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Studies on the genus *Capparis* L. (Capparaceae) in Lao PDR. VI: a new species from the Bolikhamxai Province

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Abstract. A new species of *Capparis*, *C. phatadke*, is described and illustrated from the Bolikhamxai Province, central Lao PDR. The new species is characterized by lianous habit, brown-reddish indumentum, straight stipular thorns, laminar bracts, large flowers arranged in terminal corymbs or subumbels, long filaments and large ovary. It is so far known from a single locality, where has been observed in mixed deciduous forest and secondary forest in a limestone area. Its ecology and phenology are discussed, and its conservation status is assessed.

Keywords: Bolikhamxai Province, *Capparis* sect. *Monostichocalyx*, endemism, Indo-Pacific area, plant taxonomy.

INTRODUCTION

The genus *Capparis* L. comprises about 150 species (POWO 2022), widespread in the tropical and subtropical regions of the Old World and occurring in a wide range of habitats from sea level to c. 3600 m (Souvannakhoummane et al. 2020). Jacobs (1965) recorded in the Indo-Pacific area 82 species, but recently several new taxa were described from various areas of southern Asia and New Caledonia (Viswanathan 2000; Srisanga and Chayamarit 2004; Sy et al. 2013, 2015, 2018, 2020; Fici 2012, 2016a, 2016b, 2017a, 2017b, 2021; Murugan et al. 2020; Julius 2022). With regard to Lao PDR, floristic surveys carried out during the last years in poorly investigated areas allowed the description of a few new species (Souvannakhoummane et al. 2018, 2020; Fici et al. 2018, 2020; Fici and Souvannakhoummane 2020), while two species were recorded for the first time from the country (Fici 2016a; Tagane et al. 2020). Based on the available data, the genus *Capparis* includes in Lao PDR 22 species, all belonging to *Capparis* sect. *Monostichocalyx* Radlk.

During recent fieldwork in the Bolikhamxai Province, central Lao PDR, a population of *Capparis* characterized by lianous habit, brown-reddish indumentum, large flowers in terminal corymbs or subumbels and large ovary, was observed in forest habitats. Material collected from this population turned out to belong to an undescribed species, to be referred to the Trinervia-Group (Jacobs 1965) within *C.* sect. *Monostichocalyx*. The new species is here described and illustrated, and data on its distribution, ecology, conservation status and affinities are given.

MATERIALS AND METHODS

Field investigations were undertaken in the Bolikhamxai Province in 2021 and 2022. The new species was firstly observed in April 2021 in the Khamkeut District, and specimens were collected in the same locality in April 2022, and kept at the National University of Laos (FOF) and Herbier National du Laos (HNL).

The species concept adopted, as well as the terminology of the vegetative and reproductive structures, follow Jacobs (1965). The description and illustration are based on herbarium material. The herbarium acronyms follow Thiers (continuously updated), while authors and plant names are based on the IPNI (2020). The examination of the type specimens of related taxa was carried out through electronic images available at JSTOR Global Plants (n.d.). The conservation status was assessed according to *IUCN Red List Categories and Criteria* (IUCN 2012).

