

## *Sonerila bolavenensis*, a new species of Melastomataceae from Laos

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### ABSTRACT

A new species, *Sonerila bolavenensis* (Melastomataceae), from the Bolaven Plateau, southern Laos, is described and illustrated. *Sonerila bolavenensis* is easily recognized by its tiny stature up to 3 cm tall (including inflorescence), small ovate to rounded leaves 0.3–1.4 × 0.35–1 cm, petioles 0.2–0.8 cm long, and 1-flowered inflorescence. A vernacular name and preliminary conservation status are provided.

KEYWORDS: Bolaven Plateau, Champasak Province, Dong Hua Sao NPA, flora, Indochina, taxonomy.

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### INTRODUCTION

The genus *Sonerila* Roxb. (Melastomataceae) consists of caulescent, or occasionally acaulescent, erect or creeping and rhizomatous herbs or woody subshrubs that are terrestrial, epilithic or low epiphytic (Chen & Renner, 2001; Renner *et al.*, 2001; Murugan & Nair, 2016; Narayanan *et al.*, 2017). There are about 180 species distributed mainly in tropical South and Southeast Asia. In China, seven species have been recorded, four of which are considered to be endemic (Chen & Renner, 2001; Lin, 2015). In Thailand, 14 species are recognized and half of them are endemic (Renner *et al.*, 2001; Suddee *et al.*, 2014). Indochinese *Sonerila* were first reported in the Flore Generale de l'Indochine with 10 species recognized (Guillaumin, 1913). Currently, six species are recognized in Cambodia (Hansen, 1990; Cho *et al.*, 2015; Shin *et al.*, 2020), 11 in Vietnam (Ho, 2003, with *Sonerila tenera* Royle being a synonym of *S. erecta* Jack; Dang *et al.*, 2016) and six in Laos. The species in Laos are *Sonerila erecta* (synonym, *S. tenera*), *S. neodriessenioides* C.Hansen, *S. lecomtei* Guillaumin, *S. plagiocardia* Diels, *S. vatphouensis*

Munzinger & C.V.Martin (Newman *et al.*, 2007; Jin *et al.*, 2016), and *Sonerila yunnanensis* Jeffrey ex W.W.Sm. (Poilane 15838, P).

Since November 2017, the first and second authors have been conducting a small project focusing on the flora of the Bolaven Plateau, including four botanical surveys (Nagahama *et al.*, 2019). During the fourth survey from 17 to 22 December 2019, we discovered one species of *Sonerila* not amongst the known species for Laos. After a careful study of the most relevant taxonomic literature (Guillaumin, 1913; Hansen, 1990; Munzinger & Martin, 2000; Chen & Renner, 2001; Renner *et al.*, 2001; Ho, 2003; Suddee *et al.*, 2014; Cho *et al.*, 2015) and examination of herbarium specimens at BKF, FOF, FU, HNL, KAG and online (e.g., JSTOR Global Plants <https://plants.jstor.org/>), we concluded that our collection is of an undescribed species. We here describe *Sonerila bolavenensis* Soulad., Tagane & Suddee as the seventh *Sonerila* species for Laos. The measurements in the description below are based on the herbarium specimens we collected.

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## TAXONOMIC TREATMENT

***Sonerila bolavenensis*** Soulad., Tagane & Suddee, **sp. nov.**

*Sonerila bolavenensis* is similar to *Sonerila vatphouensis* (endemic to Laos) in having an acaulescent habit, but differs in its small size up to 3 cm tall (vs 7 cm tall in *S. vatphouensis*), small lamina (0.3–1.4 × 0.3–1 cm vs 3.5–5.5 × 3–4.5 cm), 1-flowered erect inflorescence (vs (2–)3-flowered scorpioid cyme) and hypanthium sparsely covered with villous hairs (vs glabrous). *Sonerila bolavenensis* is also similar to *S. tuberosa* C. Hansen described from Stung Treng province, Cambodia, but differs in having a globose tuber covered with short dark brown hairs (vs bulb-shaped tuber, densely covered with pale brown intertwined curly hairs in *S. tuberosa*), shorter petioles (0.2–0.8 cm long vs 3–4 cm long), 1-flowered erect inflorescence (vs (1–)2–7-flowered scorpioid cyme), and hairy hypanthium (vs glabrous). Type: LAOS. Champasak Province: Dong Hua Sao National Protected Area, 15°04'11.90"N, 106°12'18.42"E, at 1100 m elev., 18 Dec. 2019, P. Souladeth, S. Tagane, D. Kongxaysavath, S. Rueangruea, S. Suddee, Y. Suyama & E. Suzuki L3439 [fl.] (holotype **FOF** [FOF0005189!], isotypes **BKF!**, **KAG** [KAG155803!]). Fig. 1., Table 1.

