



Aristolochia pendulistoma, a new species of Aristolochiaceae from Nuijiang Canyon, Yunnan, China

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ABSTRACT: *Aristolochia pendulistoma* is described and illustrated herein as a new species of *Aristolochia* subg. *Siphisia* from Nuijiang Lisu Autonomous Prefecture, Yunnan, China. The species is readily recognized by its pendulous, bright orange, tridentate calyx limb, a striking floral configuration not documented in any other members of the subgenus. It is currently known from only two extant populations occurring on opposite slopes of the Nuijiang River valley, indicating a high degree of regional endemism. Owing to its extremely restricted distribution and small population size, the species is preliminarily assessed as Critically Endangered under the IUCN Red List criteria and qualifies as a Plant Species with Extremely Small Populations (PSESP). Detailed morphological descriptions, comparative analyses with allied species, illustrations, and a distribution map are provided to clarify its taxonomic placement and to further document the diversity of *Aristolochia* in this region.

KEY WORDS: *Aristolochia obliqua*, *Aristolochia sanheensis*, Critically Endangered, extremely small populations, Salween, vine.

INTRODUCTION

Aristolochia L. is widely circumscribed as a genus sensu lato comprising more than 600 species distributed across tropical, subtropical, and temperate regions (Wanke *et al.*, 2006; Wagner *et al.*, 2014). Subgeneric classification, supported by morphological synapomorphies and molecular phylogenetic evidence, generally recognizes three subgenera: *Aristolochia* s.s., subg. *Siphisia* (Duch.) Schmidt, and subg. *Pararistolochia* (Hutch. & Dalziel) Schmidt (Ohi-Toma *et al.*, 2006; Wanke *et al.*, 2006, 2017; Buchwalder *et al.*, 2014; Ohi-Toma & Murata 2016). However, the rank of subg. *Siphisia* remains debated, with some scholars elevating it to generic status as *Isotrema* Raf. (Zhu *et al.*, 2019a; Lu *et al.*, 2022), whereas others treat it as a subgenus within *Aristolochia* (Do *et al.*, 2015; Yang *et al.*, 2024b; Wang *et al.*, 2025). This parallel usage persists in recent literature; in the present study, we adopt the more widely accepted sensu lato circumscription.

Subgenus *Siphisia*, characterized by strongly curved perianth tubes, a three-lobed gynostemium bearing paired anthers adnate at its base, and basipetally dehiscent capsules (González and Stevenson, 2000a,b), is primarily distributed in East Asia, especially in southern and southwestern China and northern Vietnam (González *et al.*, 2014; Zhu and Ma, 2022). In recent years, this lineage has been the focus of active species discovery and taxonomic revision. Many members exhibit pronounced local endemism, often restricted to specific microhabitats

and represented by extremely small populations, which likely contributes to their delayed recognition (Zhang *et al.*, 2024; Guo *et al.*, 2025; Mo *et al.*, 2025).

During a biological resource survey of Gaoligong Mountains on the western side of the Nuijiang Canyon, Yunnan, in May 2023, we discovered an *Aristolochia* species conforming to the diagnostic characters of subg. *Siphisia* yet exhibiting an unusual floral morphology characterized by a pendulously produced, bright orange, tridentate calyx limb. In the same month, a second population with closely matching traits was located at a comparable elevation on the opposite flank of the canyon in the Biluo Mountains. Both populations were documented in situ, and specimens were collected and deposited at the Kunming Institute of Botany. Meanwhile, ex situ conservation measures were taken, and a robust cultivated population was established. The plants flowered and fruited in spring 2024 and again from winter 2024 to early spring 2025. Detailed morphological examination and comparison with sympatric congeners confirmed consistent diagnostic differences from all described taxa. On this basis, the species is here described as new.

