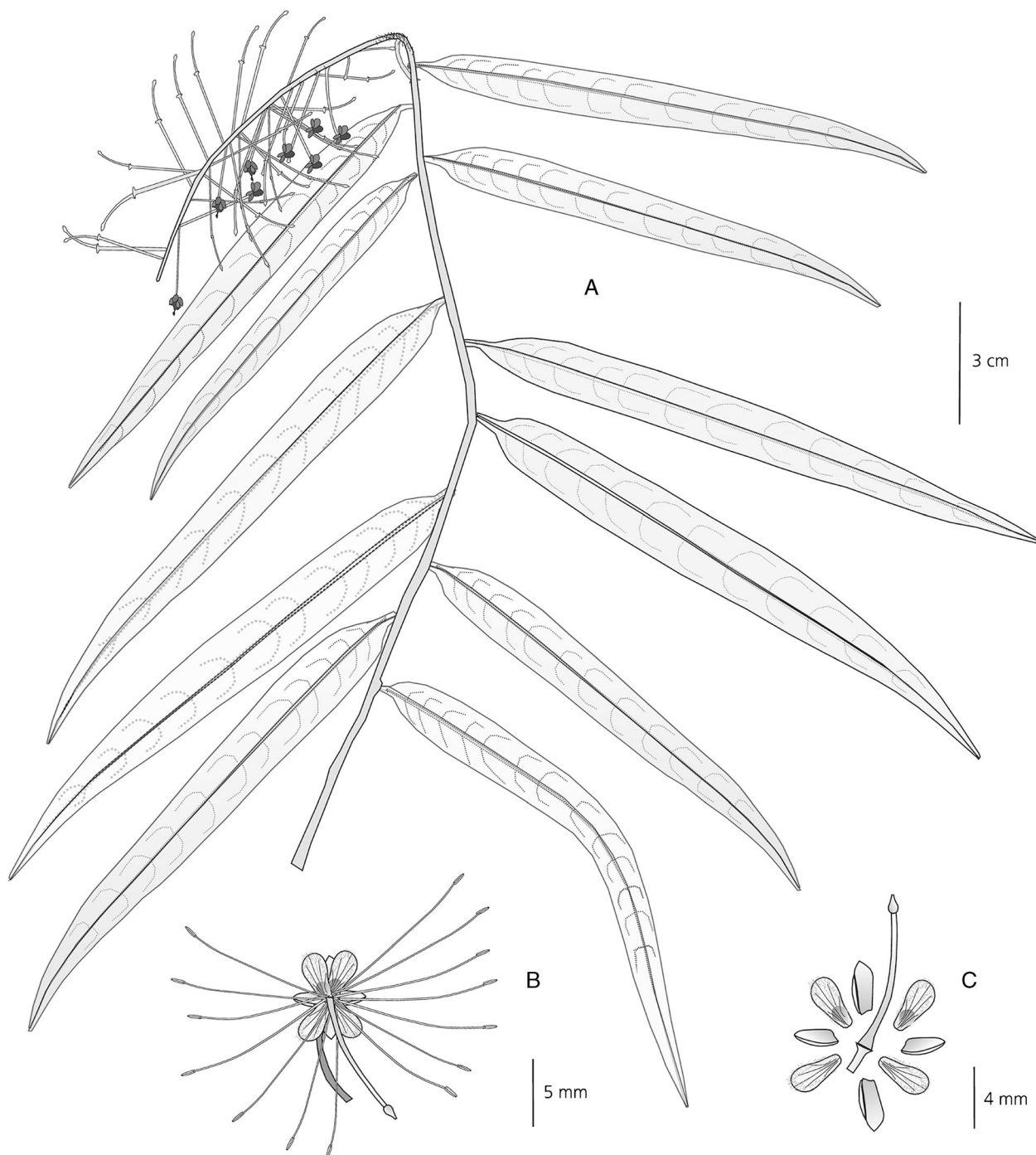


Fig. 4. *Capparis averyanovii*. **A** flowering branch; **B** flower; **C** dissected flower showing sepals, petals, gynophore and ovary. All from Averyanov et al. AL 606 (holotype LE). DRAWN BY SILVIO FICI.

ETYMOLOGY. The species is named after Leonid V. Averyanov, renowned botanist and expert on the Indochinese flora, collector of the type specimen.

NOTES. *Capparis averyanovii* was recorded by the collectors as a small vine, while the related *C. assamica* is a shrub (Chayamarit 1991; Zhang & Tucker 2008). The new species shows also affinities with *C. lanceolatifolia*, a species recently described from

the same province of Laos, characterised by similar, narrowly lanceolate leaf blades, but more than 1.8 cm wide, and by shorter sepals (2 – 3 mm long), filaments (2 – 3.5 mm long) and gynophore (3 – 4 mm long).

4. *Capparis cantoniensis* Low. (Loureiro 1790: 331).
Type: [China] Kwang Tung Province, Canton &

Vicinity, 9 March 1917, *Levine* 1247 (neotype E 00327222 digital image!, selected by Jacobs (1965: 441); isoneotypes A 00277170 digital image!, GH 00042251 digital image!, K 000380489 digital image!, L 0035314 digital image!, US 00100536 digital image!).

Olofuton racemosum Raf. (Rafinesque 1838: 108).

Capparis salaccensis Blume (1825: 54). Type: [Indonesia] Java, Salak, *Blume* s.n. (lectotype L 0035316 digital image!, selected by Jacobs (1965: 441)).

Capparis pumila Champ. ex Benth. (Bentham 1851: 260). Type: [China] Hong Kong, Black Mts, s.c. 353 (lectotype K 000380490 digital image!, selected here).

Capparis sciaphila Hance (1866: 206). Type: [China] in umbrosis ad Hong Kong, Aug. 1861, *Hance* 7490 (lectotype K 000380492 digital image!, selected here; isolectotype BM 010775773 digital image!).

Capparis hasseltiana Miq. (Miquel 1870: 24). Type: [Indonesia] Java, Bantam, G. Karang, *van Hasselt* s.n. (lectotype L 0035315 digital image!, selected here; isolectotype U 0000954 digital image!).

Capparis celebica Miq. (Miquel 1870: 26). Type: [Indonesia] Celebes, Belang, *Forsten* 344 (lectotype L 0035322 digital image!, selected by Jacobs (1965: 441)).

Capparis ambigua Kurz (1877: 65). Type: [India] South Andaman, *Kurz* s.n. (lectotype K 000247302 digital image!, selected here).

Capparis pumila var. *arfeuilleana* Gagn. (Gagnepain 1908b: 189). Type: [Vietnam] in monti Dinh ad Baria, austro Cochinchine, Oct. 1866, *Pierre* 4008 (lectotype P 04747011 digital image!, selected here; isolectotypes P 04747012, P 04747013 digital images!).

Cudrania bodinieri H.Lév. (Léveillé 1914: 265). Type: [China] Hong Kong, Torrent de la Baie du Télégraphe près Bethanie, 14 Jan. 1896, *Bodinier* 1413 (lectotype E 00327223 digital image!, selected here).

Vanieria bodinieri (H.Lév.) Chun (1927: 21).

Climber up to 20 m tall. *Twigs* puberulous, later glabrescent. *Stipular thorns* retrorse, 1 – 5 mm long, in some cases patent, often wanting on fertile branches. *Petiole* 4 – 6 (– 10) mm long. *Leaf blade* subcoriaceous, 2.3 – 4 (– 5) times as long as wide, (3 –) 5.5 – 10.5 (– 12.5) × (1.5 –) 2 – 4 (– 4.5) cm; base acute or obtuse, top shortly acuminate, mucronate; upper surface glabrous, lower surface sparsely puberulous, later glabrescent; nerves 6 – 10 (– 12) pairs. *Inflorescences* axillary subumbels, often constituting a terminal panicle up to c. 26 cm long; bracts up to 2 mm long; pedicels 0.4 – 2 cm long; sepals 3 – 7 (– 8) × 2 – 6 mm, the outer pair in some cases puberulous outside, the inner pair ciliate at the margins; petals white, obovate

or oblong, 3.5 – 6.5 × (1.5 –) 2 – 3 (– 4) mm, pubescent; stamens 20 – 45, filaments 0.8 – 1.5 (– 2.5) cm long; gynophore 4 – 12 mm long, glabrous; ovary ellipsoid or pear-shaped, c. 1 – 1.5 × 0.5 – 1 mm, glabrous. *Fruit* globose or ellipsoid, 1 – 1.5 cm in diam., pericarp smooth. Fig. 5.

DISTRIBUTION. Bhutan, Sikkim, north-eastern India and Andamans, China (Fujian, Guangdong, Guanxi, Guizhou, Hainan, Yunnan), Indonesia, Myanmar, Philippines, Thailand, Vietnam (Jacobs 1965; Zhang & Tucker 2008); recently recorded by Tagane *et al.* (2020) in Dong Hua Sao National Protected Area, southern Laos, at 15°00'18.27"N, 106°12'31.64"E.

SPECIMEN EXAMINED. LAOS. Champasak Province: Dong Hua Sao National Protected Area, Paksong Distr., near border with Sanamxai Distr., in hill evergreen forest, 783 m msl, 8 July 2019, *Souladeth et al.* L3268 (FOF, KAG).

HABITAT. Forests and forest edges, frequently in shaded and moist areas, from sea level to c. 2000 m (Jacobs 1965). In Laos collected in evergreen forest at 783 m.

CONSERVATION STATUS. In the study area the species has been collected in a single locality of southern Laos. Due to the scanty information available, it is assessed as Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering and fruiting throughout the year (Jacobs 1965; Zhang & Tucker 2008). Based on the available material flowering in July in southern Laos.

NOTES. The only collection from Laos (*Souladeth et al.* L3268) shows stipular thorns recurved, 1 – 2 mm long, leaf blades 7 – 9.6 × 2.3 – 3.4 cm, axillary subumbels arranged in a panicle up to c. 26 cm long, pedicels 5 – 9 mm long, sepals 3 – 3.5 × 2–2.5 mm, petals c. 3.5 × 2.5 mm, stamens c. 30 with filaments 8 – 9 mm long, gynophore 4 – 6 mm long and ovary pear-shaped 1 – 1.5 × 0.5 – 1 mm.

5. *Capparis echinocarpa* *Pierre ex Gagnep.* (Gagnepain 1908a: 212). Type: [Thailand] ad flumen Petchapury [Phetchaburi] in regno Siamico, June 1868, *Pierre* 4016 (lectotype P 04022338 digital image!, selected here; isolectotypes K 000643982 digital image! P 04022337, P 04022339 digital images!).

Capparis nana Craib (1922: 233). Type: [Thailand] Muang Petchabun [Phetchaburi], 31 March 1922, *Kerr* 5723 (lectotype K 000643983 digital image!, selected here; isolectotypes BM 000629528 digital image!, BK 202115 digital image!, P 04746302 digital image!).

Shrub up to 2 m tall. *Twigs* pubescent when young, later glabrous or glabrescent. *Stipular thorns* retrorse, 2 – 4 mm long, strong. *Petiole* 3 – 7 mm long. *Leaf blade*



Fig. 5. *Capparis cantoniensis*. PHOTO: SHUICHIRO TAGANE.

subcoriaceous, c. 1.5 – 2.5 (– 3) times as long as wide, 2 – 8.5 × 1.5 – 3.5 cm; base rounded, top acute, shortly acuminate and mucronate; surfaces glabrous; nerves 4 – 6 pairs. *Flowers* serial, 2 – 3 in supra-axillary rows or solitary; pedicels 1 – 2 cm long; sepals 4 – 5 × 2 – 4 mm, the outer pair pubescent or glabrescent outside, the inner pair pubescent outside and at margins; petals white to pink or reddish, oblong or linear, 5 – 8 × 2 mm, mostly pubescent outside, the upper pair in some cases dark red in the basal part; stamens (4–) 7 – 10, filaments 1.2 – 1.9 (– 2.4) cm long; gynophore (1.2 –) 1.5 – 2 cm long, in some cases puberulous at the base; ovary pear-shaped, 1.8 – 2 × 1 – 1.2 mm, pubescent, with pronounced beak. *Fruit* ovoid or subglobose, 1 – 2 (– 2.7) × 1 – 1.5 (– 2) cm, pericarp densely covered with small warts. Fig. 6.

DISTRIBUTION. Thailand, Laos. The species was described by Gagnepain (1908a) from Phetchaburi in north-eastern Thailand. Later it was recorded in

eastern, central, south-eastern and south-western Thailand (Jacobs 1965; Chayamarit 1991) and in northern Laos, Luang Prabang Distr. (Newman *et al.* 2007a).

REPRESENTATIVE SPECIMEN. LAOS. Houay Pano catchment, Ban Lak Sip village, Luang Prabang Province, 19°51'N 102°10'E, 21 Aug. 2001, *de Rouw* 197 (NUoL).

HABITAT. Evergreen, mixed deciduous and bamboo forest, limestone hills, at 50 – 750 m (Chayamarit 1991). In northern Laos the species has been collected in a young fallow, on clay and sandy loam, at c. 600 m (*de Rouw*, pers. comm.).

CONSERVATION STATUS. In the study area the species has been collected in a single locality of northern Laos. Due to the scanty information available, it is here assessed as Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering January – August (Chayamarit 1991). Fruiting material collected in August in northern Laos (*de Rouw* 197).



Fig. 6. *Capparis echinocarpa*. PHOTO: TOMOKI SANDO.

NOTES. I could not examine the only collection of the species from Laos, *de Rouw* 197, kept at the Herbarium of the National University of Laos.

6. *Capparis flavicans* Kurz (1870: 62). Type: [Thailand] Campong Kankian by Radboerie [Ratchaburi], *Teijsmann* 5931 (lectotype CAL, selected by Jacobs (1965: 451) as the holotype, not seen; isolectotypes K 000651014 digital image!, U 1164806 digital image!).

Capparis flavicans Wall. ex Hook.f. & Thomson (Hooker & Thomson 1872: 179), nom. illegit.

Capparis cambodiana Pierre ex Gagnep. (Gagnepain 1908a: 210). Type: [Cambodia] in prov. Samrông tông Cambodïae, 1870, *Pierre* 501 (lectotype P 04022340 digital image!, selected here; isolectotype P 04022341 digital image!).

Shrub or small tree up to 10 m tall. *Twigs* densely pubescent with stellate hairs. *Stipular thorns* patent or slightly retrorse, 1–3 mm long, sometimes lacking on the fertile twigs. *Petiole* 2–4 (–7) mm long. *Leaf blade* herbaceous or subcoriaceous, (1.1–) 1.3–1.8 (–2.7) times as long as wide, 1.3–3 (–4.5) × (0.7–) 1–2 cm,

widest at the middle or sometimes above; base obtuse or acute, top rounded or slightly emarginate, in some cases mucronulate; surfaces tomentose, later glabrescent; nerves 3–5 pairs. *Flowers* solitary, axillary; pedicels (0.7–) 1–3 cm long; sepals (4–) 5–8 × (3–) 4–5 mm, tomentose outside and at margins, glabrous inside; petals yellow, obovate, c. 8–9 × 4–6 mm, tomentose outside, the upper pair golden yellow, often turning reddish or brownish; stamens 6–8 (–12), filaments c. 1.2–2 cm long; gynophore 1.3–2.5 cm long, densely pubescent; ovary ovoid or pear-shaped, c. 3–3.5 (–4) × 1.5 (–2) mm, densely pubescent, sometimes with beak up to 1 mm long, stigma knob-shaped. *Fruit* globose or ellipsoid, c. 2.3–4 × 2–3.5 cm, pericarp tomentose, covered with small warts. Fig. 7.