An epilithic, acaulescent herb, 1.2–3 cm tall. Stem ca 3 mm long, with a tuber at the base, tuber globose, ca 1.3 mm in diam., covered with short dark brown hairs. *Leaves* forming a basal rosette, dimorphic; petiolate leaves with lamina ovate to rounded, 0.3–1.4 × 0.3–1 cm, membranous, dull to sub-glossy green above, with scattered white bristle hairs, pale green or reddish-purple below (although major veins always reddish-purple), with whitish hairs mainly along veins, apex acute, base cordate, margin crenate and ciliate with 1–3 mm long bristles, 5 (rarely 7)-nerved; petiole 0.2–0.8 cm long, light purplish-green, villous; reduced leaves sessile or very shortly petiolate, lamina reniform to suborbicular, 0.7–1.5 × 0.7–2.1 mm, margin ciliate with bristles like those on petiolate leaves. *Inflorescence* terminal, 1-flowered; peduncle 0.7–1.4 cm long, villous. *Hypanthium* pale purple, campanulate, 2–5 × 0.8–1.1 mm, sparsely covered with villous hairs, calyx lobes 3, ovate-triangular, 2 mm long, apex shortly acuminate; pedicels 1–1.8 mm long, glabrous; bracts subtending flowers reduced to reddish-brown bristles. *Petals* 3

(rarely 4), obovate-elliptic, 3–6 × 2–2.8 mm, pinkish-purple, each with a seta at apex. *Stamens* 3 (rarely 4); anthers bright yellow, 2.8–3.8 mm long, strongly cordate at base; filament 4 mm long, glabrous. *Ovary* 1; style 3.8–7 mm long, glabrous; stigma capitate. *Capsule* and seeds not seen.

*Etymology*.— The specific epithet refers to the name of the plateau (Bolaven Plateau) where we collected the plant.

*Distribution*.— Laos (so far known only from the type locality).

*Ecology*.— Growing with *Begonia* sp. on the side of a large, shaded sandstone rock (Fig. 1A) in lower montane forest at 1,100 m elev. Observed flowering in December in 2019.

*Vernacular name*.— Seedin Bolaven (ຊີດິນບໍລະເວນ) (proposed here).

*Preliminary conservation assessment*.— Endangered (EN D). *Sonerila bolavenensis* is so far known only from one locality; a small area, ca 5 × 2.5 m on a large sandstone rock. The total number of individuals is ca 250, among which only ca 40 were observed to have flower buds or flowers during our field trip on 18 December 2019. As the non-flowering plants otherwise appeared to be of a similar age to the flowering ones, we treat them all as mature to assess as Endangered under criterion D (IUCN Standards and Petitions Committee, 2019). Despite growing in a protected area, this part of the Dong Hua Sao National Protected Area is popular with tourists, which might increase disturbance in the area and which could affect the survival chances of this species.

*Note*.— In addition to *Sonerila vatphouensis* and *S. tuberosa*, *S. bolavenensis* is also similar to *S. cardamomensis* S.H.Cho of Cambodia and *S. harmandii* Guillaumin of Vietnam which also have tubers. *Sonerila bolavenensis* can be distinguished from both of them in its small stature (1.2–3 cm vs 4–7 cm tall in *S. cardamomensis* and 5–7 cm tall in *S. harmandii*), 1-flowered inflorescence (vs 5–11-flowered scorpioid cyme in *S. cardamomensis* and 3–6-flowered scorpioid cyme in *S. harmandii*), and sparsely villous hairy hypanthium (vs sparsely covered with short glandular trichomes in *S. cardamomensis* and glabrous in *S. harmandii*).