MATERIALS AND METHODS

Material sampling

Material of the new species was sampled from both known original localities. Flowering stems were collected from each population. All field investigations and sampling

**Table 1.** Comparison of key morphological traits among *Aristolochia pendulistoma* and its two congeners.

Characters	<i>A. pendulistoma</i>	<i>A. obliqua</i> *	<i>A. sanheensis</i> *
calyx utricle	Cylindric, 0.2–0.3 × 0.5–0.6 cm; adaxial side arachnoid villous, tri-tiered, with the gynostemium apex positioned lower than the edge of the utricle.	Cylindric, 0.4–0.5 × 0.5–0.6 cm; adaxial side tri-tiered with indistinct layering, dark purplish and arachnoid villous in the second tier, light purplish and arachnoid villous in the third tier; utricle edge positioned lower than the gynostemium apex.	Cylindric, 1.0–1.1 × 0.8–1.0 cm; adaxial side tri-tiered with indistinct layering in the lower two tiers; dark purplish, arachnoid villous; utricle edge positioned lower than the gynostemium apex.
calyx tube	Basal tube sock-shaped, adaxially glabrous, waxy, pinkish-white to purplish-pink, with several shallow grooves on the adaxial surface. Upper tube cylindrical, 2.0–3.2 cm long, 0.8–1.1 cm in diameter, adaxially velvety, gradually transitioning from white at the basal connection to pinkish-purple near the throat.	Basal tube cylindrical, glabrous, waxy, whitish-yellow. Upper tube 1.2–1.4 cm long, 0.5–0.8 cm in diameter, cylindrical, adaxially velvety in texture, and whitish-yellow.	Basal tube cylindrical, glabrous, waxy in texture, dark purple, 4 cm long, 1 cm in diameter. Upper tube conical, narrowing toward the throat, with a white base color and purplish dots on adaxial side.
calyx limb	4.5–5.0 cm; lower lobe extremely downwardly elongated, two upper lobes fused, forming a skewed cap that partially covers the throat; adaxial surface bright orange, nitid, and waxy in texture.	1.4–1.8 cm; semi-tubular, adaxially yellow, velvety in texture.	4.0–4.8 cm; forming a semi-open saccate or trumpet-shaped tunnel, adaxial side densely covered with white papillae, white in color.
calyx throat	Throat ca. 0.8–1.0 mm in diameter; whitish-pink, ridged, encircled by a ring of reddish-brown coloration.	Throat ca. 0.4–0.5 mm in diameter, seamlessly continuous with the calyx limb.	Throat ca. 0.2 mm in diameter, volcano-shaped, with the entrance encircled by a ring of elevated white structures.

* Measurements primarily derived from the original descriptions and cross-checked, where possible, against scaled photographs of fresh organs from field-collected or living cultivated plants.

activities were conducted with permission from the Nuijiang Management Bureau of the Gaoligongshan National Nature Reserve and complied fully with local conservation regulations. Specimens were prepared following standard herbarium protocols, identified by the authors, and deposited at the Herbarium of the Kunming Institute of Botany (KUN). Additional cuttings were rooted and cultivated at the Germplasm Bank of Wild Species, Kunming Institute of Botany, where a living population is now maintained (Ting Zhang *et al.*, 23CS24445). Access to living material is available upon request through the authors or the institution.

Comparative material of other *Aristolochia* species examined in this study was derived from three sources: (1) measurements from inspected voucher specimens, (2) data extracted from original descriptions and other relevant literature, and (3) photographs used for plates and visual comparison, obtained from field-collected or cultivated living material. Morphological measurements of *Aristolochia obliqua* S.M.Hwang and *Aristolochia sanheensis* Jia Z.Liu, R.Z.Huang & K.Y.Yuan were taken from their original descriptions (Hwang, 1981; Yang *et al.*, 2024). These literature-based data were further checked against photographic evidence of fresh flowers and leaves from newly field-collected or living cultivated plants, with additional measurements taken from photographs strictly according to the accompanying scale bars. A complete list of examined specimens is provided in Table S1.