DISTRIBUTION. Myanmar, Thailand, Vietnam, Laos, Cambodia. Reported also from a single locality in Andhra Pradesh, southern India (Jacobs 1965; Maurya *et al.* 2020).

SPECIMENS EXAMINED. CAMBODIA. Oudan 1866–1868, *Thorel* 2012 (P 04022343, P 05456872); In prov. Samrông tông Cambodïae, 1870, *Pierre* 501 (lectotype



Fig. 7. *Capparis flavicans*. PHOTO: TOMOKI SANDO.

P 04022340; isolectotype P 04022341); Frequens in dumetis prov. Pnompenh, March 1870, *Pierre* 501 (P 05454760, P 04746290, P 04746291, P 04022342, K 000651013); Env. d'Angkor, June 1909, *s.c.* (P 05456867); En forêt dense tres dégradé, entre Battambang et Pailin, 31 May 1961, *Rollet* 1158 (P 05456868); Kg. Thom, Kg. Soai, 2 Feb. 1920, *Bejaud* 313 (P 05456874); Kg. Thom, Kg. Soai, 2 Feb. 1920, *Bejaud* 312 (P 05456897); Forêt claire et degrade, 30 km W Kratié, 21 Dec. 1961, *Rollet* 1291 (P 05456876); Kil. 15 de la route Kg. Speu a Srê Umbel, 2 June 1930, *Poilane* 17437 (P 05456877); Forêt clairière sol rocheux, très appauvri, Phn. Ophnan Sud de Kg. Speu, 23 Jan. 1928, *Poilane* 14527 (P 05456880); Forêt Claire, Kompong Luong Cleach, 1965, *Martin* 630 (P 05456878); Forêt de Phnom Penh, 5 April 1933, *Bejaud* 51 (P 05456884); Compong Chernai, 6 June 1875, *Godefroy* 249 (P 05456889); Terrains découverts assez lourds, Région de Battambang, 14 Feb. 1963, *Schmid* s.n. (P 05456893, P 05456894); Alluvions un peu compactes, Sbung San Ké, Battambang, 31 May 1961, *Schmid* s.n. (P

05456896); **LAOS.** Bassac, 1866 – 1868, *Thorel* 2012 (P 04022343); Na Hai prov. Vientiane, March 1963, *Vidal* 2220 (L 1855642, P 05456895).

HABITAT. Dry scrub, evergreen and mixed deciduous forest, dry dipterocarp forest, deforested land, on poor sandy or rocky soil at low elevations (Jacobs 1965; Chayamarit 1991). Collected in Cambodia in open, degraded forest (*Rollet* 1291) and on alluvial, slightly compact soils (*Schmid* s.n.).

CONSERVATION STATUS. Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). The species is widespread in the study area and, based on the available data, its populations are stable.

PHENOLOGY. Flowering December – April (Jacobs 1965; Chayamarit 1991). Based on the available material, the flowering period extends to June in Cambodia.

VERNACULAR NAMES. Cambodia: Rouk Sar (*Bejaud* 313), Rouk Kraham (*Bejaud* 312), Banla kbal yek (*Martin* 630), Pola sahat (*Pierre* 501); Laos: Ngoua sang (*Vidal* 2220).

NOTES. A species recorded from various localities of Cambodia, whereas it has been rarely observed in

northern and southern Laos. The collections from the study area often show narrow leaves, (0.7 –) 1 – 1.4 cm wide, small sepals, 4 – 5.5 × 3 – 4 mm, and beaked ovary 3.5 (– 4) mm long.

7. *Capparis florida* Fici & Souwann. (Fici *et al.* 2020: 73). Type: Laos, Khammouan Province, Boualapha Distr., forest in proximity of Xe Bang Fai R., 27 March 2018, Fici *et al.* 11 (holotype PAL!; isotype FOF!).

Erect shrub up to c. 2.5 m tall. *Twigs* glabrous. *Stipular thorns* straight, upwards or patent, c. 1 – 3 mm long, or wanting. *Petiole* (6 –) 7 – 10 (– 11) mm long. *Leaf blade* ovate or ovate-elliptical, (1.4 –) 1.5 – 2.1 (– 2.4) times as long as wide, (10 –) 10.5 – 14 (– 15) × (5 –) 5.5 – 8 (– 8.7) cm; base rounded, in some cases blunt, apex slightly acuminate or acute, mucronulate; surfaces glabrous; nerves c. 6 – 8 pairs. *Flowers* 2 – 6 in supra-axillary rows; pedicels (0.6 –) 0.8 – 1.5 (– 1.6) cm long, glabrous; sepals (6 –) 7 – 10 × 3 – 3.5 mm, glabrescent outside, pubescent inside and at margins; petals white, oblong or narrowly spatulate, (11 –) 12 – 18 (– 22) × (3 –) 4 – 5 (– 6) mm, woolly outside and at margins,

loosely woolly inside, often the upper pair with yellow honey-guide, turning dark red or violet; stamens c. 47 – 61, filaments (2 –) 2.5 – 3.5 cm long; gynophore (2 –) 2.5 – 3.4 cm long, glabrous; ovary pear-shaped or ovoid, 1.5 – 2 × 1 mm, glabrous, with slender style c. 0.6 – 1 mm long. *Fruit* unknown. Fig. 8.

DISTRIBUTION. *Capparis florida* is so far known from two localities of the Hin Nam No National Protected Area in the Khammouan Province, central Laos.

SPECIMENS EXAMINED. LAOS. Khammouan Province, Boualapha Distr., Hin Nam No National Protected Area, forest in proximity of Xe Bang Fai River, 27 March 2018, Fici *et al.* 11 (holotype PAL!; isotype FOF!); Khammouan Province, Boualapha Distr., Hin Nam No National Protected Area, at base of limestone cliff, 30 March 2018, Fici *et al.* 18 (PAL).

HABITAT. Semideciduous forest in flatlands close to the Xe Bang Fai River and at the base of limestone cliffs, on silty-sandy soils at c. 180 – 190 m elevation. The Hin Nam No National Protected Area falls within the Khammouan Karst, extended from Laos to Vietnam, an area with a vascular flora rich in endemics.



Fig. 8. *Capparis florida*. PHOTO: SILVIO FICI.

CONSERVATION STATUS. The species has been assessed as Vulnerable (VU D2) by Fici *et al.* (2020), due to its restricted area of occupancy and low number of locations known, according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering in March and April.

NOTES. *Capparis florida* belongs to the *Seriales*-Group (Jacobs 1965), and is related to *C. micracantha* DC., differing mainly in the absence of cataphylls at the base of shoots, petals woolly outside vs glabrous or puberulous and ovary 1 mm wide, with slender style, vs ovary 1.5 – 2 mm wide, without evident style. The species shows also affinities with *C. buwaldae* M.Jacobs and *C. cucurbitina* King, both differentiated by the shorter sepals and lower number of stamens (Fici *et al.* 2020).

8. ***Capparis hinnamnoensis* Souvann. & Fici** (Souvannakhoummane *et al.* 2018: 175). Type: Laos, Khammouan Province, Boualapha Distr., Hin Nam No National Protected Area, 25 April 2017, *Larnorsavanh et al.* SL1192 (holotype HNL!).

Scandent shrub up to c. 1.5 m tall. *Twigs* sparsely puberulous with stellate, two-armed and simple hairs, or glabrescent. *Cataphylls* present at the base of the twigs. *Stipular thorns* straight or slightly retrorse, c. 1.5 mm long. *Petiole* 5 – 7 mm long. *Leaf blade* subcoriaceous, narrowly elliptic to oblanceolate, c. 3.3 – 3.7 times as long as wide, 13 – 15.4 × 3 – 4.5 cm; base acute, apex acuminate, with tip 0.7 – 1 cm long; surfaces glabrous; nerves 8 – 10 pairs. *Flowers* in terminal racemes c. 12 – 14.3 cm long, in some cases in lateral twigs; rhachis puberulous; bracts trifid 1.5 – 2 mm long; pedicels 2.5 – 3.3 cm long; sepals 3 – 5 × (1.5 –) 2 – 3 mm, glabrescent or puberulous outside, glabrous inside, ciliate or pubescent at margins; petals white, oblong or obovate, 5.5 – 7 × 3 – 5 mm, glabrous; stamens c. 17, filaments 1.4 – 2.3 cm long; gynophore 10 – 12 mm long, glabrous; ovary ovoid, 1.5 – 2 × 0.7 – 1 mm, shortly beaked, glabrous. *Fruit* unknown. Fig. 9.

DISTRIBUTION. *Capparis hinnamnoensis* is so far known from a single locality in the Hin Nam No National Protected Area, Khammouan Province of central Laos. **SPECIMENS EXAMINED.** LAOS. Khammouan Province, Boualapha Distr., Hin Nam No National Protected Area, 25 April 2017, *Larnorsavanh et al.* SL1192 (holotype HNL).

HABITAT. Deciduous forest on limestone at 235 m elevation.

CONSERVATION STATUS. The species has been assessed as Vulnerable (VU D1) by Souvannakhoummane *et al.* (2018), due to its restricted population size, so far limited to a single known location, according to *IUCN Red List Categories and Criteria* (IUCN 2012).



Fig. 9. *Capparis hinnamnoensis*. PHOTO: SOULIVANH LANORSAVANH.

PHENOLOGY. Flowering in April.

NOTES. Within the *Cataphyllosa*-Group (Jacobs 1965), *Capparis hinnamnoensis* shows affinities with *C. assamica*, differing mainly in the longer pedicels 2.5 – 3.3 cm long vs c. (0.5 –) 1 – 1.7 (– 2) cm, larger petals 5.5 – 7 × 3 – 5 mm vs 3 – 4 × 1.5 – 2 mm, longer filaments 1.4 – 2.3 cm long vs c. (0.5 –) 0.8 – 1 cm, and longer gynophore 10 – 12 mm long vs 6 – 9 (– 11) mm.

9. ***Capparis khuamak* Gagnep.** (Gagnepain 1939: 598). Type: Laos, Sam-Neua, 8 Oct. 1920, *Poilane* 2005 (lectotype P 04022035 digital image!, selected by Jacobs (1965: 457) as the holotype; isolectotype L 0035330 digital image!).

Capparis trichopoda B.S.Sun (1964: 116). Type: [China] Yunnan, Ping-bing Hsien, 1440 m, 17 May 1954, *P. Y. Mao* 4316 (holotype KUN 0494238 digital image!).

Scandent shrub or climber up to 15 m tall. *Twigs* fulvous-tomentose, later glabrescent. *Stipular thorns* retrorse, up to 3 mm long, or wanting. *Petiole* 8 – 18 mm long. *Leaf blade* subcoriaceous, (1.9 –) 2.2 – 3 times as long as wide, widest at the middle or above, (5 –) 6 – 10 (– 11) × 2 – 3.5 (– 4.5) cm; base acute or rounded, top acute, obtuse or notched, often mucronulate; surfaces glabrous; nerves 5 – 9 pairs. *Flowers* 6 – 12 conferted at the

top of lateral twigs c. 3 – 8.5 cm long, or in the terminal part of the branches; pedicels 2 – 4 cm long, tomentose; sepals c. 6.5 – 8 × 3.5 – 4.5 mm, puberulous outside, glabrous inside; petals white, obovate or oblong, c. 6 – 9 (– 12) × 3 – 3.5 (– 4) mm, pubescent inside at the base; stamens c. 20 – 28, filaments 2 – 2.5 cm long; gynophore 2.3 – 3.5 cm long, glabrous; ovary ellipsoid, c. 1.7 × 1.3 mm, glabrous. *Fruit* globose, (2.5 –) 3 – 4 (– 5.5) cm in diam., pericarp rough.

DISTRIBUTION. China (Yunnan), Laos, Vietnam (Zhang & Tucker 2008). In the study area recorded from the Xiangkhoang and Houaphan Provinces, northern Laos.

SPECIMENS EXAMINED. LAOS. Laos, Sam-Neua, 8 Oct. 1920, *Poilane* 2005 (lectotype P 04022035, isolectotype L 0035330); entre M. Seng et la Salo Bartélemy, Tranninh, 700 m, 12 Sept. 1929, *Poilane* 16953 (P 05453687).

HABITAT. Forests and wet areas on loamy and clayey soils, at c. 370 – 1500 m.

CONSERVATION STATUS. In the study area, the species was collected during the last century in two localities of northern Laos. Due to the scanty information available, it is assessed as Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Fruiting in September – October in Laos.

VERNACULAR NAME. Laos: Khua Mak Khi Hiêt (*Poilane* 2005).

NOTES. The fruit is described as soft when ripe and edible in northern Laos (*Poilane* 2005).

10. ***Capparis lanceolatifolia*** Fici, Bouaman. & Souwann. (Fici *et al.* 2018: 5). Type: Laos, Vallée de la Hin Boun [Hinboun], 10 May 2012, *s.c.* 5177 (holotype HNL 0003573!).

Shrub. Twigs glabrous. *Stipular thorns* c. 1 mm long, straight. *Petiole* 4 – 5 mm long. *Leaf blade* narrowly lanceolate, c. 7.1 – 9.2 times as long as wide, 15 – 18 × 1.8 – 2.5 cm; base acute, apex narrowly acute; surfaces glabrous; nerves c. 12 – 16 pairs. *Flowers* in terminal racemes up to c. 9.2 cm long, rhachis sparsely puberulous; bracts trifid, 1 – 1.5 mm long; pedicels 1.4 – 2 cm long, puberulous; sepals 2 – 3 × 1 – 2 mm, glabrescent or puberulous outside, ciliate or pubescent at margins and apex, inner pair with whitish margins; petals oblong or obovate, (2 –) 3 – 3.5 × (1 –) 1.5 – 2 mm, glabrous; stamens c. 17 – 25, with filaments 2 – 3.5 mm long; gynophore 3 – 4 mm long in the flower, glabrous, later up to 7 mm long; ovary ovoid, 1 × 0.5 – 0.7 mm, shortly beaked, glabrous. *Fruit* unknown.

DISTRIBUTION. Central Laos, Khammouan Province, where the species is known from a single locality in the Hinboun River Valley.

SPECIMENS EXAMINED. LAOS. Doline du karst, Vallée de la Hin Boun, 10 May 2012, *s.c.* 5177 (holotype HNL 0003573).

HABITAT. *Capparis lanceolatifolia* has been observed in a doline of the Khammouan karst, constituted by Permo-Carboniferous limestones (Waltham & Middleton 2000), at c. 140 – 190 m.

CONSERVATION STATUS. The species has been assessed as Vulnerable (VU D2) by Fici *et al.* (2018), due to its very restricted area of occupancy so far known from a single location, according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering in May.