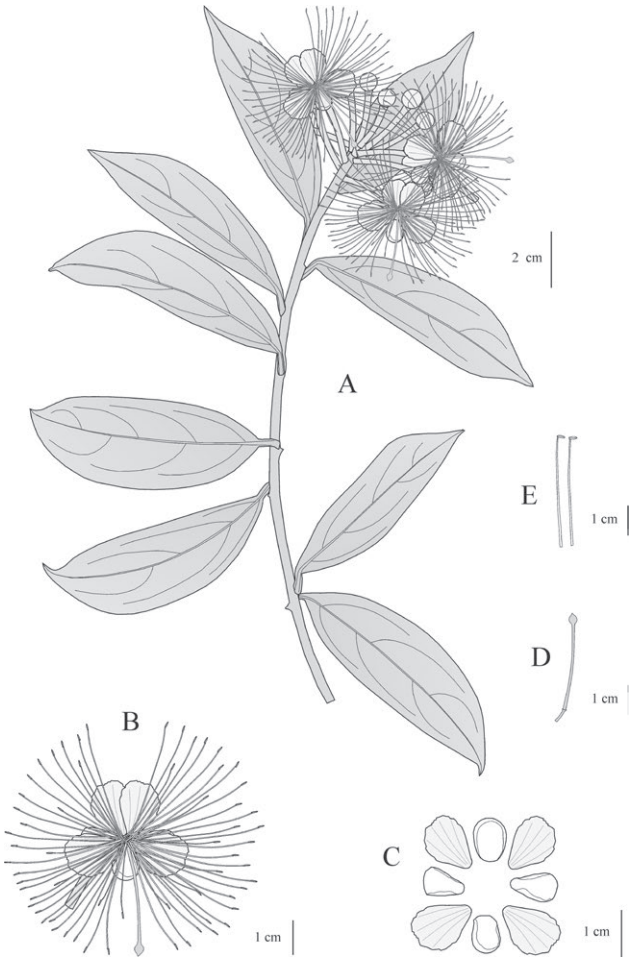

Figure 1. *Capparis phatadke.* (A) Flowering branch. (B) Flower. (C) Dissected flower showing sepals and petals. (D) Gynophore and ovary. (E) Stamens. All from *Lanorsavanh et al.* LP123 (holotype). Drawn by S. Fici.

TAXONOMIC TREATMENT

Capparis phatadke Fici, Lanors., Lamxay & Souvann., **sp. nov**.

Type: Lao PDR, Bolikhamxai Province, Khamkeut District, Pongpatao village, 7 April 2022, *Lanorsavanh et al.* LP123 (holotype FOF!; isotype HNL!). (Figure 1).

Diagnosis

Differs from *Capparis trinervia* Hook. f. & Thomson var. *trinervia* in the longer, foliaceous bracts, sepals outside glabrous, pubescent at the base, longer filaments and larger ovary.

Description

Climber up to c. 8 m long. Twigs brown-reddish pubescent. Stipular thorns straight, c. 2 mm long. Petiole 5–8 mm long, densely pubescent. Leaf blade elliptic, (2.2–) 2.9–3.7 (–4) times as long as wide, widest at or above the middle, (7.7–) 8.5–9.6 (–10) × (2–) 2.3–3 (–3.6) cm; base cuneate, apex acuminate with tip up to 1.2 cm long; surfaces glabrous; nerves 3–4 pairs. Flowers c. 10–12 in terminal corymbs or subumbels; pedicels (1.2–) 1.7–2.5 (–3) cm long, pubescent; bracts foliaceous, persistent, up to 1.2 cm long; sepals (0.8–) 0.9–1.2 × 0.6–0.8 (–1) cm, outside glabrous, pubescent near the base, inside glabrous, the inner pair with margins membranous, ciliate; petals white, obovate, (1–) 1.2–1.5 (–1.6) × 0.9–1.2 (–1.3) cm, crisp at the top, outside glabrous or pubescent at the base, inside pubescent at the base, ciliate at margins; stamens (48–) 60–70 (–90), filaments (3–) 3.2–4 (–4.4) cm long; gynophore (2–) 2.5–3 (–3.5) cm long, glabrous; ovary ellipsoid or ovoid, 3.5–4 × 3–3.2 mm, shortly beaked, glabrous. Fruit unknown.

Figure 2. *Capparis phatadke.* Flowering branch. Photo by S. Lanorsavahn.

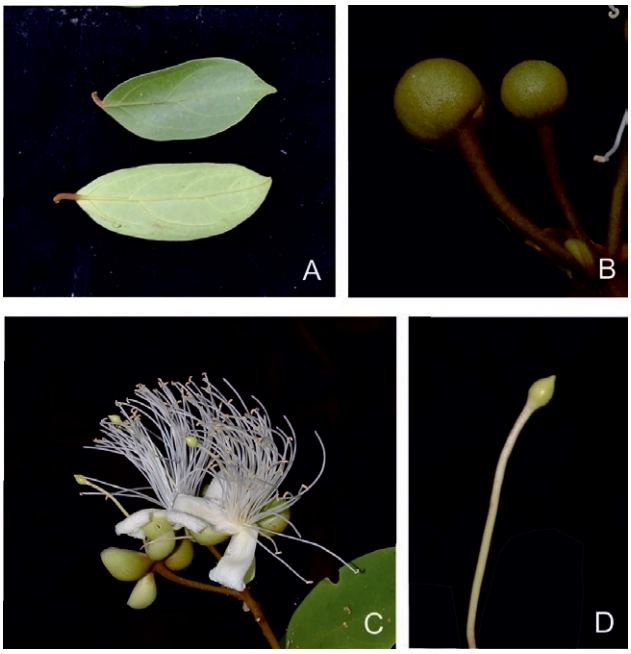

Figure 3. *Capparis phatadke.* (A) Leaves, adaxial side (above) and abaxial side (below). (B) Flower buds. (C) Flowers. (D) Gynophore and ovary. Photos by S. Lanorsavahn.

Etymology

The new species is named after Pha Tad Ke, the first botanical garden in Laos, involved in plant conservation and in educational programs on the flora of the country and its ethnobotanical uses.