Morphological examination

Morphological descriptions were prepared following standard taxonomic practice under the International Code

of Nomenclature for algae, fungi, and plants (ICN). Characters were described sequentially from habit, root, stem, and leaf to inflorescence and floral structures. Measurements were taken from one individual per population, with three repeated measurements for each organ to determine reliable size ranges. The same measurement protocol was applied to all comparative taxa examined in this study to ensure consistency.

Diagnostic characters selected for comparison were based on established taxonomic conventions within *Aristolochia* subg. *Siphisia*, with emphasis on floral morphology. Comparative traits presented in the table and figures follow Wang *et al.* (2025). In accordance with Do *et al.* (2015) and González (1999), the perianth was examined following its conventional structural division into utricle, basal tube, upper tube, limb, and throat. Measurements were taken for size, and characters of color, shape, surface texture, and indumentum were recorded using standardized terminology.

To ensure comparability among species, flowers were examined at the third day of anthesis, when floral structures are fully expanded but not yet senescent, thereby minimizing morphological variation attributable to developmental stage.

Preliminary conservation assessment

The preliminary conservation assessment was conducted in accordance with the IUCN Red List Categories and Criteria (2012) and the Guidelines for Using the IUCN Red List Categories and Criteria (2024). Population size was documented and assessed based on field observations made during botanical surveys. In



addition to the IUCN framework, conformity with China's concept of Plant Species with Extremely Small Populations (PSESP) was also evaluated (Ma *et al.*, 2013; Yang *et al.*, 2020).

TAXONOMIC TREATMENT

Aristolochia pendulistoma Y.Fan Wang, Ting Zhang & J.D.Ya, *sp. nov.* **Figs. 1–2 & S1**

Type: CHINA. Yunnan Province, Nujiang Lisu Autonomous Prefecture, Fugong County, Pihe Township, Wawa Village, near Yimaluo river valley, under subtropical forest in Gaoligong Mountain, 26°35'N, 98°52'E, 2290 m a.s.l., 20 May 2023, herbaceous twining vine with axillary flowers, *T. Zhang et al.*, 23CS24445 (holotype KUN!; isotypes KUN!, CSH!).

Diagnosis: *Aristolochia pendulistoma* resembles *A. obliqua* and *A. sanheensis*, but differs in its exceptionally pendulous, downward-elongated, 3-dentate calyx limb, adaxially bright orange, waxy, and glabrous (vs. calyx limb much shorter, adaxially pale yellow, with the lower margin slightly obliquely extended forward in *A. obliqua*; calyx limb horizontally oriented, adaxially white and densely papillose in *A. sanheensis*), and in the pinkish-white ridged throat encircled by a thin dark reddish-brown ring (absent in both *A. obliqua* and *A. sanheensis*) (Fig. S2).

Description: Herbaceous twining vine, 1.2–2.0 m. Roots cylindrical, 1.0–3.0 cm in diameter. Stems terete, branches sparsely covered with indumentum. Petioles 2.0–3.6 cm long, strongly coiled. Leaves adaxially glabrous or sparsely indumented, abaxially short-indumented, showing palmate venation, with the basal pair of veins symmetrically extending and then bifurcating; one extending to the auricle, the other to the main leaf blade, from which 3–4 pairs of lateral veins arise slightly alternating; leaf arrangement alternate. Leaf blades slightly spatulate or oblong, bases deeply auriculate, apices acute, margins entire, 12.0–18.0 × 4.0–8.0 cm, papery to leathery. Flowers often solitary, axillary. Pedicels 1.0–1.5 cm long, usually pendent, densely covered with rusty short indumentum, directly connected to the ovary. Ovary inferior, 4–5 cm long, cylindrical, 6-ridged, exhibiting extreme coiling. Bracteoles reduced or very small, triangular, attached at the base of the pedicel, rusty woolly villous, sessile. Perianth tube abaxially glabrous, waxy, and nitid, with slightly visible green veins; zygomorphic; utricle 0.2–0.3 cm, extremely shortened at the connection between utricle and ovary, with a distinct adaxial color pattern: an upper yellow ring, a lower dark purple region covered with white arachnoid indumentum, followed by a thin (~1.0 mm) ring of erect arachnoid white villous hairs. Calyx tube geniculate curved; basal tube sock-shaped, adaxially glabrous, waxy, pinkish-white to purplish-pink, with several shallow grooves on the adaxial surface. Upper tube cylindrical, 2.0–3.2 cm long, 0.8–1.1 cm in diameter, velvety,