NOTES. *Capparis lanceolatifolia* is related to *C. assamica*, a species included by Jacobs (1965) in the Cataphyllosa-Group, from which it differs in the twigs glabrous vs sparsely pubescent, leaf blade c. 7.1 – 9.2 times as long as wide vs 2.4 – 3.5 times, sepals 2 – 3 mm long vs 3 – 4 (– 5) mm, filaments 2 – 3.5 mm long vs (5 –) 8 – 10 mm and gynophore 3 – 4 mm long vs 6 – 9 (– 11) mm. The Khammouan karst of Laos belongs to the limestone karst ecoregion of central Indochina, an area characterised by high rate of endemism (Inthakoun & Delang 2008).

11. ***Capparis laotica*** Gagnep. (Gagnepain 1908a: 212). Type: [Laos] Bassac [Champasak], 1866 – 1868, *Thorel* 2582 (lectotype P 04022037 digital image!, selected here; isolectotypes P 04022036, P 04022038 digital images!, L 0035334 digital image!).

Shrub up to 2 m tall. *Twigs* covered with dense, brown-reddish pubescence. *Stipular thorns* retrorse, up to 2 mm long. *Petiole* 2 – 5 mm long, pubescent. *Leaf blade* chartaceous, 3.1 – 3.9 times as long as wide, (11.8 –) 15 – 19 (– 20.5) × (3.4 –) 4 – 6 cm, parallel-sided; base rounded-subcordate, top acuminate, tip up to 2.5 cm long; upper surface glabrous, pubescent along the midrib and nerves, lower surface pubescent, more densely along the midrib and nerves; nerves 8 – 12 (– 13) pairs. *Inflorescences* terminal umbels on a peduncle up to 2 cm long, pubescent; bracts 1 – 1.5 mm long; pedicels 1.5 – 2 cm long, pubescent; sepals 6 – 7 × 3 – 4 (– 4.5) mm, pubescent outside; petals oblong, 9 – 10 × 2 – 3 (– 4) mm, pubescent at the base; stamens c. 30, filaments 1 – 1.5 (– 2) cm long; gynophore 1.8 – 2.4 (– 2.8) cm long, glabrous; ovary ellipsoid, 2.3 – 3 × 1 mm, glabrous, with short beak. *Fruit* unknown.

DISTRIBUTION. Species known only from the type material collected in Bassac [Champasak], southern Laos, during the French Mekong Expedition in 1866 – 1868.

SPECIMENS EXAMINED. LAOS. Bassac, 1866 – 1868, *Thorel* 2582 (lectotype P 04022037; isolectotypes P 04022036, P 04022038, L 0035334).

HABITAT. Unknown. On the labels of the available material is reported “Bassac (montagne)”.

CONSERVATION STATUS. Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012). As mentioned above, the species has been collected only once in a poorly investigated area of southern Laos; therefore there is no information on its distribution and/or population status to make a direct, or indirect, assessment of its risks (IUCN 2012).

PHENOLOGY. The Mekong Expedition reached Champasak on 11 Sept. 1866, departing from the town on 26 Dec. (Taboulet 1970). During this period flowering material of the species was collected by Thorel.

NOTES. A very distinct species characterised by the brown-reddish, persistent indumentum of the twigs, short petiole, long, parallel-sided leaf blade with base rounded-subcordate and flowers in terminal umbels on a short peduncle, which was included by Jacobs (1965) in the Subumbellates group. Within this group *Capparis laotica* shows some affinities with *C. dasyphylla* Merr. & F.P.Metcalf, a species endemic to Hainan, which differs mainly in the shorter leaves, 3.5–9 cm long, flowers solitary, axillary, and higher number of stamens (Jacobs 1965).

12. ***Capparis lianosa*** Fici & Souvann. (Fici & Souvannakhoummane 2020: 114). Type: Laos, Luang Prabang Province, Muang Ngoi Neua, 17 March 2019, *Fici et al.* 1911 (holotype PAL!).

Climber up to c. 20 m long. *Trunk* up to 15 cm in diam., bearing knobs with thorns; twigs densely pubescent with simple and stellate hairs. *Stipular thorns* retrorse, 1.5–2.5 mm long. *Petiole* 0.6–1 cm long, pubescent. *Leafblade* ovate or elliptical, (2.3–) 2.5–2.8 times as long as wide, (9.5–) 11–13.6 × (4–) 4.4–5.5 cm, widest at or below the middle; base acute, apex obtuse or rounded, acuminate with tip 3–5 mm long; upper surface glabrous, lower surface mostly glabrous, sparsely pubescent along the midrib and nerves; nerves c. 4–5 pairs. *Flowers* serial; pedicels 0.6–1.3 cm long, pubescent; sepals 5–7 × 3–6 mm, densely pubescent outside and at margins, glabrous inside; petals white or yellowish, oblong, 7–9 × (2.5–) 3–4 mm, pubescent at the base and margins; stamens c. 37–40, filaments (1.4–) 1.8–2.2 cm long; gynophore 1.9–2.3 cm long, glabrous or glabrescent; ovary ovoid or ellipsoid, 1.5–2 × 1–1.5 mm, glabrous, with flattened stigma. *Fruit* unknown. Fig. 10.

DISTRIBUTION. Known only from the type locality in Luang Prabang Province, northern Laos.

SPECIMENS EXAMINED. LAOS. Luang Prabang Province, Muang Ngoi Neua, 510 m, 17 March 2019, *Fici et al.* 1911 (holotype PAL).

HABITAT. Evergreen forest at the top of limestone outcrops, at 410–510 m.

CONSERVATION STATUS. The species has been assessed as Vulnerable (VU D1) by Fici & Souvannakhoummane (2020), due to its restricted area of occupancy in a single location so far known, and low number of individuals observed, according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering in March–April.

NOTES. *Capparis lianosa* shows some affinities with *C. zeylanica*, differing mainly in the shorter stipular thorns, 1.5–2.5 mm long vs 2.5–6 mm, shorter filaments (1.4–) 1.8–2.2 cm long vs 2–3.5 (–5) cm, and gynophore glabrous or glabrescent, 1.9–2.3 cm long, vs pubescent at the base, (2–) 3.5–5 (–6.5) cm long. With regard to the habit, the length of the lianous stems of this species, up to c. 20 m, is remarkable for the whole sect. *Monostichocalyx* (Fici & Souvannakhoummane 2020).

13. ***Capparis macrantha*** Souvann., Fici & Lanors. (Souvannakhoummane *et al.* 2020: 3). Type: Laos, Bolikhamxai Province, Pakkading distr., Nam Kading National Protected Area, 16 May 2019, *Lanorsavanh et al.* SL1641 (holotype HNL!; isotype FOF!).

Erect or ascending shrub 1–3 m tall. *Twigs* pubescent, later glabrous. *Cataphylls* present at the base of the twigs. *Stipular thorns* straight or slightly retrorse, c. 2 mm long. *Petiole* 1–2.4 cm long. *Leafblade* coriaceous, lanceolate-elliptic, c. 3.7–4.1 times as long as wide, 30–36 × 7.5–10.5 cm; base obtuse or rounded, apex acute or acuminate, with tip 0.8–1.4 cm long; surfaces glabrous; nerves 8–12 pairs. *Flowers* serial, 2–4 in supra-axillary rows; pedicels 3.5–4.2 cm long; bracts triangular, c. 1.8 mm long; sepals 2–2.5 × 0.7–1 cm, glabrous on both sides; petals white, oblong or obovate, 3.5–4.5 × 1.2–2.6 cm, puberulous outside, with yellow or purple honey-guide; stamens 100–135, filaments 3.5–4.5 cm long; gynophore 3.8–4.2 cm long, glabrous; ovary ellipsoid or oblong, 5–6 × 1.7–2 mm, glabrous, shortly beaked. *Fruit* unknown. Fig. 11.

DISTRIBUTION. Known from a single locality in the Nam Kading National Protected Area in Bolikhamxai Province, central Laos.

SPECIMENS EXAMINED. LAOS. Bolikhamxai Province, Pakkading distr., Nam Kading National Protected Area, 16 May 2019, *Lanorsavanh et al.* SL1641 (holotype HNL, isotype FOF).

HABITAT. The species has been observed in mixed deciduous forest on limestone, at c. 200–230 m.

CONSERVATION STATUS. The species has been assessed as Vulnerable (VU D1) by Souvannakhoummane *et al.* (2020), due to its restricted area of occupancy in a single location so far known, according to *IUCN Red List Categories and Criteria* (IUCN 2012).

PHENOLOGY. Flowering in May–June.



Fig. 10. *Capparis lianosa*. A vegetative branch; B trunk bearing knobs with thorns. PHOTOS: SILVIO FICI.



Fig. 11. *Capparis macrantha*. PHOTO: SOULIVANH LANORSAVANH.

NOTES. *Capparis macrantha* is characterised by the large size of the leaves and flowers, high number of stamens and large ovary (Souvannakhoummane *et al.* 2020). Among the species with serial flowers it shows some affinities with *C. radula* Gagnep., differing in the leaves $30 - 36 \times 7.5 - 10.5$ cm vs $(3.5 -) 4.5 - 8.7 (-9.5) \times (1.5 -) 2.2 - 4.8 (-6.5)$ cm, sepals $2 - 2.5$ cm long vs $(0.6 -) 0.7 - 1.1 (-1.2)$ cm, petals $3.5 - 4.5$ cm long vs $(0.9 -) 1 - 1.4$ cm, higher number of stamens ($100 - 135$ vs c. $30 - 40$) with filaments $3.5 - 4.5$ cm long vs c. $1.7 - 2$ cm, and ovary $5 - 6$ mm long vs $(2.5 -) 3 - 4$ mm.

14. ***Capparis mekongensis* Gagnep.** (Gagnepain 1908a: 213). Type: [Laos] Vien chang [Vientiane], 1866 – 1868, Thorel 3257 (lectotype P 04022039 digital image!, selected by Jacobs (1965: 466)).

Small tree. Twigs densely pubescent, later glabrescent. *Stipular thorns* lacking. *Petiole* 8 – 10 mm long, pubescent. *Leaf blade* herbaceous or subcoriaceous, 1.8 – 2.8 (– 3.1) times as long as wide, $(5.2 -) 6 - 11 (-14) \times (2.1 -) 2.5 - 5.5 (-6)$ cm, widest at the middle or below; base acute, top obtuse, acute or subrounded; upper surface puberulous, lower surface pubescent; nerves c. 7 – 8 pairs. *Inflorescence* terminal panicle 9 – 25 cm long, constituted by smaller panicles; bracts subulate 1 – 2 mm long; pedicels $(0.8 -) 1 - 1.5 (-2)$ cm long; sepals $(2.5 -) 3 - 3.6 (-4) \times 2 - 3$ mm, puberulous outside, glabrous inside; petals obovate, c. $4 - 5 \times 2 (-2.5)$ mm long, glabrous; stamens c. 20; gynophore 2.3 – 2.7 cm long in the available material, glabrous; ovary ovoid, $2 - 2.5 \times 1.5 - 2$ mm, glabrous. *Fruit* unknown.

DISTRIBUTION. Laos, Thailand? The species is known only from Thorel's collection n. 3257, carried out during the French Mekong Exploration (1866 – 1868). As underlined by Jacobs (1965) various localities, “some pretty far apart”, were given by Gagnepain (1908a, 1908b) for the single collection known of this

species. Most of these localities lie in northern Laos, i.e. in Vientiane, Sayabouri and Luang Prabang provinces, one in southern Laos, in Champasak province. With regard to another sheet of the same collection (P 04022040), on its label is reported Nong-Kay [Nong Khai], a town of eastern Thailand a short distance away from Vientiane, visited by the Mekong Expedition in March – April 1867 (Taboulet 1970); based on this specimen *Capparis mekongensis* was collected by Thorel also in Thailand, whereas it was reported by Gagnepain (1908a, 1908b) and Jacobs (1965) only from Laos, and was not mentioned by Chayamarit (1991) in *Flora of Thailand*.

SPECIMENS EXAMINED. LAOS: Vien chang, 1866 – 1868, Thorel 3257 (lectotype P 04022039); Lakone, 1866 – 1868, Thorel 3257 (P 04022041); Luang Prabang, 1866 – 1868, Thorel 3257 (P 04022042); Vieng cang à Paklai, 1866 – 1868, Thorel 3257 (P 04022043; LE00013162).

HABITAT. Unknown.

CONSERVATION STATUS. Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012). As mentioned above, the species has been collected only by Thorel, in various localities in Laos; lacking information on its distribution and/or population status it is not possible to make a direct, or indirect, assessment of its risks (IUCN 2012).

PHENOLOGY. Based on the available material, flowering from March to September.

NOTES. *Capparis mekongensis*, characterised by the absence of stipular thorns and by the large, terminal panicle, was included by Jacobs (1965) in the Grandis-Group. Describing this species Gagnepain (1908a) underlined its affinities with *C. grandis* L., distributed from India eastwards to Indochina, which differs in the flowers conferted terminally, in some cases in subumbels or solitary, longer sepals (6 – 11 mm long) and petals (8 – 13 mm long), and gynophore hairy at the base (Jacobs 1965).

15. ***Capparis micracantha* DC. subsp. *micracantha*** (Candolle 1824: 247). Type: [Indonesia] Java, Lahaye s.n. (lectotype G 00203273 digital image!, selected by Jacobs (1965: 467) as the holotype).

Small tree or shrub up to c. 6 m tall, rarely climber. Twigs firstly pubescent or puberulous, later glabrous. *Cataphylls* present at the base of the twigs. *Stipular thorns* $(1.5 -) 2 - 4 (-7)$ mm long, straight or slightly retrorse. *Petiole* $0.6 - 1 (-1.5)$ cm long. *Leaf blade* subcoriaceous $(1.6 -) 1.7 - 2.9 (-4.1)$ times as long as wide, $(8 -) 10 - 24 (-32.5) \times 4 - 10 (-12.5)$ cm, widest at the middle or sometimes below; base rounded, obtuse, acute or subcordate, top rounded, obtuse or acute, sometimes submarginate, often with rigid mucro 1 – 3 mm long; surfaces glabrous; nerves 5 – 7 (– 10) pairs. *Flowers* serial, up to 7 in supra-axillary rows; pedicels 4 – 10 (– 20) mm long, pubescent;

sepals ovate to oblong, acute, 3 – 10 (– 13) × 1.5 – 4 (– 5.5) mm, glabrous or pubescent outside, pubescent at margins; petals white, oblong, lanceolate, linear or narrowly spatulate, 9 – 20 (– 25) × 2 – 6 (– 7) mm, glabrous or puberulous outside and at margins, the upper pair with yellow honey-guide, in some cases turning red or violet; stamens 10 – 35 (– 75), with filaments (1.5 –) 2 – 3 cm long; gynophore (1.5 –) 1.8 – 3 (– 3.5) cm long, glabrous; ovary ovoid or ellipsoid, 1.5 – 3 × 1.5 – 2 mm, glabrous or puberulous. *Fruit* globose or ellipsoid, 1.7 – 6.5 (– 7) × 1.7 – 4.5 cm, pericarp smooth.

DISTRIBUTION. India (Andaman Islands), Myanmar, China (Guangdong, Guangxi, Yunnan, Hainan), Taiwan, Vietnam, Laos, Cambodia, Thailand, Malaysia, Indonesia, Philippines (Jacobs 1965; Zhang & Tucker 2008).