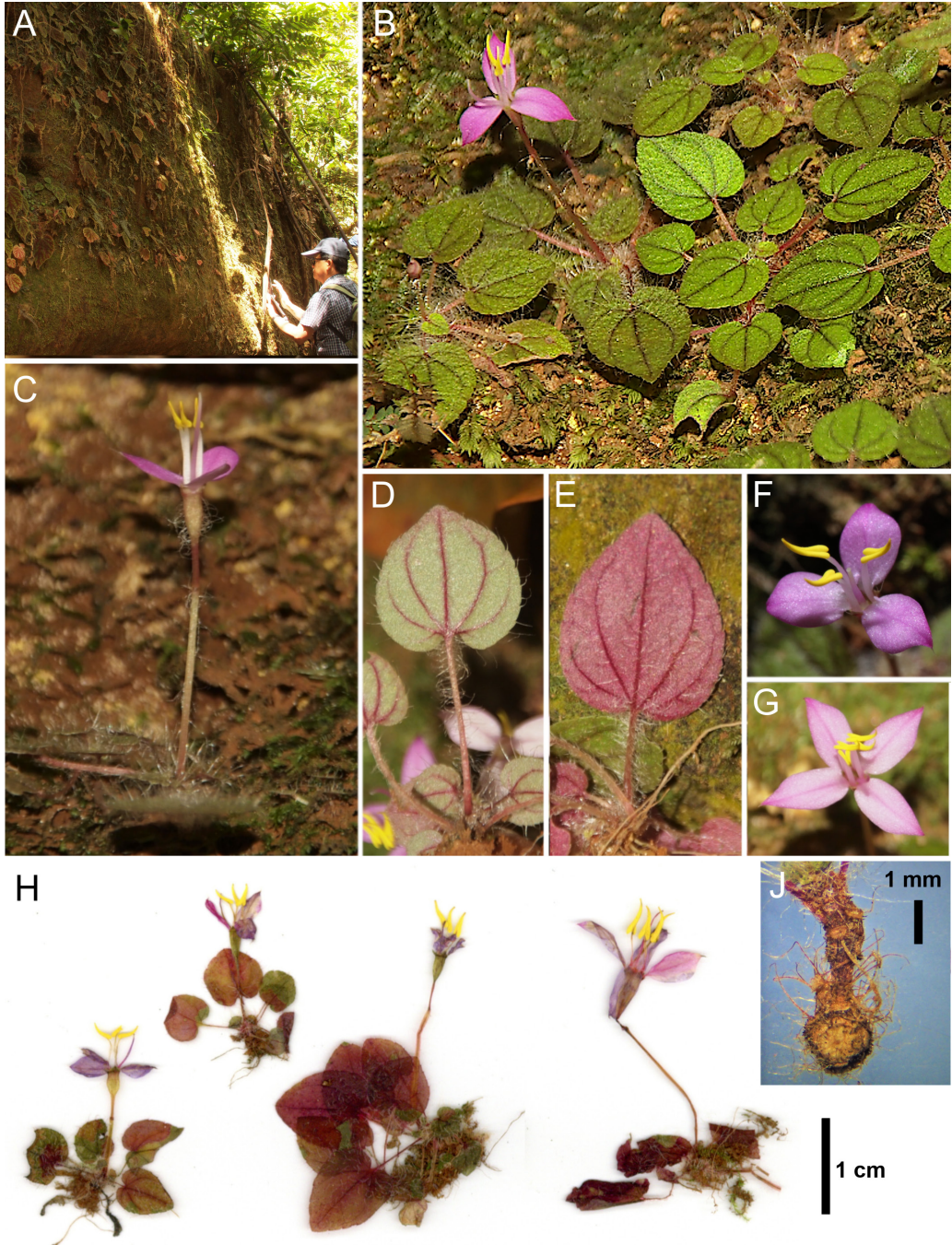


Figure 1. *Sonerila bolavenensis* Soulad., Tagane & Suddee. A. habitat (on sandstone rock, growing with *Begonia* sp.); B & C. habit; D & E. colour variation of the abaxial leaf surface; F & G. flowers; H. parts of type collection *Souladeth et al. L3439* (left three from isotype [KAG155803]; right one from holotype [FOF0005189]). J. stem (some leaves removed) and tuber (from holotype [FOF0005189]). Photos: A–E, G by Shuichiro Tagane, F by Sukid Rueangurea.

Table 1. Morphological differences between *Sonerila bolavenensis* and the two most similar species: *S. vatphouensis* (endemic to Laos) and *S. tuberosa* (endemic to Cambodia). Data for *Sonerila vatphouensis* is from Munzinger & Martin (2000), and for *S. tuberosa* is from Hansen (1990).

Character	<i>S. bolavenensis</i>	<i>S. vatphouensis</i>	<i>S. tuberosa</i>
Plant height	1.2–3 cm	ca 7 cm	ca 6 cm
Tubers	globose, covered with short dark brown hairs	subglobose, glabrous	bulb-shaped, densely covered with pale brown intertwined curly hairs
Lamina (petiolate leaves)	ovate to orbicular, 0.3–1.4 × 0.3–1 cm	cordiform, 3.5–5.5 × 3–4.5 cm	very broadly ovate to orbicular, (0.5–)1.6–2 × (0.5–)1.6–2 cm
Lamina (reduced leaves)	reniform to suborbicular, 0.7–1.5 × 0.7–2.1 mm	reniform to suborbicular, less than 5 mm long	very broadly cordate to reniform, 1–5 × 1–5 mm
Leaf apex	acute	acute	rounded
Veins of lamina	5(rarely 7)-nerved	7-nerved	7-nerved
Petiole (for petiolate leaves)	0.2–0.8 cm long	3–5 cm long	3–4 cm long
Inflorescence	1-flowered	(2–)3-flowered	(1–)2–7-flowered
Peduncle	0.7–1.4 cm long	4.5–6 cm long	ca 5 cm long
Bracts subtending flowers	reduced to reddish-brown bristles	variable, leafy to sometimes reduced to hairs	reduced to long reddish-brown bristles
Pedicel when flowering	1–1.8 mm long	3 mm long	5–7 mm long
Hypanthium	2–5 × 0.8–1.1 mm, hairy	3.5–5 × 1–1.5 mm, glabrous	ca 3.5 × 1 mm, glabrous
Petals	3–6 × 2–2.8 mm	7–9 × 4.5–5.5 mm	5 × 2.7 mm
Anthers	2.8–3.8 mm long	4.1 mm long	3.9 mm long
Style	5 mm long	6.5–8 mm long	8 mm long

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