



RESEARCH COMMUNICATION

Arisaema dahaiense H. Li (section *Arisaema*, *Arisaema*, Araceae), a new record for the flora of Vietnam

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Received: 16 May 2025; Accepted: 16 October 2025; Available online: Version 1.0: 31 December 2025; Version 2.0: 09 January 2026

Cite this article: Bui HQ, Luu HT, Luu HT, Trinh TBH, Van HT. *Arisaema dahaiense* H. Li (section *Arisaema*, *Arisaema*, Araceae), a new record for the flora of Vietnam. Plant Science Today. 2026; 13(1): 1-4. <https://doi.org/10.14719/pst.9457>

Abstract

Arisaema dahaiense H. Li is reported here as a new additional species for the flora of Vietnam. This species represents a unique taxon within the genus *Arisaema* section *Arisaema* documented in the country. A detailed morphological description, along with illustrations and photographic documentation, is provided to support its identification and taxonomic placement.

Keywords: Araceae; *Arisaema dahaiense*; new record; northern Vietnam

Introduction

Arisaema is one of the largest genera belonging to the family Araceae, which includes over 200 species distributed in Asia, North America, with the highest diversity in the Sino-Japanese and Sino-Himalayan regions (1-3). In 2006, Gusman & Gusman divided the genus *Arisaema* into 15 sections, including *Anomala*, *Arisaema*, *Attenuata*, *Clavata*, *Decipientia*, *Dochafa*, *Fimbriata*, *Flagellarisema*, *Franchetiana*, *Lobata*, *Nepenthoidea*, *Pistillata*, *Sinarisaema*, *Tenuipistillata* and *Tortuosa* (2). Subsequently, Murata et al. rearranged the taxonomic order of the species in several sections and thereby proposed a new taxonomic system consisting of 14 sections for the genus, namely *Anomala*, *Arisaema*, *Attenuata*, *Clavata*, *Decipientia*, *Dochafa*, *Flagellarisema*, *Franchetiana*, *Nepenthoidea*, *Odorata*, *Pistillata*, *Sinarisaema*, *Tenuipistillata*, *Tortuosa* (4). More recently, Ohio Toma et al. separated *Arisaema fimbriatum* from the section *Attenuata* to establish the 15th section *Fimbriata* based on the molecular evidence (5). In Vietnam, Pham Hoang and Nguyen recorded 21 *Arisaema* species (6, 7). To date, 29 species of *Arisaema* have been documented in the flora of Vietnam, classified into 8 sections, including *Anomala*, *Attenuata*, *Decipientia*, *Fimbriata*, *Franchetiana*, *Nepenthoidea*, *Sinarisaema* and *Tortuosum* (2, 7-18).

The section *Arisaema* of *Arisaema* comprises about 17 species, in which *A. speciosum* is considered the type species, mainly found in the Sino-Himalayan region (2). *Arisaema dahaiense* H. Li

was described for the first time by Li et al., with the type specimens collected from Dahai, Huize Xian, North East Yunnan, China (19). To date, this species has also been reported in Northwest Yunnan (Dulong Jiang, Huize) and Northern Myanmar and it is classified within section *Arisaema* (2, 20). In April 2025, we conducted a field trip to Cao Mã Pờ Commune, Quản Bạ District, Hà Giang Province, Vietnam and discovered a population belonging to the genus *Arisaema*. Our careful examination of its morphological characteristics indicates that the observed plant represents *Arisaema dahaiense*. Therefore, in this study, we report the first record of section *Arisaema*, with *A. dahaiense* as the sole representative species for the flora of Vietnam.

Materials and methods

Fresh specimens of *A. dahaiense* were collected during the field trip to Cao Mã Pờ Commune, Quản Bạ District, Hà Giang Province, Northern Vietnam, approximately 23°05'37.9"N 104°50'56.4"E, at an elevation of about 1700 m. The voucher specimens, H.Q. Bui 01A and H.Q. Bui 01B, were deposited in the Herbaria of the Institute of Advanced Technology, Vietnam Academy of Science and Technology (SGN), Vietnam. Sample preparation was performed using the conventional methods (21). Detailed photographs of the fresh materials were taken in the field using a digital camera. The reproductive and vegetative characteristics of the studied species were compared with those described in previous studies (2, 19-20).