NOTES. *Capparis micracantha* is a wide ranging, polymorphic species known from southern Asia, Indone-

sia, the Philippines and Taiwan. Jacobs (1965) stated that in the past several taxa were described, based on forms representing extremes of the variation of this species. The same author split *C. micracantha* into two subspecies, i.e. subsp. *micracantha*, occurring in the study area and characterised by the sepals mostly obtuse, stamens fewer than 60 (– 75) and fruit globose to ellipsoid, and subsp. *korthalsiana* (Miq.) M.Jacobs from Malaysia, Indonesia and Singapore, distinguished by the sepals acute to acuminate, stamens in higher number (60 – 100) and fruit elongate. Furthermore, subsp. *micracantha* was split by Jacobs (1965) into two varieties, the widely distributed var. *micracantha* and var. *henryi* (Matsum.) M.Jacobs, endemic to Taiwan. Recently a new variety of subsp. *microcarpa*, var. *microcarpa*, characterised by short pedicels, sepals and ovary and small fruit, was described from central Laos (Fici 2016a).

Key to the varieties in the study area

1. Pedicels 7 – 10 (– 20) mm long; sepals (4 –) 5.5 – 10 (– 13) mm long; ovary 2.5 – 3 mm long; fruit (2.2 –) 3 – 6.5 (– 7) × (2 –) 3 – 4.5 cm.....var. **micracantha**
1. Pedicels 4 – 7 mm long; sepals 3 – 4 mm long; ovary 1.5 – 2 mm long; fruit 1.7 – 2.1 (– 2.2) × 1.7 – 2 (– 2.1) cm.....var. **microcarpa**

15.1. *Capparis micracantha* DC. subsp. **micracantha** var. **micracantha**

Capparis billardieri DC. (Candolle 1824: 247). Type: [Indonesia] in ins. Moluccanis ad fretum Bouton, *Labillardiere* s.n. *hb. Desfontaines* (lectotype P, selected by Jacobs (1965: 467), not seen; isotype M 0241014 digital image!).

Capparis callosa Blume (1825: 53). Type: [Indonesia] Java, Linga jattie [Linggadjati], *Blume* 1560 (lectotype L 2066780 digital image!, selected here; islectotype L 2066344 digital image!).

Capparis odorata Blanco (1837: 439). Type unknown (Jacobs 1965).

Capparis forsteniana Miq. (Miquel 1870: 32). Type: [Indonesia] NE Celebes, Belang, Oct. 1840, *Forsten* 324 (lectotype L 0035342 digital image!, selected by Jacobs 1965: 467)).

Capparis roydsiaefolia Kurz (1870: 62). Type: [Thailand] Siam, *Teijsmann* HB (lectotype BO, selected by Jacobs (1965: 467), not seen).

Capparis hainanensis Oliv. (Oliver 1887: t. 1588). Type: [China] Hainan, *B. C. Henry* 7 (lectotype K 000380495 digital image! selected by Jacobs 1965: 467)).

Capparis myrioneura Hallier f. (1906: 60). Type: [Indonesia] Celebes, Menado, *Teijsmann* 5773 [5873] (lectotype BO, selected by Jacobs (1965: 467), not seen).

Capparis bariensis Pierre ex Gagnep. (Gagnepain 1908a: 209). Type: [Vietnam] in montibus Dinh ad Baria austro-Cochinchinae, March 1867, *Pierre* 38 (lectotype P 04022045, selected here; islectotypes P 04022044 digital image!, A 00042265 digital image!, K 000643977, K 000643978 digital images!, L 0035339, L 0035340, L 0035341 digital images!, LE 00013153 digital image!, NY 00387641, NY00387642 digital images!).

Capparis donnaiensis Pierre ex Gagnep., (Gagnepain 1908a: 211). Type: [Vietnam] ad Ton man in prov. Bien hoa, austro Cochinchinae, March 1877, *Pierre* 4012 (lectotype P 04022050 digital image!, selected here; islectotypes P 04022048, P04022049, P04022051 digital images!, K 000643976 digital image!).

Capparis venosa Merr. (Merrill 1915: 305). Type: [Philippines] Mindanao, Distr. of Cotabato, near Lebak, April 1912, *Whitford* FB 14216 (lectotype PNH?, selected by Jacobs (1965: 467), not seen).

Capparis liangii Merr. & Chun (Merrill & Chun 1934: 29). Type: [China] Hainan, Poting, Lingshin, 24 April 1932, *Ko* 52177 (lectotype NY 00387648 digital image!, selected here; islectotypes A 00042258 digital image!, K 000380494 digital image!, P 04022052 digital image!).

Capparis petelotii Merr. (Merrill 1942: 166). Type: [Vietnam] Tonkin, Mont Bani, Province de Sontoy, 2 July 1940, *Pételot* 2618 (lectotype A 00042272 digital image!, selected by Jacobs 1965: 468)).

Small tree or shrub, rarely climber. *Twigs* pubescent or puberulous, later glabrous. *Stipular thorns* 2 – 4 (– 7) mm long, straight or slightly retrorse. *Petiole* 0.6 – 1 (– 1.5) cm long. *Leaf blade* 1.7 – 2.9 (– 4.1) times as long as wide, 8 – 24 (– 32.5) × 4 – 10 (– 12.5) cm; base rounded, obtuse, acute or subcordate, top rounded, obtuse or acute, sometimes subemarginate; nerves 5 – 7 (– 10) pairs. *Flowers* 2 – 7 in supra-axillary rows; pedicels 7 – 10 (– 20) mm long; sepals (4 –) 5.5 – 10 (– 13) × (2 –) 2.5 – 4 (– 5.5) mm; petals oblong or lanceolate, 10 – 20 (– 25) × 3 – 6 (– 7) mm; stamens (16 –) 20 – 35 (– 75), with filaments (1.5 –) 1.8 – 3 cm long; gynophore (1.5 –) 2 – 3 (– 3.5) cm long, glabrous; ovary ovoid or ellipsoid, 2.5 – 3 × 1.5 – 2 mm, glabrous. *Fruit* globose or ellipsoid, (2.2 –) 3 – 6.5 (– 7) × (2 –) 3 – 4.5 cm. Fig. 12.

DISTRIBUTION. India (Andamans), Myanmar, China, Vietnam, Laos, Cambodia, Thailand, Malaysia, Indo-

nesia, Philippines. In the study area the species has been collected in several localities of central, western, northwestern and southern Cambodia and in northern, central and southern Laos.

SPECIMENS EXAMINED. LAOS. Saravanh Distr., Saravanh Province, Ban Ka Xa, 27 Sept. 1999, *Sydara* 38 (P 05462601); Prov. Sayaboury, env. de Paklai, Jan. 1953, *Vidal* 2129 (P 05462603); Prov. Vientiane, Ban Bo (Ban Keun), Jan. 1954, *Vidal* 2639 (P 05462604, P 05462625); Prov. Vientiane, bord de la route vers Chi Nai Mo, 6 Feb. 1949, *Vidal* 811 B (P 05462605, P 05462626); environs de la mine Bartholome, Village de Tam, Dec. 1930, *Colani* 4438 (P 05462623); Khammouan Province, Nong Ping, 27 March 2018, *Fici* 1826 (PAL); CAMBODIA. Prey Phum Luong, prov. de Kg. Chhnang, 2 Feb. 1918, *Service Forestier* 36969 (P 05462540); Beng Mealea, Siem Réap, 1965 – 1966, *Martin* 257 (P 05462544); Prov. Pursat, Phum Thmei, 24 Jan. 1965, *Martin* 257 (P 05462606); without locality, *Guinet* 168 (P 05462545); Province de Hompong chhnang, Réserve forestière de Kralanh, 1914, *Fleury* 31740 (P 05462550, P 05462597); Phnom-Penh et environs, 6 March 1914, *Chevalier* 31708 (P 05462551, P



Fig. 12. *Capparis micracantha* var. *micracantha*. A flowering branch; B fruits. PHOTOS: SILVIO FICI.

05462553); Entre Pum Chrê et String Chre, pro: Pursat, 23 June 1930, *Poilane* 17756 (P 05462554); Kachap, Kg Thom Kg Snai Kg Thom, 3 May 1919, *Bejaud* 109 (P 05462561); without locality, *Jullien* 199 (P 05462569); Kanchoeu Bay Dach, *Bèjeaud* 227 (P 05462574); Kampot, 25 Oct. 1903, *Geoffray* 155 (P 05462580); env. de Krâchap et Pang Rolim, prov. Battambang, 15 Dec. 1965, *Vidal* 4710 (P 05462602); Prov. Siem Réap, Ta Saom (Angkor), 24 Dec. 1965, *Vidal* 4821 (P 05462628); Phnom Sômpon (rég. de Battambang), 19 Dec. 1954, *Schmid* s.n. (P 05462607).

HABITAT. Evergreen and mixed deciduous forest, dry dipterocarp forest, open thickets, savannahs, hedges, often on limestone at low elevations, but recorded up to 2000 m (Jacobs 1965; Chayamarit 1991; Zhang & Tucker 2008). In Cambodia and Laos recorded from dense and open forest, scrub, savannah and degraded vegetation, on clayey-sandy soil and limestone hills.

CONSERVATION STATUS. Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). This variety is widespread in the study area, and no risks were detected for its populations.

PHENOLOGY. Flowering throughout the year in Cambodia and Laos.

VERNACULAR NAMES. Cambodia: Kanhcheu baydach, Kanchhoeu bai dach, Kanhchhoeu bay dach, Kanh chò bai dek, Kanchau bay dach (*Bejaud* 109, *Service Forestier* 36969, *Vidal* 4710 & 4821, *Fleury* 31740); Laos: Xar xoo ton, Xai xoo, Xai xoo ton (Inthakoun & Delang 2008); Sa sou ton, Say sou ton (*Vidal* 2129 & 2639).

NOTES. Medicinal uses of the plant are reported both in Cambodia and Laos (*Martin* 257, *Vidal* 4710 & 2639), while the fruit is eaten in the Siem Reap area (*Martin* 257).

15.2. **Capparis micracantha** DC. subsp. **micracantha** var. **microcarpa** Fici (2016a: 170). Type: Laos, Khammouan, Boualapha [Bualapha], 17 March 2007, *Vannachak et al.* BT 1014 (holotype L 0812650!; isotypes E 00702992 digital image!, P 01053040 digital image!).

Small tree or climber. *Twigs* pubescent or puberulous, later glabrous. *Stipular thorns* (1.5 –) 2 – 3 mm long, straight. *Petiole* 0.8 – 1 cm long. *Leaf blade* (1.6 –) 2.3 – 2.6 (– 2.7) times as long as wide, (9.5 –) 11 – 18.4 × 4 – 7 cm; base rounded to acute, top rounded or slightly emarginate; nerves 5 – 7. *Flowers* (4 –) 5 – 7 in supra-axillary rows; pedicels 4 – 7 mm long; sepals 3 – 4 × 1.5 – 2.1 mm, pubescent outside, particularly at base, margins whitish-pubescent; petals linear or narrowly spatulate, 9 – 11 × 2 – 3 mm; stamens 10 – 16, with filaments 20 – 25 mm long; gynophore 1.8 – 2 cm long; ovary ellipsoid, 1.5 – 2 × 1.5 mm. *Fruit* globose, 1.7 – 2.1 (– 2.2) × 1.7 – 2 (– 2.1) cm.

DISTRIBUTION. This variety is so far recorded from central Laos, Khammouan Province.

SPECIMENS EXAMINED. LAOS. Khammouan, Boualapha [Bualapha], 17 March 2007, *Vannachak et al.* BT 1014 (holotype L 0812650; isotypes E 00702992, P 01053040); Khammouan, Boualapha [Bualapha], 20 March 2007, *Vannachak et al.* BT 1085 (L 0812649, E 00845294).

HABITAT. Semi-deciduous forest, roadsides and fences, at c. 180 – 185 m.

CONSERVATION STATUS. Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012). Lacking information on the population status of this variety, it is not possible to make a direct, or indirect, assessment of the risks (IUCN 2012).

PHENOLOGY. Flowering in March.

NOTES. *Capparis micracantha* var. *microcarpa* differs from both var. *micracantha* and var. *henryi* in the shorter pedicels, sepals and ovary, and in the smaller fruit.

16. **Capparis pranensis** (Gagnep.) M.Jacobs (1965: 477). Type: [Thailand] ad Muong Prang in peninsula Malayana, Aug. 1868, *Pierre* 4018 (lectotype P 04022393 digital image!, selected here; isolectotypes P 04022391, P 04022392 digital images!, K 000651018 digital image!, LE 00013167 digital image! MPU 600749 digital image!).

Capparis thorelii var. *pranensis* Gagnep. (Gagnepain 1908a: 214).

Shrub or climber up to c. 10 m tall. *Twigs* flexuous, glabrous. *Stipular thorns* retrorse, 2 – 5 mm long, vigorous. *Petiole* 4 – 7 mm long. *Leaf blade* coriaceous, (1.2 –) 1.5 – 2.2 times as long as wide, widest at the middle or below, (2 –) 3 – 6 (– 7) × (1.8 –) 2 – 3.5 (– 4) cm; base obtuse or rounded, top obtuse, rounded or emarginate, sometimes mucronulate; surfaces glabrous, the upper one glossy; nerves c. (3 –) 4 – 6 (– 8) pairs. *Flowers* in subumbels at the top of lateral twigs, often constituting a panicle; bracts subulate to 5 mm long, caducous; pedicels (7 –) 8 – 14 (– 16) mm long; sepals (4.5 –) 5 – 6 × 4 – 5.5 mm, glabrous, inner pair sometimes ciliate; petals oblong, 7 – 9 × 3 – 4 mm, pubescent; stamens c. 29 – 33, filaments c. 7 – 9 mm long; gynophore (6 –) 7 – 11 mm long, glabrous; ovary ovoid, c. 1.5 × 1 mm long, glabrous, beaked. *Fruit* globose, (1.1 –) 1.3 – 2.5 (– 3) cm in diam., pericarp smooth. Fig. 13.

DISTRIBUTION. Thailand, Vietnam, Cambodia. In the study area the species is known only from western Cambodia.

SPECIMENS EXAMINED. CAMBODIA. Battambang, Sbung San Ké, 31 May 1961, *Schmid* s.n. (P 05454896); Cambodia, 30 Km de Battambang vers Pailin, 31 May 1961, *Rollet* 1157 (P 05454968).

