

## *Rhaphidophora sonlaensis* (Araceae), a new species from northern Vietnam

Du Van Nguyen<sup>1,\*</sup>, Hong Quang Bui<sup>1</sup>, Minh Tam Ha<sup>2</sup>, Xuan Dac Le<sup>3</sup>,  
Cong Sy Nguyen<sup>1</sup> & Peter C. Boyce<sup>4</sup>

<sup>1</sup> Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet Road, Hanoi, Vietnam (\*corresponding author's e-mail: vandu178@gmail.com)

<sup>2</sup> Hanoi Pedagogical University 2, No. 32, Nguyen Van Linh road, Xuan Hoa, Phuc Yen Town, Vinh Phuc Province, Vietnam

<sup>3</sup> Institute of Tropical Ecology, Vietnam–Russian Tropical Centre, Nguyen Van Huyen Road, Hanoi, Vietnam

<sup>4</sup> Ludwig-Maximilians-Universität München, Department Biologie I, Systematische Botanik und Mykologie, Menzinger Straße 67, D-80638 München, Germany

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*Rhaphidophora sonlaensis* V.D. Nguyen & P.C. Boyce, a new species of Araceae, is described and illustrated from the material collected in Muong La District, Son La Province, Vietnam, and compared with the two species it most closely resembles, *R. laichauensis* and *R. crassicaulis*.

*Rhaphidophora* is principally a tropical Asian genus of about 100 species of mostly hemiepiphytic climbers ranging from NE India through Indo-Malaya, Malesia and Papuasias to the tropical western Pacific, and extending as far south as NE Australia. It has limited representation in tropical Africa, where species' distribution corresponds with the incidence of equatorial perhumid evergreen forests. In Vietnam, 11 species have been recorded (Nguyen & Quang 2015).

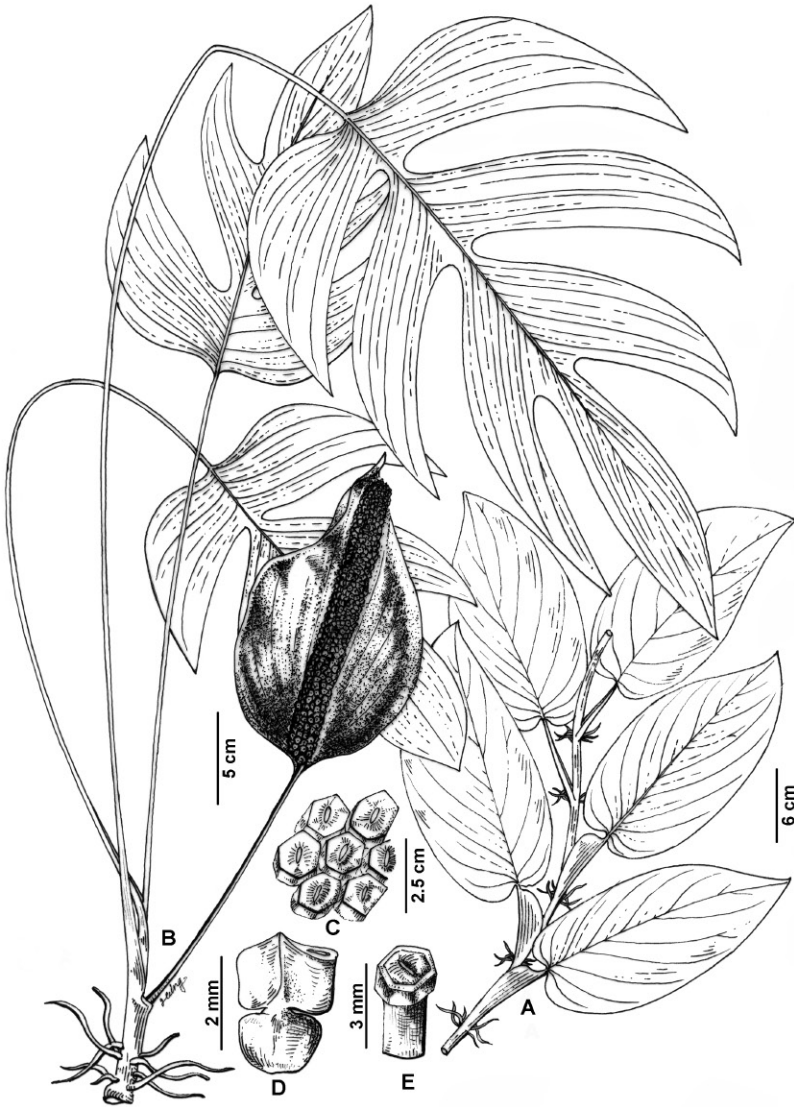
During the fieldwork in Muong La District, Son La Province, northern Vietnam, the first author collected specimens of a peculiar pinnatisect leaf-bladed *Rhaphidophora*. Its combination of morphological characters matched none of the known species (Gagnepain 1942, Pham 2000, Nguyen 2005, Li & Boyce 2010, Boyce & Nguyen 2012, Nguyen & Quang 2015). The plant

was most similar to *R. laichauensis* by having a rather small (shorter than 35 cm) 2–4 lobed leaf blade, and a spadix 6–8 cm long, but by the shingling juvenile stage the unknown species approached *R. crassicaulis* (see Appendix for differences). In this paper, this plant is described as new to science and it takes the number of Vietnamese *Rhaphidophora* species to 12.