Distribution

The new species is known only from the type locality, at 18°12'43.7" N 104°46'51.8" E, where few individuals were observed.

Ecology

Mixed primary deciduous forest and older secondary forest with *Neonauclea purpurea* (Roxb.) Merr., *Nauclea orientalis* (L.) L., *Barringtonia* sp. and *Syzygium* sp., in a limestone area at elevation of 730 m a.s.l.

Conservation status

Capparis phatadke is here assessed as Vulnerable (VU D1) following the *IUCN Red List Categories and Criteria* (IUCN 2012), due to its restricted area of occupancy in a single location so far known, and low number of individuals observed.

Phenology

Flowering in April.

Notes

The new species, characterized by brown-reddish indumentum, straight thorns, laminar bracts and large flowers arranged in terminal corymbs or subumbels (Figures 2, 3), belongs to the Trinervia-Group (Jacobs 1965), which includes a few species from south-eastern Asia. It is related to *Capparis trinervia* var. *trinervia*, a taxon recorded from Myanmar, Laos, Vietnam, Malaysia, Indonesia and doubtfully Thailand (Jacobs 1965), differing mainly in the bracts laminar, persistent, up to c. 1.2 cm long (vs linear, caducous, c. 4 mm long), sepals outside glabrous, pubescent only at the base (vs outside densely puberulous), filaments (3–) 3.2–4 (–4.4) cm long (vs c. 2.7 cm) and ovary 3.5–4 × 3–3.2 mm (vs 2–2.5 × 1.5 mm) (Jacobs 1960, 1965). The recently described *C. trinervia* var. *chungiana* Julius from Peninsular Malaysia differs in the larger leaf blade, 13–16 × 5.5–8.5 cm (vs (7.7–) 8.5–9.6 (–10) × (2–) 2.3–3 (–3.6) cm), nerves 5–7 (–8) pairs (vs 3–4 pairs), sepals 1.2–1.5 × 1.2 cm, the outer pair velvety ferruginous outside (vs (0.8–) 0.9–1.2 × 0.6–0.8 (–1) cm, the outer pair glabrous, pubescent only at the base) and stamens in number of 30–40 (vs (48–) 60–70 (–90)) (Julius 2022).

The large ovary of *C. phatadke* is a remarkable character if compared with the other species of the Trinervia-Group, with the exception of *C. klossii* Ridl., a species endemic to peninsular Thailand, in the Isthmus of Kra, which differs from the new species in the longer petiole, c. 12–15 mm long (vs 5–8 mm), larger leaves, c. 16.5–22.5 × 8–13 cm (vs (7.7–) 8.5–9.6 (–10) × (2–)

2.3–3 (–3.6) cm), nerves 6–7 pairs (vs 3–4 pairs), flowers in racemes (vs corymbs or subumbels), bracts c. 1.7 cm long (vs up to c. 1.2 cm), and gynophore 3.5–5.5 cm long (vs (2–) 2.5–3 (–3.5) cm) (Jacobs 1965; Chayamarit 1991). Large bracts, in some cases resembling small leaves, are recorded for *C. scortechinii* King var. *scortechinii*, a taxon widespread in Malaysia, differing from *C. phatadke* in the recurved thorns (vs straight), nerves 5–6 pairs (vs 3–4 pairs), flowers in racemes (vs in corymbs or subumbels), pedicels 0.5–1 cm long (vs (1.2–) 1.7–2.5 (–3) cm), petals 0.8–0.9 × 0.45–0.6 mm (vs (1–) 1.2–1.5 (–1.6) × 0.9–1.2 (–1.3) cm), filaments c. 1.5 cm long (vs (3–) 3.2–4 (–4.4) cm), gynophore c. 5–6.5 cm long (vs (2–) 2.5–3 (–3.5) cm), and ovary 1.7 × 0.7 mm (vs 3.5–4 × 3–3.2 mm) (Jacobs 1960, 1965). The recently described *C. scortechinii* var. *ruthiae* Julius from Peninsular Malaysia differs from *C. phatadke* in the petiole 10–15 mm long (vs 5–8 mm), pedicels 0.4–0.5 cm long (vs (1.2–) 1.7–2.5 (–3) cm), bracts (13–)16–25 mm long (vs up to 12 mm long), sepals 0.4–0.6 × 0.4–0.6 cm, densely hairy outside (vs (0.8–) 0.9–1.2 × 0.6–0.8 (–1) cm, pubescent only at base), petals 0.65–0.7 × 0.45–0.5.5 cm (vs (1–) 1.2–1.5 (–1.6) × 0.9–1.2 (–1.3) cm), and ovary c. 2.5 × 1.5 mm (vs 3.5– 4 × 3–3.2 mm) (Julius 2002).

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