HABITAT. Scrub forest and open vegetation, on moist loamy or sandy soils at low altitudes (Jacobs 1965; Chayamarit 1991). The species is reported as common

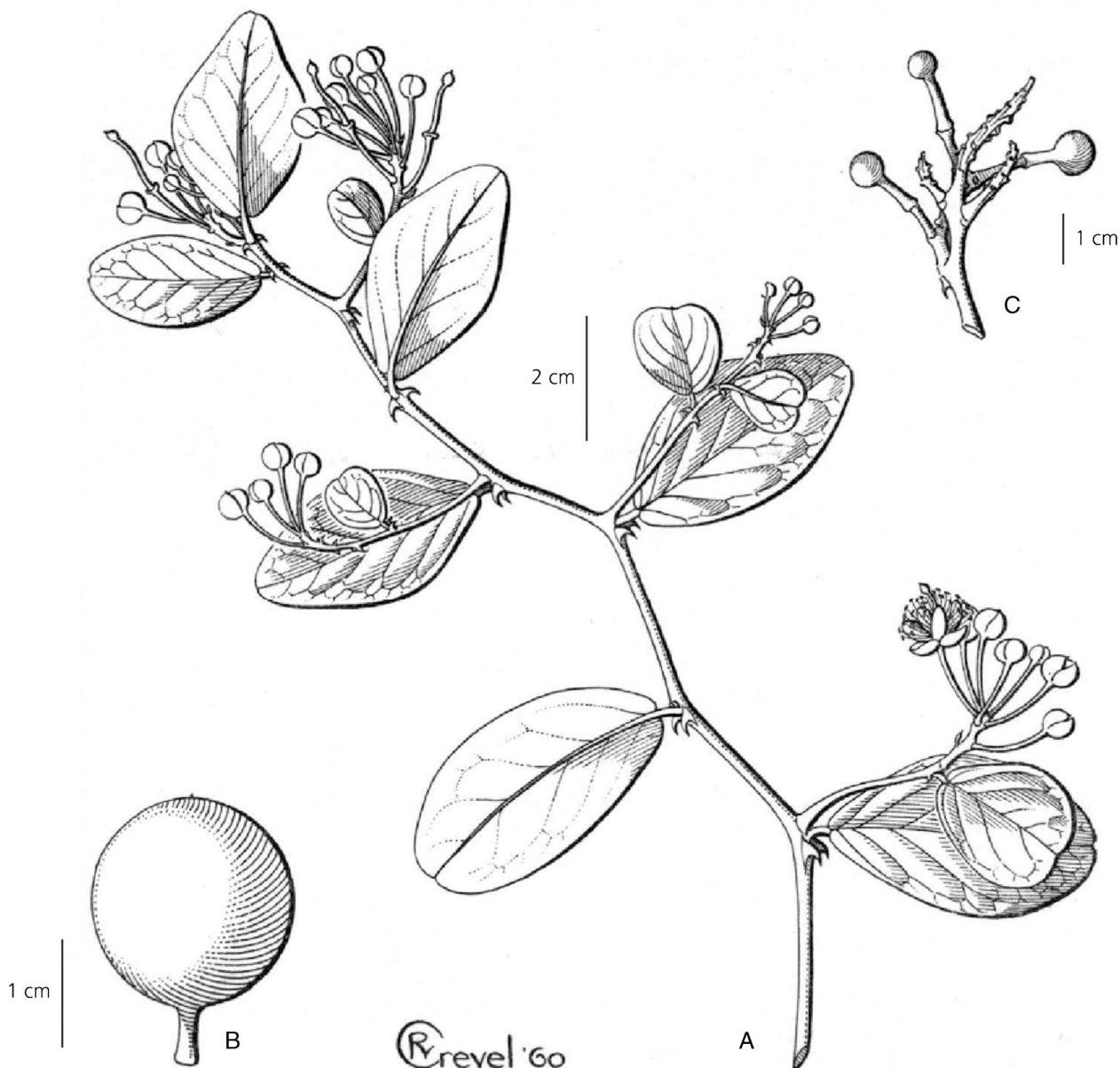


Fig. 13. *Capparis pranensis*. A flowering branch; B fruit; C fruiting branch. (From Jacobs 1965).

in degraded forest on alluvial soils in the Battambang Province of Cambodia.

CONSERVATION STATUS. Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). The species is widespread in the Battambang Province, where its population is not threatened, based on the available information.

PHENOLOGY. Flowering December – March along the distribution range. Material from Cambodia (Schmid s.n., Rollett 1157) has been collected in fruit in May.

NOTES. *Capparis pranensis*, included by Jacobs (1965) in the Subumbellates Group, is characterised by its glabrous twigs, leaves coriaceous, subumbels often arranged in a terminal panicle, sepals (4.5 –) 5 – 6 mm long and gynophore comparatively thickened during and after

anthesis. The same author (Jacobs 1965) reported that the fruits are eaten by birds and are possibly edible for men, whereas in herbarium material from Annam (Fleury 39062) the fruit is described as poisonous.

17. *Capparis pyrifolia* Lam. (Lamarck 1785: 606). Type: India, Poivre s.n. (lectotype P 00680459 digital image!, selected by Jacobs (1965: 480)).

Capparis acuminata Willd. (Willdenow 1799: 1131), non Lindl. (Lindley 1830: 1320). Type: India, s.c., s.n. (lectotype B-W 10037-01 0 digital image!, selected by Fici (2016a: 172)).

Capparis foetida Blume (1825: 52). Type: [Indonesia] Java, Batavia, Blume 1194 (lectotype L 0035348

digital image!, selected by Fici (2016a: 172); isolectotype NY00387656 digital image!).

Capparis dasyptetala Turcz. (Turczaninow 1854: 322).

Type: [Indonesia] Java, Zollinger 2265 (lectotype G 00237966 digital image, selected here!; isolectotype KW 001000838 digital image!).

Capparis oxyphylla Miq. (Miquel 1855: 397). Type: [Indonesia] Java, Junghuhn s.n. (lectotype L 0845884 digital image!, selected here).

Capparis kerrii Craib (1922: 232). Type: [Thailand] Ban Pong Yeng, 29 March 1915, Kerr 3568 (lectotype K 000651022 digital image!, selected by Fici (2016a: 172); isolectotype BM 000629522 digital image!).

Shrub or small tree to 3–4 m tall, sometimes climber. *Twigs* with indumentum of stellate hairs, later glabrescent. *Stipular thorns* straight or slightly retrorse, up to 3–4 mm long, or wanting. *Petiole* 4–6 mm long, hairy or glabrescent. *Leaf blade* chartaceous (1.2–) 1.7–2.5 (–3) times as long as wide, widest below or at the middle, rarely above, (4–) 5–9.5 (–15) × (2–) 2.5–4.5 (–6.5) cm; base rounded, blunt or acute, top acuminate, the tip c. 0.7–1.5 cm long; upper surface glabrous, lower glabrescent or hairy; nerves 4–7 pairs. *Flowers* serial, 2–6 in supra-axillary rows, rarely solitary; pedicels (0.7–) 0.9–2 (–2.5) cm long, pubescent; sepals 4–5 × (2–) 2.5–4 mm, pubescent or glabrous on both sides; petals white, elliptic, oblong or linear-obovate, (5–) 5.5–8 × (1.5–) 2–4 mm, hairy-floccose on both sides, upper pair with yellow or reddish honey-guide; stamens c. 20–25 (–27), filaments 1.4–2.3 cm long; gynophore (1–) 1.2–2.3 (–2.5) cm long, glabrous; ovary ovoid or ellipsoid, 1–1.2 × 0.5–0.7 mm, glabrous, with a distinct beak. *Fruit* globose, (5–) 8–12 mm in diameter, pericarp minutely rugose. Fig. 14.

DISTRIBUTION. Thailand, Laos, Cambodia, Vietnam and Indonesia. Known from various localities of northern, central and southern Laos, and from eastern, north-western, central and south-central Cambodia.

SPECIMENS EXAMINED. **LAOS.** Bassin d'Attoupeu, March 1877, Harmand 1405 (P 05453852, P 05453855, P 05453859); Ban Loume, 26 April 1892, Henri s.n. (P 05453862); Prov. De Saravan, Dasia, 10 Sept. 1928, Poilane 15532 (P 05453847); Prov. De Saravan, Près de Bang La Ngam, 10 Sept. 1928, Poilane 15522 (P 05453851); Env. de Vientiane, 21 Feb. 1954, Vidal 2695 (P 05453877, P 05454931); Vientiane, Nam Moun, 5 Feb. 1954, Vidal 2656 (P 05454932); environs Vientiane, Tixier s.n. (P 05454928); Bolikhamxay [Borikhamxai] Province, Khamkeut [Khamkheuth] Distr., road from Laksao [Lak Sao] to Vietnamese border, 14 Feb. 2006, Svengsuksa et al. BT 401 (L 0407367); Khammouan, Riverside trails E of Keng Meow (Cat Waterfall) on Nam Theun, 14 Feb. 2005, Newman et al. LAO 188 (E 00208753, L 0407575, P 05454933); Khammouan prov., Boualapha distr., Nong Seng village, Chanh Daeng mountain, 11 May 2018, Averyanov et al. AL 1053 (LE 01049236). **CAMBODIA.** Rives

du Mékong, Kratié, 9 March 1914, Chevalier 31861 (P 05453843, P 05454930); Without locality, Magnen et al. s.n. (P 05453849); Without locality, Lecomte & Finet s.n. (P 05453848); Without locality, Gorgaud s.n. (P 05453864); Environs de Snuol, 26 March 1953, Rollet 2765 (P 05454934); Rattanakiri, Ban Lung [Ban Lũng], Yan Loam Lake, 21 March 2001, Maxwell 01-181 (L 0832294); Siem Réap, Kr lanh, Ta Ann, 12 April 2019, Hul et al. 7116 (P 00915976, RUPP); Région de Kompong Cham, Schmid s.n. (P 05456832).

HABITAT. Evergreen and semideciduous forest, bamboo forest, scrub, hedges, wastelands, limestone hills up to 1500 m (Jacobs 1960, 1965; Chayamarit 1991). In Laos collected in evergreen and semideciduous forest, primary riverine forest, disturbed forest, scrub, river banks, on limestone, red and sandy soil, between c. 180 and 600 m (Svengsuksa et al. BT 401, Newman et al. LAO 53 & 188, Vidal 2695, Averyanov et al. AL 1053, Vidal 2695, Poilane 15532); in Cambodia along the Mekong river banks (Chevalier 31861), in open, fire-damaged, deciduous vegetation on sandstone at 325 m (Maxwell 01-181), and in disturbed forest on red basaltic soils at 60 m (Schmid s.n.).

CONSERVATION STATUS. Least Concern (LC) according to IUCN Red List Categories and Criteria (IUCN 2012). The species is widespread in the study area, and no risks were detected for its populations.

PHENOLOGY. Flowering November–April (Chayamarit 1991). In Laos collected in flower in February–April (Newman et al. LAO 53 & 188, Vidal 2695, Svengsuksa et al. BT 401, Harmand 1405, Henri s.n.), in Cambodia in March–April (Maxwell 01-181, Chevalier 31861, Rollet 2765, Hul et al. 7116).

VERNACULAR NAMES. Cambodia: Tronom a ot, trânum aot, tranon aot, tramon aot (Hul et al. 7116, Lecomte & Finet s.n., Magnen et al. s.n., Gorgaud s.n.). Laos: Nuat maew (Inthakoun & Delang 2008), Nouat mèò, say sou (Vidal 2695 & 2656).

NOTES. The species is described in herbarium labels as a deciduous shrub 2–3 m tall (Maxwell 01-18), a bifurcated tree to 4 m (Newman et al. LAO 188) or a climber 2–3 m long (Poilane 15532 & 15522). Material from central Laos (Svengsuksa et al. BT 401) shows narrowly ovate or lanceolate leaves, flowers up to 6 in supra-axillary rows, pedicels 0.9–1 cm long, petals 5–6.5 mm long and gynophore 1.4–1.7 cm long (Fici 2016a). In specimens from Cambodia (Rollet 2765, Chevalier 31861) leaves are ovate or elliptic, flowers 2–4 in supra-axillary rows, pedicels 1.2–2 cm long, petals 5.5–6.5 mm long and gynophore (1–) 1.2–1.8 cm long. Recorded as medicinal plant in Cambodia (Hul et al. 7116).

18. *Capparis radula* Gagnep. (Gagnepain 1908a: 213). Type: [Laos], Bassac [Champasak], Jan. 1877, Harmand 1094 (lectotype P 04022374 digital image!, selected here; isolectotype P 04022375 digital image!).



Fig. 14. *Capparis pyrifolia*. A habit; B petal; C, D stamens; E gynophore and ovary; F longitudinal section of the ovary; G transverse section of the ovary. (From Delessert 1837).

Shrub up to 3 – 4 m tall. *Twigs* glabrous, warty. *Cataphylls* present at the base of the twigs. *Stipular thorns* retrorse, 2 – 4.5 mm long. *Petiole* 4 – 6 mm long. *Leaf blade* coriaceous, (1.2 –) 1.5 – 2.1 times as long as wide, (3.5 –) 4.5 – 8.7 (– 9.5) × (1.5 –) 2.2 – 4.8 (– 6.5) cm, widest at the middle or below; base rounded or cordate, top rounded, retuse or acute, sometimes mucronate; surfaces glabrous; nerves 4 – 6 pairs. *Flowers* serial, up to 3 in supra-axillary rows, sometimes solitary; pedicels (0.7 –) 0.8 – 1.3 (– 2) cm long; sepals (6 –) 7 – 11 (– 12) × 3 – 5 mm, puberulous on both surfaces; petals white, obovate or oblong, (9 –) 10 – 14 × (3 –) 3.5 – 5 (– 6) mm, the upper pair pubescent inside at the base, the lower pair glabrous; stamens 30 – 40, filaments 1.5 – 2 cm long; gynophore (1 –) 1.6 – 2.3 cm long, glabrous; ovary ovoid, (2.5 –) 3 – 4 × 1.5 – 2 mm long, glabrous, ribbed, stigma cushion-shaped. *Fruit* ellipsoid or ovoid, (4 –) 4.5 – 6 × 3 – 4.2 cm, pericarp smooth. Fig. 15.

DISTRIBUTION. Thailand, Laos, Cambodia, Vietnam. In the study area reported from central and southern Laos and central Cambodia.

SPECIMENS EXAMINED. LAOS. Bassac, Jan. 1877, *Harmand* 1094 (lectotype P 04022374, isoelectotype P 04022375); Rive gauche du Mè-Không (Laos central), 1875 – 77, *Harmand* s.n. (P 05454983); Bassac, 1866 – 68, *Thorel* s.n. (P 05454924). CAMBODIA. Kg. Thom, 30 March 1919, *Bejoud* 419 (P 05454984).

HABITAT. Scrub, dense thickets and savannahs, at low altitude (Jacobs 1965; Chayamarit 1991).

CONSERVATION STATUS. Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012). The species has been collected in a few localities of the study area. Lacking information on its population status, it is not possible to make a direct, or indirect, assessment of the risks (IUCN 2012).

PHENOLOGY. Flowering January – April (Jacobs 1965). In the study area flowering material collected in January in Laos (*Harmand* 1094), in March in Cambodia (*Bejoud* 419).

VERNACULAR NAME. Laos: Kheua (Inthakoun & Delang 2008).

NOTES. Species characterised by glabrous, warty twigs, retrorse thorns, coriaceous leaves, and flowers arranged in supra-axillary rows with sepals (6 –) 7 – 11 (– 12) mm long and petals (9 –) 10 – 14 mm long. Despite its serial flowers, *Capparis radula* was not included by Jacobs (1965) in the Seriales-Group, but in the Brevispina one, due to the large size of the flowers.

19. *Capparis sepiaria* L. (Linnaeus 1759: 1071). Type: “Ind. hab. ad sepes”, *Anonymous* s.n. (lectotype LINN-HL 664.4 digital image!, selected by Jacobs (1965: 489)).

Capparis sepiaria β *glabrata* DC. (Candolle 1824: 247). Type: [Indonesia] Timor, *Anonymous* s.n. (lecto-

type G 00207295 digital image!, selected by Jacobs (1965: 489)).

Capparis incanescens DC. (Candolle 1824: 247). Type: “Mysore; v.s. in h. Banks” (lectotype BM, selected by Jacobs (1965: 489), not seen).