transitioning from white at the basal connection to pinkish-purple approaching the throat. Calyx limb 4–6 cm, in maximum expanded extent, three-dentate; upper left and right lobes fused, forming a slightly skewed cap-like structure partially covering the throat, while the lower lobe extends pendulously downward; limb adaxial surface waxy, nitid, and bright orange. Throat ridged, opening 0.85–0.95 cm wide and 1.2–1.4 cm long, encircled by a thin dark reddish-brown ring at the outer margin. Gynostemium approximately 0.4–0.5 cm long, 0.2–0.4 cm in diameter, fleshy; lobes 3, apex obtuse, densely rusty villous abaxially. Anthers 6, arranged in 3 pairs, adnate to the base of the gynostemium, opposite the lobes. Capsule 5–8 cm long, 1.5–2.8 cm in diameter, 6-ridged, covered with indumentum. Carpels 6. Seeds elliptical, one side convex and smooth, the other concave with a central ridge.

Distribution and habitat: *A. pendulistoma* is currently found on both sides of the Nujiang River at elevations above 2000 m, occurring in pristine subtropical forests on the eastern slope of Gaoligong Mountain and the western slope of Biluo Mountain in Pihe Township, Fugong County, and Gudeng Township, northern Lushui City (Fig. S3). To date, only two populations have been documented, with each population size of fewer than five individuals. Several taxa of the same subgenus occur in the broader Nujiang Canyon region and are shown in Figure S3 for biogeographic context, including *Aristolochia cangshanense* (X.X.Zhu, H.L.Zheng & J.S.Ma) S.S.Ying from the Cangshan Mountains, Dali (Zhu *et al.*, 2019b; Ying, 2025); *A. sanheensis* from southern Lushui City, Nujiang (Yang *et al.*, 2024); *Aristolochia forrestiana* J.S.Ma from the southern Gaoligong Mountains, Baoshan (Zhu and Ma, 2022); and *A. obliqua* from the northern Gaoligong Mountains, Gongshan County (Hwang, 1981). These species occur in geographic proximity to *A. pendulistoma* at the regional scale, but each is currently known from a narrow and apparently allopatric distribution. Voucher information for the plotted congeners is provided in Table S1.

Phenology: Flowering from March to June; fruiting from late May to mid-August. Upon fruit maturation, which is signaled by basipetal dehiscence, seeds remain attached to the carpel and consistently detach from the fruit on the same day, as observed in our study.

Etymology: The specific epithet "*pendulistoma*" is derived from the species' distinctive pendulous, downward-elongated calyx limb. The subgenus *Siphisia* is commonly referred to as 关木通 (guan mu tong) in Chinese, distinct from subgenus *Aristolochia*, which is typically known as 马兜铃 (ma dou ling). Accordingly, the Chinese name 垂檐关木通 (chui yan guan mu tong) is given.

Conservation status: *A. pendulistoma* is currently known only from the type localities, where fewer than five flowering or fruiting individuals were observed at