***Rhaphidophora sonlaensis*** V.D. Nguyen & P.C. Boyce, *sp. nova* (Figs. 1 and 2).

**HOLOTYPE:** Vietnam. Son La Province, Muong La District, Ngoc Chien Commune, Chom Khon Village, 21°36.083'E 104°06.328'E, 1380 m a.s.l., Nguyen Van Du, R.P.J.de Kok et al., HNK 2273 (HN; isotype K!).

**ETYMOLOGY:** The species epithet refers to Son La province, Vietnam, the type locality.



**Fig. 1.** *Rhabdophora sonlaensis* (from the holotype). — **A:** Juvenile shingling phase. — **B:** Fertile shoot with inflorescence. — **C:** Detail of pistils. — **D:** Stamen. — **E:** Ovary, showing wider styler region. Drawn by Nguyen Quang Hung (IEBR).

Hemiepiphytic heterophyllus plant climbing to 5–6 m on rocks and medium-sized trees; clinging axes monopodial, emitting free lateral sympodial flowering shoots. Stem cylindrical, 4–7 mm in diam.; internodes 0.5–3 cm long in adult shoots, 3–5 cm long in juvenile shoots; clinging roots emitted in 2 rows, 1–4 cm long; feeding roots on adult shoots to > 1 m long, epidermis with conspicuous trichomes. Leaves (juvenile) shingling, distichous; petiole 3–5 cm long, round in cross-section, sheathing for 2.5–4.5 cm, sheath wing 10–12 mm wide (2–3 times wider than petiole); blade entire, ovate-oblong, 11.5–

16 cm long, 6.5–7 cm wide, base cordate, apex acute with short arista; lateral veins 6–7, arising straight from midrib, arching distally upwards to blade apex; Leaves (adult) spirodistichous; petiole slender, grooved, 20–28 cm long, sheathed to apex, 1–3 mm wide, fragmenting when dried, geniculum inconspicuous; blade pinnatisect with 2–4 lobes on each side, broadly ovate in outline, 12–26 cm long, 8.5–21 cm wide, base rounded and shortly decurrent; lobes oblong-triangular, sometimes proximally narrowed and distally expanding, directed forward (falcate), elongate-acuminate at apex, 4–10 cm long, 1.5–4.5 cm



**Fig. 2.** *Rhaphidophora sonlaensis* (type material). — **A:** Juvenile shingling phase in habitat. — **B:** Detail of shingling phase. — **C:** Flowering plant in habitat. — **D:** Inflorescence at pistillate anthesis. — **E:** Spadix post anthesis.

wide; primary lateral veins 1–3 per lobe, ca. 7–15 mm apart, occasionally with 2 interprimary veins. Inflorescence solitary; peduncle cylindrical, 12–14 cm long; spathe exterior dark yellow at anthesis, light yellow inside, ovate in outline when flattened, 7–10 cm long, 4–6 cm at widest point, stiffly fleshy; spadix cylindrical, sessile, obliquely inserted on spathe/peduncle insertion, pruinose, 6–8 cm long, ca. 8 mm diam., apex rounded, base oblique, 3–6 mm in diam.; stamens 1.7–2.3 mm long, ca. 1 mm wide, filament broad, ca. 1.5 mm long; anthers short, dorsally adnate and extending into an acute point, dehiscing by apical pore; ovary 3 mm long, lower part cylindrical; stylar region ca. 0.7 mm long, wider and distinguished from lower portion, hexagonal in cross section, surface slightly concave, 1–1.2 mm wide; stigma slender elliptic, blackish, slightly prominent; ovules many, hemitropous with short stipe; intrusive parietal placenta.

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**Appendix.** Morphological comparison of *Rhaphidophora sonlaensis*, *R. laichauensis* and *R. crassicaulis*. Data for the two latter from Gagnepain (1942).

	<i>R. sonlaensis</i>	<i>R. laichauensis</i>	<i>R. crassicaulis</i>
Juvenile morphology	shingling	unknown	shingling
Height of plant (m)	5–6	ca. 3	4–6 or more
Stem cross-section			
shape	round	round	round to elliptic
diameter (cm)	0.4–0.7	1–2	1.0–2.5
Shoot architecture	clinging axes monopodial, emitting free lateral sympodial flowering shoots	clinging axes monopodial, emitting free lateral sympodial flowering shoots	main axis an orthotropic pseudo-monopodium
Length of internodes			
in fertile shoots (cm)	0.5–3	3–4	0.5–3
Adult leaf-blade shape	broadly ovate	broadly ovate	oblong-elliptic
Leaf-lobe length × width (cm)	12–26 × 8.5–21	35 × 25–30	25–70 × 11–36
Lateral veins per lobe	1–5	2–3	1–4
Petiole	equal or longer than leaf blade, 20–28 cm long	equal or longer than leaf blade, 20–30 cm long	shorter than leaf blade, 25–35 cm long
Type of decayed sheath	broken into fragments of flat tissue	fibers	broken into fragments of flat tissue
Geniculum	ca. 12 mm long, inconspicuous	ca. 15 mm long, conspicuous	ca. 12 mm, conspicuous
Peduncle length (cm)	12–14	10–15	10–17
Spadix			
shape	cylindrical	conical	stout cylindrical or slightly conical
length × width (cm)	6–8 × 0.8	11 × 2.5–3	10–18 × 2.5 at base
Style region cross-section	wider than ovary	equal to ovary	equal to ovary in width, base slightly constricted
Stigma shape	slender elliptic, flat	round, centrally concave	round to butterfly-shaped, not concave