C. sepiaria var. *incanescens* (DC.) Hook.f. & Thomson (Hooker & Thomson 1872: 177).

Capparis stylosa β *velutina* DC. (Candolle 1824: 246). Type: India, Mysore, *Buchanan* s.n., “in hb. Banks” (lectotype BM selected by Jacobs (1965: 490), not seen).

Capparis umbellata R.Br. ex DC. (Candolle 1824: 247). Type: [Australia], Nov. Holl., 1819, *R. Brown* s.n. (lectotype G 00207273 digital image!, selected by Jacobs (1965: 490)).

Capparis emarginata C.Presl (1835: 85). Type: [Philippines] Luzon, *Haenke* s.n. (lectotype PR?, selected by Jacobs (1965: 490), not seen).

Capparis retusella Thwaites (1858: 16). Type: [Sri Lanka] Ceylon, *Thwaites* CP 2550 (lectotype K 000247337 digital image!, selected here; isoelectotypes BM 010769742 digital image!, BR 0000006985493 digital image!, G 002379554, G 00237955 digital images!, MEL 2059747 digital image!, US 00100581 digital image!).

C. sepiaria var. *retusella* (Thwaites) Thwaites (1864: 400).

Capparis glauca Wall. ex Hook.f. & Thomson (Hooker & Thomson 1872: 180). Type: [Myanmar] Pagodas at Pegam [Pegamew], *Wallich* 7005 (lectotype K 001126549 digital image!, selected by Jacobs (1965: 490)).

Capparis flexicaulis Hance (1878: 225). Type: [China] Hainan, Hoi-han, 1877, *Bullock* 20274 (lectotype E 00327219 digital image!, selected here; isoelectotype BM 000946249 digital image!).

Capparis glauca var. *angustifolia* Coll. & Hemsl. (Collett & Hemsley 1890: 20). Type: [Myanmar] Upper Burma, Meklita [Meiktila], 1887, *Collett* 538 (lectotype K000247336 digital image!, selected here; isoelectotypes BM 000629175 digital image!, K 000247335 digital image!).

Capparis trichopetala Valetton (1907: 14). Type: [Indonesia] Merauke, Nov. 1905, *Koch* 618 (lectotype L 0035356 digital image!, selected by Jacobs (1965: 490)).

Capparis affinis Merr. (Merrill 1915: 303). Type: Philippines, Palawan, Aug. 1913, *Escritor* 21583 (lectotype NY 00387650 digital image!, selected here; isoelectotypes BM 000629553 digital image!, K 000643992 digital image!, L 0035355 digital image!, US 00100532 digital image!).

Shrub up to 3 – 4 m tall, sometimes climber. *Twigs* flexuous, pubescent, later glabrescent. *Stipular thorns* retrorse, (1 –) 1.5 – 5 (– 8) mm long, strong. *Petiole* 2 – 5 (– 7) mm long. *Leaf blade* (1.4 –) 1.7 – 2.7 (– 4) times as long as wide, (1.5 –) 2 – 8.2 (– 10) × (0.8 –) 1.3 – 3.6 (– 4) cm, widest at the middle or below; base rounded, subcordate, acute or obtuse, top rounded or acute,

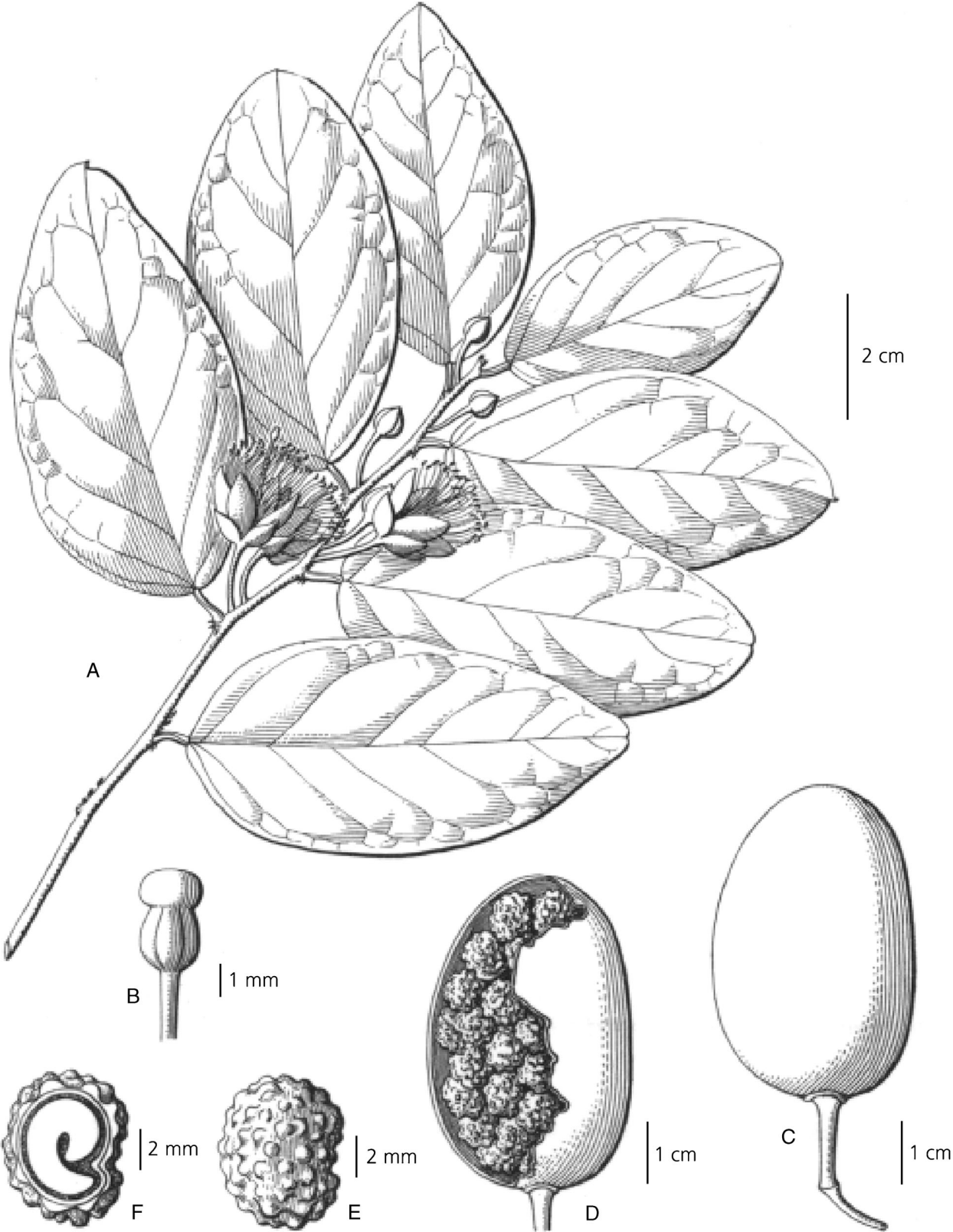


Fig. 15. *Capparis radula*. A flowering branch; B ovary; C fruit; D inside of the fruit with seeds; E seed; F longitudinal section of the seed. (From Jacobs 1965).



Fig. 16. *Capparis sepiaria*. PHOTO: TOMOKI SANDO.

often submarginate; upper surface early glabrescent, lower surface mostly pubescent, at least along the midrib; nerves (4 –) 5 – 7 (– 9) pairs. *Inflorescences* subumbels at the top of lateral twigs, sometimes terminal; pedicels (0.7 –) 1.3 – 2.4 (– 3) cm long; sepals (2 –) 3 – 5 (– 6) × 2 – 4 (– 5) mm, glabrous, inner pair thinner; petals white, oblong, 4.5 – 6 (– 7.5) × 1.5 – 3 mm, more or less pubescent; stamens (20 –) 25 – 45, filaments 5 – 10 mm long; gynophore (4 –) 7 – 13 (– 15) mm long, mostly puberulous at the base; ovary ovoid or ellipsoid, 1.5 – 2 × 0.8 – 1 mm, glabrous, shortly beaked. *Fruit* globose or subglobose, 4 – 10 (– 12) × (3 –) 4 – 10 (– 12) mm, pericarp smooth. Fig. 16.

DISTRIBUTION. **Africa:** Mauritania, Senegal, Mali, Côte d'Ivoire, Burkina Faso, Niger, Nigeria, Benin, Cameroon, Chad, Central African Republic, Sudan, Ethiopia, Eritrea, Somalia, Kenya, Tanzania, Uganda, Rwanda, Burundi, Democratic Republic of Congo, Malawi, Zambia, Angola, Botswana, Zimbabwe, Mozambique, South Africa and Madagascar; **Asia:** India (including Andaman Islands), Sri Lanka, Nepal, Myanmar, China, Vietnam, Laos, Cambo-

dia, Thailand, Malaysia, Indonesia, Philippines, New Guinea; **Australia:** Northern Territory, Western Australia, Queensland (Jacobs 1965; Elffers *et al.* 1964; Zhang & Tucker 2008; Lemmens 2013). The examined material from the study area has been collected in central, western, southern Cambodia and southern Laos.

SPECIMENS EXAMINED. **LAOS.** Ile de Khon, 1866 – 1868, *Thorel* 2064 (P 05454822, P 05454829). **CAMBODIA.** Compong Luong, 1866 – 1868, *Thorel* 2064 (P 05454823); Oudan, 1866 – 1868, *Thorel* 2064 (P 05454821); Léach prov. Pursat, 30 June 1930, *Poilane* 17808 (P 00283267); Ruok Kraham, 20 Oct. 1909, *Magnen et al.* s.n. (P 05454883); Kg Luong, 22 January 1966, *Martin* 186 (P 05454852).

HABITAT. Scrub, open forest, riverine forest, grassland with scattered trees, hedges, often on limestone and sand along the seacoast, with preference for areas with seasonal drought up to 700 m (Jacobs 1960, 1965; Elffers *et al.* 1964; Chayamarit 1991; Zhang & Tucker 2008). In Cambodia reported from sandy-clayey soil (*Poilane* 17808) and secondary forest, riversides (*Martin* 186).

CONSERVATION STATUS. Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). Based on the available information, the population of the species in the study area is not exposed to threats. **PHENOLOGY.** Flowering December – June (Chayamarit 1991; Zhang & Tucker 2008). In Cambodia fruiting specimens collected in June (*Poilane* 17808) and October (*Magnen et al.*).

NOTES. *Capparis sepiaria*, included in the Subumbellates-Group (Jacobs 1965), is characterised by pubescence greyish to fulvous, thorns strong, retrorse, subumbels on lateral twigs, rarely terminal, and fruit smooth, up to 10 (– 12) mm in diam. Material from the study area shows stipular thorns 1.5– 4 mm long, leaf blades 2.8– 8.2 × 1.5– 3.6 cm, subumbels (2–) 3– 6-flowered and fruit 4– 8 (– 11) mm in diam. Along its wide distribution range the species is quite heterogeneous both in vegetative and reproductive characters, and several varieties were described from tropical Africa by DeWolf (1962). The plants have medicinal uses in Cambodia (*Martin* 186).

20. *Capparis siamensis* Kurz (1877: 63). Type: [Thailand] Siam, Radboore [Ratchaburi], *Teijsmann* 5927 (holotype CAL (Jacobs 1965: 493), not seen; isotypes GH 00042274 digital image!, K 000651017 digital image!, U 0000961 digital image!).

Capparis macropoda Pierre ex Gagnep. (Gagnepain 1908b: 196). Type: [Cambodia] in montibus Camchay [Kamchay] ad Kamput [Kampot], May 1874, *Pierre* 4007 (lectotype P 04022376 digital image!, selected here; isolectotype P 04022377 digital image!).

Capparis adunca Craib (1922: 231). Type: [Thailand] Mûang Pichit, 25 March 1922, *Kerr* 5672 (lectotype K 000651015 digital image!, selected here; isolectotype BM 000629532 digital image!).

Capparis winitii Craib (1922: 234). Type: [Thailand] Muang Hawt, 14 March 1913, *Kerr* 2938 (lectotype K 000651016 digital image!, selected here; isolectotype BM 010754844 digital image!).

Shrub or small tree up to 5– 8 m tall, rarely climber. *Twigs* firstly pubescent with stellate hairs, later glabrescent or glabrous. *Shoots* with cataphylls at the base. *Stipular thorns* retrorse or patent, up to 3 mm long, or lacking. *Petiole* (4–) 6– 10 (– 13) mm long. *Leaf blade* herbaceous, (1.5–) 2– 2.7 (– 3) times as long as wide, ovate or narrowly ovate, (5–) 6– 10 (– 11.7) × 3– 5 (– 6) cm; base cordate, subcordate or rounded, apex acute or obtuse, sometimes mucronulate; surfaces puberulous or glabrescent, sometimes pubescent along the nerves; nerves 4– 6 (– 7) pairs. *Flowers* solitary, axillary; pedicels (0.7–) 1– 1.3 cm long; sepals 6– 10 (– 12) × 3– 5 (– 6) mm, ciliate at margins, pubescent outside; petals whitish or yellow, obovate or spatulate, (1.3–) 2– 2.5 (– 2.7) × (0.5–) 0.7– 1 cm, outside pubescent at the top, the upper pair with a red or yellow basal spot; stamens c. 28–

46, filaments c. 1.9– 2.2 cm long; gynophore 1.7– 2.7 cm long, pubescent; ovary ovoid or narrowly ovoid, (3–) 4– 5 × 1.5– 2 mm, densely pubescent, beaked. *Fruit* ellipsoid or ovoid, 3– 5.5 × 2.5– 3.6 cm, pericarp covered with small warts, sometimes smooth. Fig. 17.

DISTRIBUTION. Thailand, Cambodia, Vietnam (Jacobs 1965; Chayamarit 1991). Recorded also in Laos (Callaghan 2004), but during the present research no material from this country was examined. In Cambodia occurring in the central, western and southern provinces. **SPECIMENS EXAMINED. CAMBODIA.** In montibus Camchay ad Kamput, May 1874, *Pierre* 4007 (P 04022376, P 04022377); Vat Luong, 1883– 1885, *Couderc* s.n. (P 05454874, P 05454879); Cambodia, s.l., 1963, *Schmid* s.n. (P 05454876, P 05454875); Prov. Pursat, entre Traping Pông et Léach, 28 June 1930, *Poilane* 17800 (P 05454877; L 1855884; L 1855883); Prov. Pursat, Phum Thmei, 24 Jan. 1966, *Martin* 737 (P 05454952); Temple de Banteay Chnear [Banteay Srei], prov. Batdambang [Battambang], 28 March 1965, *Martin* 737 (P 04746235).

HABITAT. Deciduous forest, bamboo forest, scrub, open vegetation and edges of evergreen forest, up to c. 350 m. In Cambodia collected in open forest on sandy soil (*Poilane* 17800) and on limestone (*Martin* 737).

CONSERVATION STATUS. Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). The species is widespread in Cambodia, and no threats are recorded for its populations.

PHENOLOGY. Flowering in December – April (Chayamarit 1991). Based on the available material, in Cambodia flowering in January and March (*Martin* 737) fruiting in May – June (*Pierre* 4007, *Poilane* 17800).

VERNACULAR NAMES. Cambodia: Tranum àon, tonum ohuit (*Martin* 737).