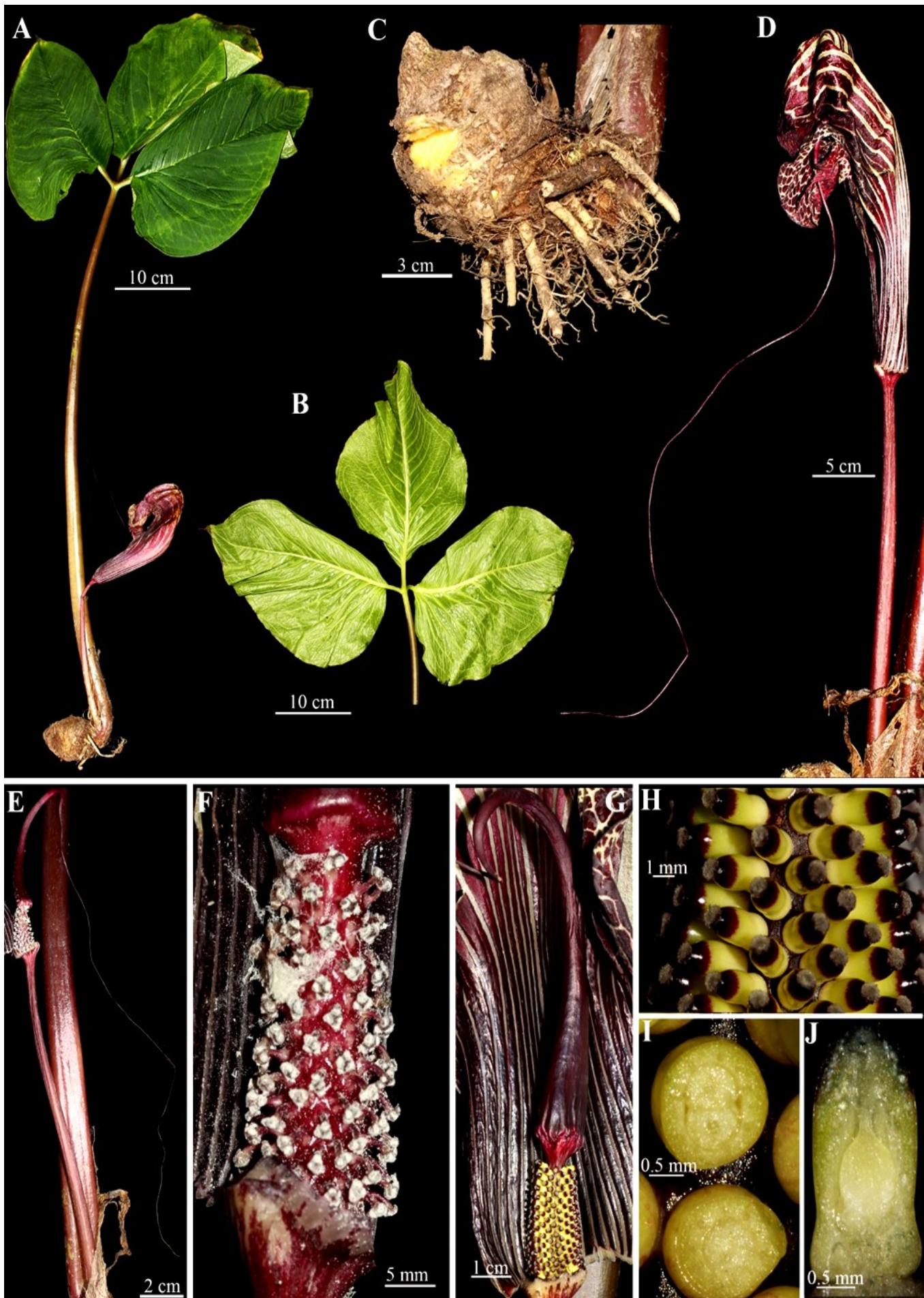


Fig. 1. *Arisaema dahaiense* H. Li. **A.** Whole plant with upper side of leaflets. **B.** Under the side of the leaflets. **C.** Rhizome. **D.** Inflorescence. **E.** Male spadix. **F.** Synandria. **G.** Female spadix. **H.** Ovary and stigma. **I.** Cross-section of ovary. **J.** Longitudinal section of ovary.