NOTES. This species, included by Jacobs (1965) in the Brevispina-Group due to the large size of the solitary flowers, is recognisable by the ovate leaves, gynophore densely pubescent, ovary beaked, densely pubescent and fruit usually covered with small warts. The fruit is recorded as edible in herbarium material from Cambodia (*Martin* 737).

21. *Capparis tenera* Dalzell (1850: 41). Type: India, Syhadree, *hb. Dalzell* s.n. (lectotype DD, selected by Jacobs (1965: 497) as the holotype, not seen).

Capparis tetrasperma Thwaites (1858: 15). Type: [Sri Lanka] Ceylon, May 1846, *Thwaites* 614 (lectotype K 000247342 digital image!, selected by Fici (2016a: 173); isolectotypes BR 0000006986131 digital image!, G 00226113 digital image!, GH 00042275 digital images!, L 0035360 digital image!, MEL 2236318 digital image!, P 04022387, P04022388, P04022389, P04022390 digital images!, US 00100589 digital image!).



Fig. 17. *Capparis siamensis*. PHOTO: PREECHA KARAKET.

Capparis tenera var. *latifolia* Hook.f. & Thomson (Hooker & Thomson 1872: 179). Type: [Myanmar] Martaban, 1827, Wallich 6997 (lectotype K 001126536 digital image!, selected by Fici (2016a: 173); isolectotype G 00226108 digital image!).

Capparis disticha Kurz (1874: 70). Type: [Myanmar] Martaban, Kurz 20 (lectotype CAL, selected by Jacobs (1965: 497), not seen).

Shrub or climber to c. 3 m tall. *Twigs* glabrous or early glabrescent. *Stipular thorns* retrorse up to 4 mm long. *Petiole* (2.5 –) 4 – 6 mm long. *Leaf blade* (1.4 –) 1.8 – 3 times as long as wide, (3 –) 4.5 – 8 (– 11.5) × (1.3 –) 2 – 4 (– 6) cm, widest at or below the middle; base rounded, obtuse to subcordate, top acuminate, the tip up to 0.5 (– 1) cm long; surfaces glabrous; nerves (3 –) 4 – 6 pairs. *Flowers* 2 – 4 (– 6) in supra-axillary rows, rarely solitary; pedicels (0.5 –) 1 – 3 (– 3.5) cm long, filiform; sepals (2.5 –) 3 – 4.5 (– 5.5) × (1.5 –) 2 – 2.5 mm, glabrous, tomentose at the margins; petals white, ovate, (3.5 –) 4 – 5 (– 7) × 1.7 – 2.3 mm, tomentose on both surfaces,

sometimes the upper pair with a basal red spot; stamens 7 – 21; gynophore (1.2 –) 1.5 – 2.5 cm long, glabrous; ovary pear-shaped or ovoid, c. 1.5 × 0.5 mm, glabrous. *Fruit* globose or subglobose, (0.5 –) 0.7 – 1 (– 1.3) cm in diam., pericarp smooth, red or orange.

DISTRIBUTION. **Africa:** Kenya, Tanzania, Mozambique, Angola, Democratic Republic of Congo westwards to Nigeria and Benin (Elffers *et al.* 1964); **Asia:** India, Sri Lanka, China (Xizang, Yunnan), Myanmar, Thailand (Jacobs 1965; Zhang & Tucker 2008), recently recorded from central Laos (Fici 2016a).

SPECIMENS EXAMINED. **LAOS.** Khammouan, Boualapha [Bualapha], 16 March 2007, Vannachak *et al.* BT 1003 (L 0812647).

HABITAT. In southern Asia in forest habitats and scrub up to 1000 – 1200 m (Jacobs 1965; Chayamarit 1991). In Laos the species has been collected in semi-deciduous forest at c. 185 m.

CONSERVATION STATUS. Data deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012).

No information is so far available on the population status of the species in central Laos.

PHENOLOGY. Flowering February – May (Jacobs 1965). In Laos flowering material collected in March.

NOTES. The available material from central Laos shows leaves up to 3 times as long as wide, similar to populations of *Capparis tenera* from Sri Lanka, India and Andaman Islands; the pedicels 0.5 – 1 cm long and the sepals c. 2.5 mm long are slightly shorter than in other asiatic populations (Fici 2016a).

22. *Capparis thorelii* Gagnep. (Gagnepain 1908a: 214). Type: [Cambodia] Oudan [Oudong], 1866 – 1868, *Thorel* 2037 (lectotype P 04022397 digital image!, selected here; isolectotypes P 04022396, P 04022398 digital images!, K 000651019 digital image!, L 0035361 digital image!, MPU 600750 digital image!).

Shrub or small tree up to 5 m tall, sometimes climber. *Twigs* pubescent, later glabrescent. *Stipular thorns* recurved, strong, up to 5 mm long. *Petiole* 3 – 6 (– 7) mm long. *Leaf blade* chartaceous or subcoriaceous, 1.2 – 2 (– 2.5) times as long as wide, (1.2 –) 1.4 – 3 (– 4) × (0.9 –) 1 – 2.2 (– 2.5) cm, widest at or above the middle; base rounded or obtuse, top rounded, sometimes subemarginate; surfaces glabrescent; nerves 4 – 6 pairs. *Flowers* in lateral subumbels often arranged in a panicle; pedicels (0.6 –) 0.8 – 1.3 (– 1.7) cm long; sepals (3.5 –) 4 – 5 (– 5.5) × 2 – 3 mm, glabrous, sometimes ciliate; petals white, obovate, 4.5 – 6 (– 7) × 2 – 3 mm, pubescent inside at the base; stamens c. 35, filaments c. (6 –) 7 – 10 mm long; gynophore (0.7 –) 1 – 1.5 cm long, glabrous; ovary ovoid, 1.1 – 1.5 × 0.6 – 1 mm, glabrous, with beak to c. 0.4 mm long. *Fruit* globose, on thickened stipe, c. 1.1 – 1.9 × 1.1 – 1.8 cm, pericarp smooth.

DISTRIBUTION. Thailand, Cambodia, Vietnam. Gagnepain (1908a, 1908b) reported the type locality of the species in Laos, whereas Jacobs (1965) correctly indicated its location in Cambodia, excluding the former country from the distribution range. Further reports from Laos (Chayamarit 1991; Newman *et al.* 2007b; Inthakoun & Delang 2008; Lee 2016), are probably due to Gagnepain's original misinterpretation. In the study area it is known from central, western and southern Cambodia.

SPECIMENS EXAMINED. CAMBODIA. Oudan, 1866 – 1868, *Thorel* 2037 (lectotype P 04022397; isolectotypes P 04022396, P 04022398, K 000651019, L 0035361, MPU 600750); Battambang, 13 Feb. 1963, *Schmid* s.n. (P 05454467; P 05454472); Cambodia, Kil. 15 de la route Kg. Speu a Srê Umbel, 2 June 1930, *Poilane* 17436 (P 05454469); Cambodia, Prov. Samrongtong, March 1870, *Pierre* 790 (P 05454471).

HABITAT. Dry scrub and bamboo forest at low elevation. In Cambodia recorded from open formations on compact soils (*Schmid* s.n.).

CONSERVATION STATUS. Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). The species is widespread in Cambodia and no threats are recorded for its populations.

PHENOLOGY. Flowering December – March (Chayamarit 1991). In Cambodia flowering material has been collected in February (*Schmid* s.n.), fruiting material in March (*Pierre* 790) and June (*Poilane* 17436).

NOTES. Following Jacobs' (1965) treatment, *Capparis thorelii* belongs to the Subumbellates-Group. It is related to *C. sepiaria*, differing in the leaves which are glabrescent beneath and in the larger fruit on a thickened stipe. Furthermore, the ovary in *C. thorelii* is 1.1 – 1.5 mm long, with a pronounced beak, while in *C. sepiaria* it is 1.5 – 2 mm long and shortly beaked.

23. *Capparis trinervia* Hook.f. & Thomson var. *trinervia* (Hooker & Thomson 1872: 175). Type: [Myanmar] Tenasserim, *Helfer* 185 (lectotype K 000247349 digital image!, selected by Jacobs (1965: 500)).

Capparis kunstleri King (1889: 396). Type: [Malaysia] Gunong Booboo, Dec. 1885, *King's Collector* 8337 (lectotype K 000643958 digital image! selected here; isolectotype CAL not seen).

Shrub up to c. 4 m tall or climber. *Twigs* pubescent, later glabrescent. *Stipular thorns* slightly retrorse or straight, mostly horizontal or pointed upwards, 2 – 3 (– 5) mm long. *Petiole* (0.4 –) 0.6 – 1.4 (– 1.8) cm long, pubescent. *Leaf blade* (1.9 –) 2.2 – 3 (– 3.4) times as long as wide, (5.5 –) 8 – 14 (– 19) × (2.4 –) 3.3 – 5 (– 6.5) cm, widest at or above the middle; base cuneate or acute, top acute, subacuminate or shortly acuminate; surfaces glabrescent; nerves (2 –) 3 – 8 (– 10) pairs, mostly 3 pairs in the study area. *Flowers* (3 –) 6 – 10 (– 15) conferted at the top of twigs or on lateral subumbels, in some cases flowers solitary at the axils of the upper leaves; pedicels (1.3 –) 2 – 3.3 (– 5) cm long, pubescent; bracts up to 3 – 4 mm long, caducous; sepals 8 – 12 (– 13) × 6 – 10 (– 11) mm, outside pubescent; petals white or reddish, obovate, c. 12 – 15 (– 17) × 8 – 9 (– 10) mm, pubescent in the lower half; stamens c. (30 –) 60 – 70, c. 2 – 2.4 cm long; gynophore 2.7 – 4.5 (– 5) cm long, puberulous at the base in the study area; ovary ellipsoid, (2 –) 2.5 – 3 × 1.5 – 2 mm, shortly beaked, glabrous or puberulous. *Fruit* globose, c. 3.5 – 5 cm in diam.

DISTRIBUTION. Myanmar, Malaysia, Laos, Vietnam, Indonesia (Sumatra). Recorded by Jacobs (1965) in peninsular Thailand, but the occurrence in this country was not confirmed by Chayamarit (1991). In the study area known from central and southern Laos.

SPECIMENS EXAMINED. LAOS. Phon Thane [Phônταν] (Kamkeut), *Spire* 47 (P 05454483); Pied du plateau, Attopeu [Attapu], April 1877, *Harmand* 1415 (P

05454480, P 05454482, P 05454088); Borikhane, 27 March 1932, *Kerr* 20764 (P 05454489, BM 010754859, L 1851630).

HABITAT. Dense forest, scrub and open vegetation at low elevation. In Laos collected on rocky outcrops (*Spire* 47) and in scrub at c. 200 m (*Kerr* 20764).

CONSERVATION STATUS. Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012). *Capparis trinervia* is a rare species (Jacobs 1965), collected in a few localities of Laos, for which there is inadequate information to make a direct, or indirect, assessment of the risks.

PHENOLOGY. Flowering March – May.

VERNACULAR NAMES. Laos: Mak hoi pha (*Spire* 47), Sai su yai (*Kerr* 20764).

NOTES. Jacobs (1965) underlined that *Capparis trinervia*, included in the Trinervia-Group, is characterised by great polymorphism. It is characterised by up to 10 (– 15) flowers conferred at the top of twigs or on lateral subumbels, pedicels pubescent up to 3.3 (– 5) cm long, sepals outside pubescent, gynophore puberulous at the base, and globose fruit up to 5 cm in diam. In the specimens from Laos, leaves have three pairs of nerves, of these the first one is thin and departing from the leaf base, while the upper two pairs are thicker; however the pattern and number of nerves is very variable along the wide distribution range of the species.

24. ***Capparis urophylla*** F.Chun (1948: 419). Type: [China] Kwangsi, Hang-On-Yuen, 7 June 1936, *Z. S. Chung* 81701 (holotype SYS not seen; isotypes A 00042261 digital image!, IBK 00016075 digital image!). *Capparis cuspidata* B.S.Sun (1964: 111). Type: [China] Yunnan, Cheng-kang, Maliling, 18 Aug. 1938, *T. T. Yü* 17832 (holotype PE 01120143 digital image!; isotypes A 00042252 digital image!, E 00327217 digital image!).

Capparis tenera var. *caudata* B.S.Sun (1964: 111). Type: [China] Yunnan, between Mae-Kiang and Pul, 31 March 1955, *Yunnan Complex Expedition* 6071 (holotype KUN not seen).

Shrub or small tree up to c. 6 – 7 m tall. *Innovations* with minute stellate hairs; *twigs* mostly glabrous, in some cases firstly pubescent, later glabrescent. *Stipular thorns* mostly lacking, if present thin, recurved upwards, c. 1 mm long. *Petiole* (2 –) 3 – 5 mm long. *Leaf blade* ovate or elliptic, (2.2 –) 2.6 – 4.5 (– 5.4) times as long as wide including the tip, widest at or below the middle, (3 –) 4 – 8.2 (– 8.5) × (1.2 –) 1.3 – 2.2 (– 2.7) cm; base acute or cuneate, top gradually caudate, with narrow tip, curved or straight, up to 2.5 cm long; surfaces glabrous; nerves 4 – 6 pairs. *Flowers* serial, 2 (– 3) in supra-axillary rows, or solitary; pedicels (5 –) 7 – 12 (– 15) mm long; sepals 3 – 4 (– 5) × 2 – 3 mm,

outside glabrous, inside and at margins pubescent; petals white, oblong, (5 –) 6 – 7 × (2 –) 2.5 – 3.5 (– 4) mm, outside glabrous or glabrescent, inside pubescent; stamens (12 –) 14 – 20, filaments c. 1 – 1.9 cm long; gynophore (0.7 –) 1 – 2 (– 2.5) cm long, glabrous; ovary ovoid, 1 – 1.2 × 0.5 – 0.7 mm, glabrous. *Fruit* globose, c. (6 –) 7 – 10 mm in diam., pericarp smooth.

DISTRIBUTION. China (Guangxi, Hunan, Yunnan), Laos (Zhang & Tucker 2008). In the study area known from Xiangkhoang Province, northern Laos.

SPECIMENS EXAMINED. LAOS. Phou San, alt. 2000 m, 1954, *Vidal* 1586 (L 1851585, P 05454069); Muang Cha, Chieng Kwang [Xiangkhoang], c. 1400 m, 14 April 1932, *Kerr* 21129 (BM 010754862, L 1851583, P 05454083).

HABITAT. Damp and open forest, thickets, streambanks, roadsides, on limestone and sandy soil from c. 300 to 2000 m (Jacobs 1965; Zhang & Tucker 2008). In Laos collected in scrub-secondary forest at 2000 m (*Vidal* 1586) and at c. 1400 m (*Kerr* 21129).

CONSERVATION STATUS. Data Deficient (DD) according to *IUCN Red List Categories and Criteria* (IUCN 2012). The species has been collected in two localities of Laos, and there is inadequate information to make a direct, or indirect, assessment of the risks.

PHENOLOGY. Flowering March – July (Jacobs 1965). In Laos flowering material (*Kerr* 21129) was collected in April.

VERNACULAR NAMES. Laos: Tchona da, Ko sa Douang (*Vidal* 1586).

NOTES. Distinguished from the other species of the Seriales-Group by the stipular thorns mostly lacking or when present slender and ascending, ovate or elliptic leaves gradually caudate, with tip up to 2.5 cm long, and flowers 2 (– 3) in supra-axillary rows or solitary. The leaves are used in Laos to treat conjunctivitis, the wood for stomach ache (*Vidal* 1586).

25. ***Capparis zeylanica*** L. (Linnaeus 1762: 720). Type: Ceylon [Sri Lanka], *Hermann* 210 (lectotype BM, selected by Jacobs (1965: 505), not seen).

Capparis horrida L.f. (Linnaeus filius 1782: 264). Type: Ceylon [Sri Lanka], *König* s.n. (lectotype C 10009054 digital image!, selected by Jacobs (1965: 506)).

Capparis dealbata DC. (Candolle 1824: 246). Type: [Indonesia] Timor, s.c. s.n. (lectotype G 00207277 digital image!, selected by Jacobs (1965: 506)).

Capparis temiflora DC. (Candolle 1824: 247). Type: [India] Coromandel, s.c. s.n. (lectotype P, selected by Jacobs (1965: 506), not seen).

Capparis aurantioides C.Presl (1835: 86). Type: [Philippines] Luzon, *Haenke* s.n. (lectotype PRC 450494 digital image!, selected by Jacobs (1965: 506)).

Capparis rufescens Turcz. (Turczaninow 1854: 321). Type: [Indonesia] Sumbawa, 1847, *Zollinger* 3381

- (lectotype G 00237963 digital image! selected by Fici (2016a: 174); isolectotype KW 001000832 digital image!).
- Capparis erythrodisys* Miq. (Miquel 1855: 397). Type: [Indonesia] Java, Gunong Gambing, *Junghuhn* s.n. (lectotype U 0000955 digital image!, selected by Fici (2016a: 174); isolectotype L 0035365 digital image!).
- Capparis hastigera* Hance (1868: 296). Type: [China] Kwangtung, Pak-Sha, 19 Nov. 1866, *Hance* 13732 (lectotype BM, selected by Jacobs (1965: 506), not seen).
- Capparis swinhoii* Hance (1868: 296). Type: [China] Hainan, March 1868, *Swinhoe* 14409 (lectotype BM 000629186 digital image!, selected by Jacobs (1965: 506)).
- Capparis crassifolia* Kurz (1874: 227). Type: [Myanmar] Pegu, 20 March, *Kurz* 1825 (lectotype K 000247354 digital image!, selected by Fici (2016a: 174)).
- Capparis polymorpha* Kurz (1874: 227). Type: [Myanmar] Pegu, April 1854, *Kurz* 1828 (lectotype CAL, selected by Jacobs (1965: 506), not seen; isolectotype K 000247353 digital image!).
- Capparis xanthophylla* Coll. & Hemsl. (Collett & Hemsley 1890: 20). Type: [Myanmar] Jemethen, Feb. 1888, *Collett* 93 (lectotype K 000247352 digital image!, selected by Jacobs (1965: 506)).
- Capparis latifolia* Craib (1922: 232). Type: [Thailand] Mûang Lom Sak, 3 April 1922, *Kerr* 5738 (lectotype K 000643981 digital image!, selected by Fici (2016a: 174); isolectotypes BM 000629524 digital image!, P 05454074, P 05454068 digital images!, TCD 0010331 digital image!).
- Capparis subhorrida* Craib (1922: 234). Type: [Thailand] Nakawn Tai, 13 April 1922, *Kerr* 5826 (lectotype K 000643980 digital image!, selected by Fici (2016a: 174); isolectotypes BM 000629526 digital image!).
- Capparis hastigera* var. *obcordata* Merr. & Metc. (Merrill & Metcalf 1937: 192). Type: [China] Hainan, Chang-kiang Distr., Ue Lung Shan, 29 Jan. 1934, *Lau* 3236 (lectotype A 00042254 digital image!, selected by Fici (2016a: 174); isolectotypes P 04022394 digital image!, S08-1088 digital image!).
- Shrub* or climber to 5 (– 10) m tall. *Twigs* pubescent, often with reddish stellate hairs, later glabrescent. *Stipular thorns* retrorse, 2.5 – 6 mm long. *Petiole* 0.7 – 1 (– 2) cm long. *Leaves* subcoriaceous, (1.2 –) 1.5 – 2.7 (– 3) times as long as wide, 4 – 10 (– 18) × (2.1 –) 3 – 5.5 (– 9) cm, widest at the middle or below; base rounded, obtuse or acute, apex rounded or acute, with rigid, dark mucro up to 4 mm long; upper surface glabrescent, lower pubescent or glabrescent; nerves (3 –) 4 – 7 (– 8) pairs. *Flowers* 2 – 6 in supra-axillary rows; pedicels 0.4 – 2 (– 3) cm long, pubescent; sepals (5 –) 6 – 11 (– 15) × (3 –) 4 – 7 (– 9) mm, outside and at margins pubescent; petals white, oblong, (7 –) 7.5 – 12 (– 19) × (3 –) 3.5 – 5 (– 8) mm, outside glabrescent to pubescent, sometimes the upper pair with pink or reddish spot; stamens 30 – 45 (– 70), filaments 2 – 3.5 (– 5) cm long; gynophore (2 –) 3.5 – 5 (– 6.5) cm long, pubescent at the base; ovary ellipsoid or ovoid, 1.5 – 2.5 × 1 – 1.5 mm, glabrous, shortly beaked. *Fruit* globose or ellipsoid, c. 3 – 5 × 2.5 – 4 cm, pericarp smooth. Fig. 18.
- DISTRIBUTION.** India (including Andaman Islands), Sri Lanka, Nepal, China (Guangdong, Guanxi, Hainan), Myanmar, Thailand, Laos, Vietnam, Cambodia, Philippines and Indonesia (Jacobs 1965; Zhang & Tucker 2008; Tucker *et al.* 2012). In the study area the species has been collected in various localities of northern, central, southern Laos and central and southern Cambodia.
- SPECIMENS EXAMINED. LAOS.** Plateau d'Attopeu, March 1877, *Harmand* 1227 (P 05453666, P 05453667, P 05453671); Bassin d'Attopeu, 1875 – 1877, *Harmand* s.n. (P 05453674); Cahn Trap, *Spire* 1017 (P 05453703, P 05453709); km 20 de la route n°10 près Savannakhet, 16 Feb. 1925, *Poilane* 12004 (P 05453756); Prov. Vientiane, Tha Deua, 7 Feb. 1954, *Vidal* 2686 (P 05454015); Saravanh Province, Saravanh Distr., Ban Ka Xa, 27 Sept. 1999, *Sydara* SL7036 (L 3755041; P 05454014); Khammouan Province, Nakai Distr., Sop On, 2 March 2007, *Vannachak et al.* BT 926 (E 00702643, L 0812048); **CAMBODIA.** Oudan, 1866 – 1868, *Thorel* 2098 (P 05453702; P 05453710); Oudan, 1866 – 1868, *Thorel* 2831 (P 05453704); In planitie ad montem Srûoi prov. Pnom penh, March 1870, *Pierre* 792 (P 05453712); In montibus Cam chay ad Kamput Cambodiae, April 1874, *Pierre* 3379 (P 05453678); without locality, 1874, *Julien* s.n. (P 05453706, P 05453707, P 05453711, P 06804842); Sambor, Feb. 1876, *Harmand* 40 (P 05453714, P 05453715); without locality, Sept. 1947, *Rollet* s.n. (L 1851562); Roluos, 31 Jan. 1963, *Schmid* s.n. (P 05454060, P 05454061).
- HABITAT.** Mixed deciduous and dry dipterocarp forest, scrub, riverine formations, forest edges, savannah, hedges, limestone hills up to 700 (– 1000) m (Jacobs 1965; Chayamarit 1991). In Laos it is reported from disturbed forest and secondary vegetation (*Vidal* 2686, *Vannachak et al.* BT 926) and in thickets on sandy soil (*Poilane* 12004), in Cambodia along river banks (*Schmid* s.n.).
- CONSERVATION STATUS.** Least Concern (LC) according to *IUCN Red List Categories and Criteria* (IUCN 2012). The species is widespread and occurs in various habitats both in Laos and Cambodia, where no threats were reported.
- PHENOLOGY.** Flowering January – April. In Laos collected in flower in February (*Vidal* 2686, *Poilane* 12004) and March (*Harmand* 1227, *Vannachak et al.* BT 926), in Cambodia in January (*Schmid* s.n.) and February (*Harmand* 40).

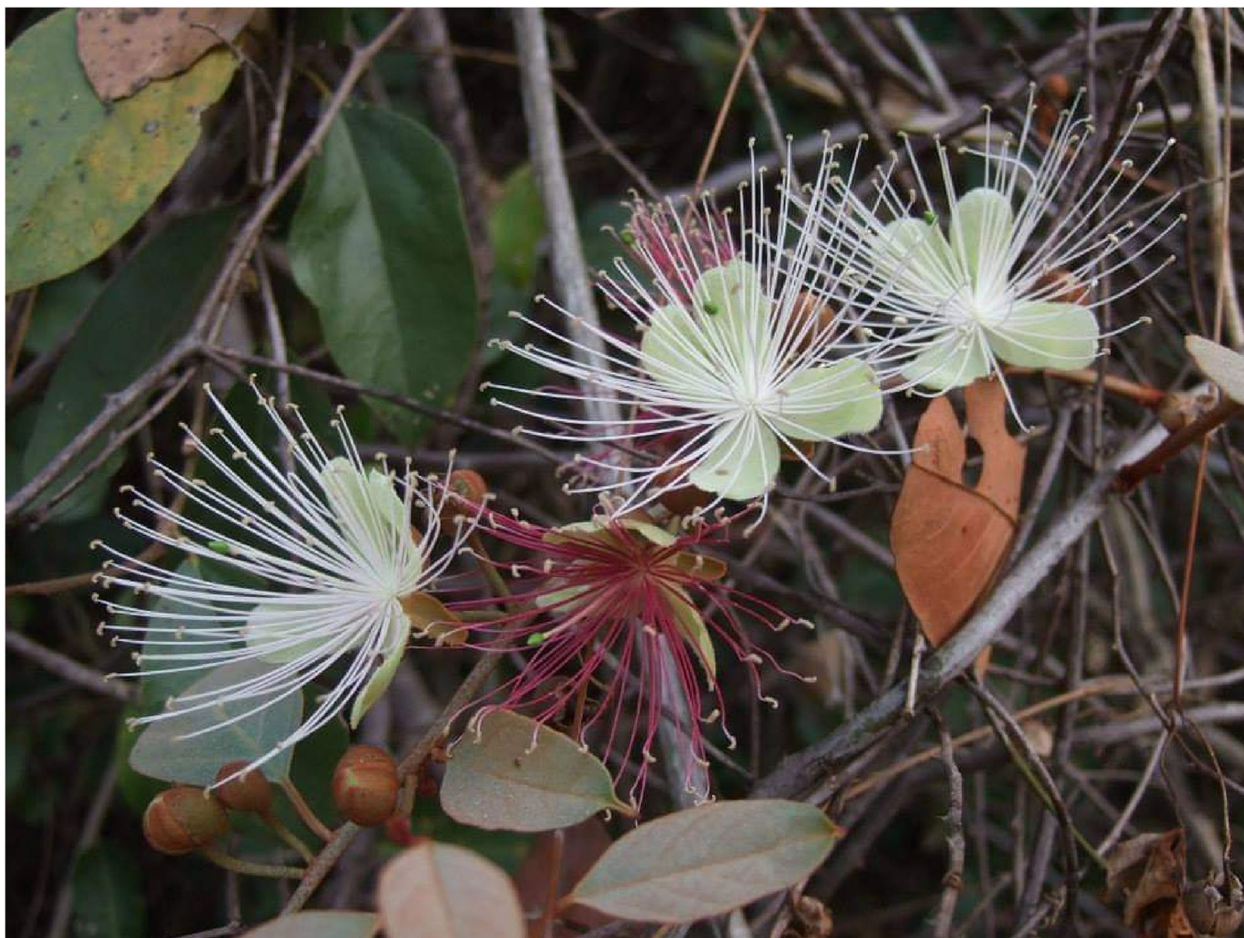


Fig. 18. *Capparis zeylanica*. PHOTO: TOMOKI SANDO.

VERNACULAR NAMES. Laos: Xai xoo, kheua (Inthakoun & Delang 2008); say sou khua (Vidal 2686), dok lèp meo (*Spire* 1017); Cambodia: Day Kim Luong (*Rollet* s.n.).

NOTES. Within the Seriales-Group, *Capparis zeylanica* is characterised by the reddish indumentum, recurved thorns up to 6 mm long, sepals up to 11 (– 15) mm long, gynophore pubescent at the base, up to 5 (– 6.5) cm long, and fruit up to 4 cm in diam. The species shows a remarkable variation in leaf morphology and flower size along its wide distribution range (Fici 2016a). Jacobs (1960, 1965) included among the synonyms of *C. zeylanica* several taxa described on the basis of local forms occurring in southern Asia, Indonesia and Philippines.

Species excludendae

***Capparis diffusa* Ridl.** (Ridley 1911: 68). Type: [Malaysia] Perlis, Bukit Lagi, March 1910, *Ridley* 15174

(lectotype SING 0056837 digital image!, selected by Jacobs (1965: 447) as the holotype; isolectotype K 000643988 digital image!).

Jacobs (1965) reported this species from Thailand, Malaysia, Indonesia (Sumatra) and Cambodia. The record from the latter country is based on *Harmand* 592 (P 04746968, P 04746969, P 04022334), collected in June 1876 during the “Expédition du D^r Harmand en Indochine 1875 – 77, Delta du Mè-Không”, which labels report “Mont de Chaudoc”. Châu Đốc is a town in south-western Vietnam lying a short distance from the Cambodian border and the only outcrop in this area is Mt Sam, which is probably the Vietnamese locality indicated by Harmand. The coordinates erroneously given by Jacobs for this site — c. 11°N 105°E — fall in a flat area of Cambodia c. 35 km northwards. The species was later reported in the country also by Chayamarit (1991) and Julius (2011), based on Jacobs’ (1965) misinterpretation. Lacking other collections,

the occurrence of *Capparis diffusa* in Cambodia cannot be confirmed. However, the distribution of this species in the area should be more carefully investigated.

Capparis rotundifolia Rottler (1803: 185). Type: [India] Madras, Oct. 1799, Rottler s.n. (lectotype P 04022372 digital image!, selected by Jacobs (1965: 485) as the holotype; isolectotype K 000247322 digital image!).

A species recorded from India, Sri Lanka, Myanmar and doubtfully from Cambodia by Jacobs (1965). The only collection with a label reporting the latter country is Pierre s.n. (P 05454917), collected in 1870, but Jacobs (1965) suggested that “On his way thither Pierre collected in southern India; his specimen might actually be from there”. Based on the whole distribution pattern and lacking other collections from Indochina, the occurrence of *Capparis rotundifolia* in Cambodia is highly improbable. Recently the species, under the synonyms *C. longispina* Hook.f. & Thomson and *C. orbiculata* Wall. ex Hook.f. & Thomson, was confirmed in Myanmar by Kress *et al.* (2003), while Maurya *et al.* (2020) reported it only from India and Sri Lanka.

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Declarations

Conflicts of interests. No potential conflict of interest was reported by the author.

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