Results

Arisaema dahaiense H.Li, Acta Phytotax. Sin. 15(2): 107. 1977

Herb deciduous, 30–70 cm tall, rhizome elongate, horizontal, cylindrical, grey to brown outside, pale yellow inside, 6–8 cm long, 5–7 cm in diameter, with some fleshy roots. Cataphylls are deciduous, membranous, 15–30 cm long, dark grey to brown. Leaf solitary, sometime a secondary leaf emerging from the tuber; petiole much longer than petiolule, cylindrical, dark green to dark brown or crimson, 30–70 cm tall, 1.5–2 cm in diameter at base, ca. 1 cm in diameter at apex; pseudostem absent or very short; leaf blade trifoliolate, leaflets with petiolules 2.5–4 cm long, covered with hairs, dark green adaxially, paler abaxially, margin undulate, apex acuminate with up to 2–3 cm long caudate tip, venation prominent abaxially and impressed adaxially, lateral veins prominent abaxially, collective vein ca. 1 cm from the margin; central leaflet broadly ovate, base convex, 24–26 cm long, 20–22 cm wide; lateral leaflets asymmetrical, broadly ovate, 25–30 cm long, 22–24 cm wide. Inflorescence emerging from the very short pseudostem, much shorter than the petiole, 15–25 cm long, ca. 8 mm in diameter, cylindrical, dark brown or crimson. Spathe 16–20 cm long, dark purple or deep crimson with whitish longitudinal lines; spathe tube longer than limb, 12–14 cm long, cylindrical, throat margins slightly recurved, spathe limb broad ovate, 4–6 cm long, with a spathe tip ca. 3 cm long. Spadix unisexual, much longer than spathe; appendix nearly the same in male and female spadix, dark brown or crimson, elongated conical at the part inside the tube with the tail very long exserted from the tube mouth, filiform, dark brown or crimson, up to 50 cm long; male part in the male spadix conical, 3–4 cm long, ca. 1.5 cm at base, ca. 1 cm at apex, synandrium of 2–3 stamens, loosely, on 2–3 mm stipe; thecae crimson and dehiscent by horseshoe-shape, pollen cream; female part in the female spadix conical 2.5–3 cm long, ca. 1.5 cm at base, ca. 1 cm at apex; ovaries bottle-shaped, 2/3 of the bottom green and 1/3 of the top crimson, 3.5–4 mm high, ca. 1.2 mm in diameter, 1-locular, with 1–2 bottle-shaped ovules; stigma sessile, disc-shaped to capitate, hairy, dark cream, diameter smaller than that of the ovary

Type

Qui Bing Yun 59031 (holotype KUN), China, NE Yunnan, Huize Xian, Dahai.

Studied specimens

H.Q. Bui 01A, H.Q. Bui 01B (SGN), 20 April 2025, Cao Mă Pờ Commune, Quản Bạ District, Hà Giang Province, Vietnam, coordinates of 23°05'37.9"N 104°50'56.4"E, about 1700 m elevation.

Habitat and ecology

A. dahaiense grows on the litter layer, under the canopy of the moist evergreen forest at an altitude of around 1700 m above sea level. This species is found scattered across the forest floor, without forming dense populations. Its habitat consists of areas with numerous small trees and a shrub layer dominated by a relatively dense cover of ferns.

Distribution

The species was found in the Northeast and Northwest of Yunnan, Huize Xian, Dahai, China; Northern Myanmar; Hà Giang Province, Northern Vietnam.

Discussions

Based on the differences in morphological characteristics among species, section *Arisaema* is divided into two subsections i.e., *Arisaema* and *Trisecta*. The former is characterized by a spadix appendage with a very long tail, filiform thread and long exserted from the spathe tube, whereas the latter possesses a spadix appendage with an S-shape tail, shorter or long exserted from the spathe tube (2). *A. dahaiense* is assigned to subsection *Arisaema* and is most closely related to *A. lingyunense*, *A. speciosum* and *A. utile*. These species share similar leaf shape and spadix appendages, with extremely long tail exserted from the spathe, filiform thread (2, 20). However, *A. dahaiense* can be distinguished from *A. utile* by having a central leaflet with a length longer than width, petiolulate leaflets, galeate-auriculate spathe throat (vs. a central leaflet with length equal to width, basically sessile leaflets, no galeate-auriculate spathe throat) (2, 20). *A. speciosum* differs from *A. dahaiense* in having a spathe limb with no winged sideways and galeate-auriculate (vs. spathe limb with winged sideways and galeate-auriculate) (2, 20). Additionally, the newly recorded species is different from *A. lingyunense* in having a horizontal and elongate tuber and a sessile stigma (vs. subglobose to globose tuber, stigma borne on a short style) (2, 20).

Conclusion

This study reports *Arisaema dahaiense* H. Li is a new addition to the flora of Vietnam, representing the first record of section *Arisaema* in the country. The morphological characteristics of our specimens closely match those described in previous reports from China and Myanmar. Detailed comparisons with morphologically similar species support the identification, thereby contributing to a more comprehensive understanding of the genus *Arisaema* in Vietnam.

Acknowledgements

The authors would like to thank Dr Nguyen-Phi Nga for his cooperation.

Authors' contributions

HQB drafted the manuscript, participated in the design of the study and collected the specimens in the field. HTL¹ performed experiments and handled the research data. HTL² performed experiments and handled the research data and identified the scientific name of the studied species. TTBH performed experiments and handled the research data. HTV drafted the manuscript and resolved all the queries of editors and reviewers. All authors read and approved the final manuscript. [HTL¹ stands for Huyen Trang Luu and HTL² stands for Hong Truong Luu].

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interest to declare.

Ethical issues: None

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