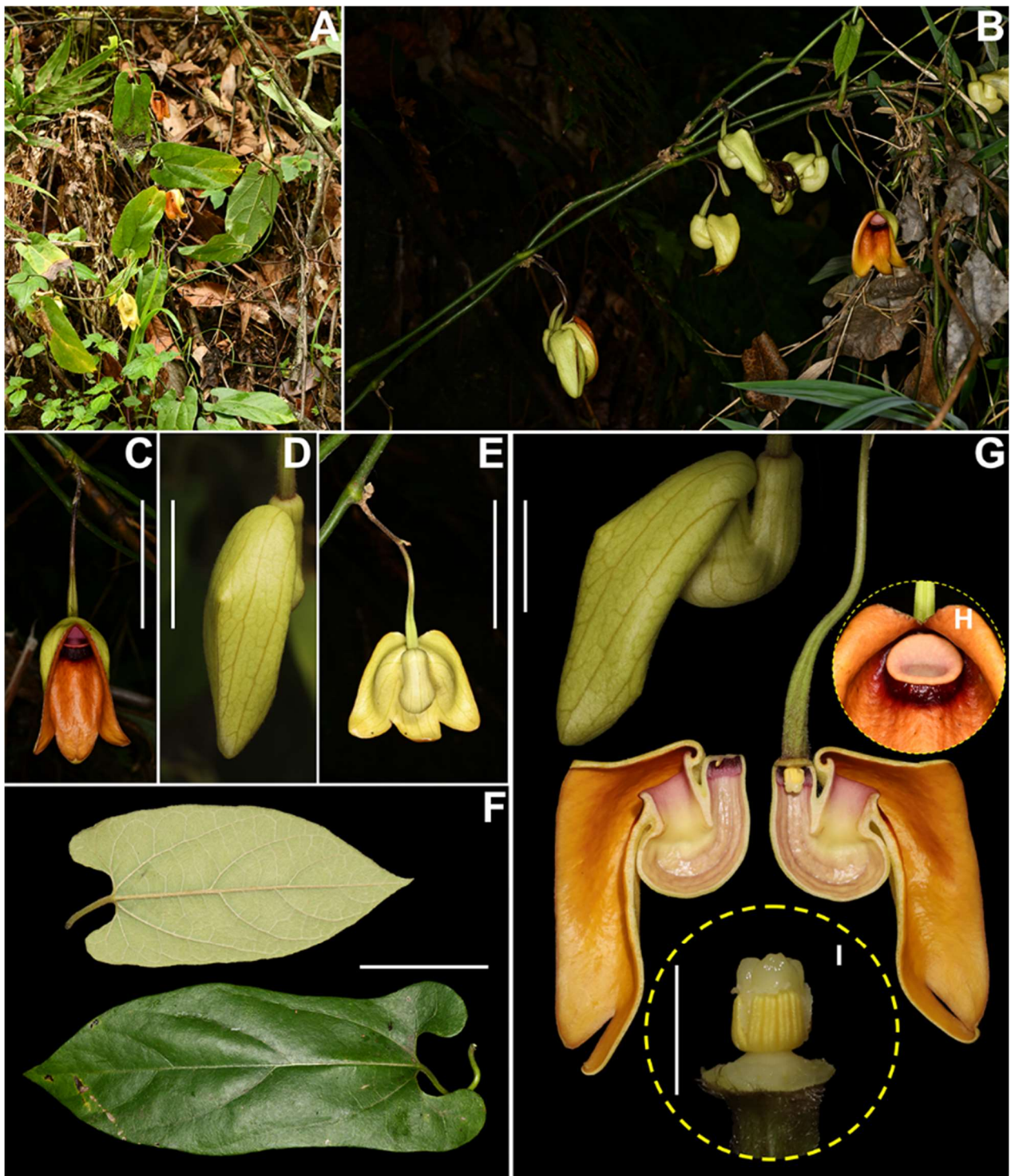


Fig. 1. Morphological characters of *Aristolochia pendulistoma*. **A.** Plant *in situ*, showing the herbaceous twining habit. **B.** Axillary flower, typically solitary at each node. **C.** Frontal view of the perianth. **D.** Lateral view of the bud. **E.** Posterior view of the flower. **F.** Leaf adaxial surface (upper) and abaxial surface (lower). **G.** Upper left, lateral view of the bud, showing the extremely pendulous and downward-elongated calyx limb; center, longitudinally dissected perianth. **H.** Throat. **I.** Gynostemium with a slightly dentate apex of the stigmatic lobes. Scale bars: D, G = 2 cm; C, E, F = 5 cm; I = 5 mm.

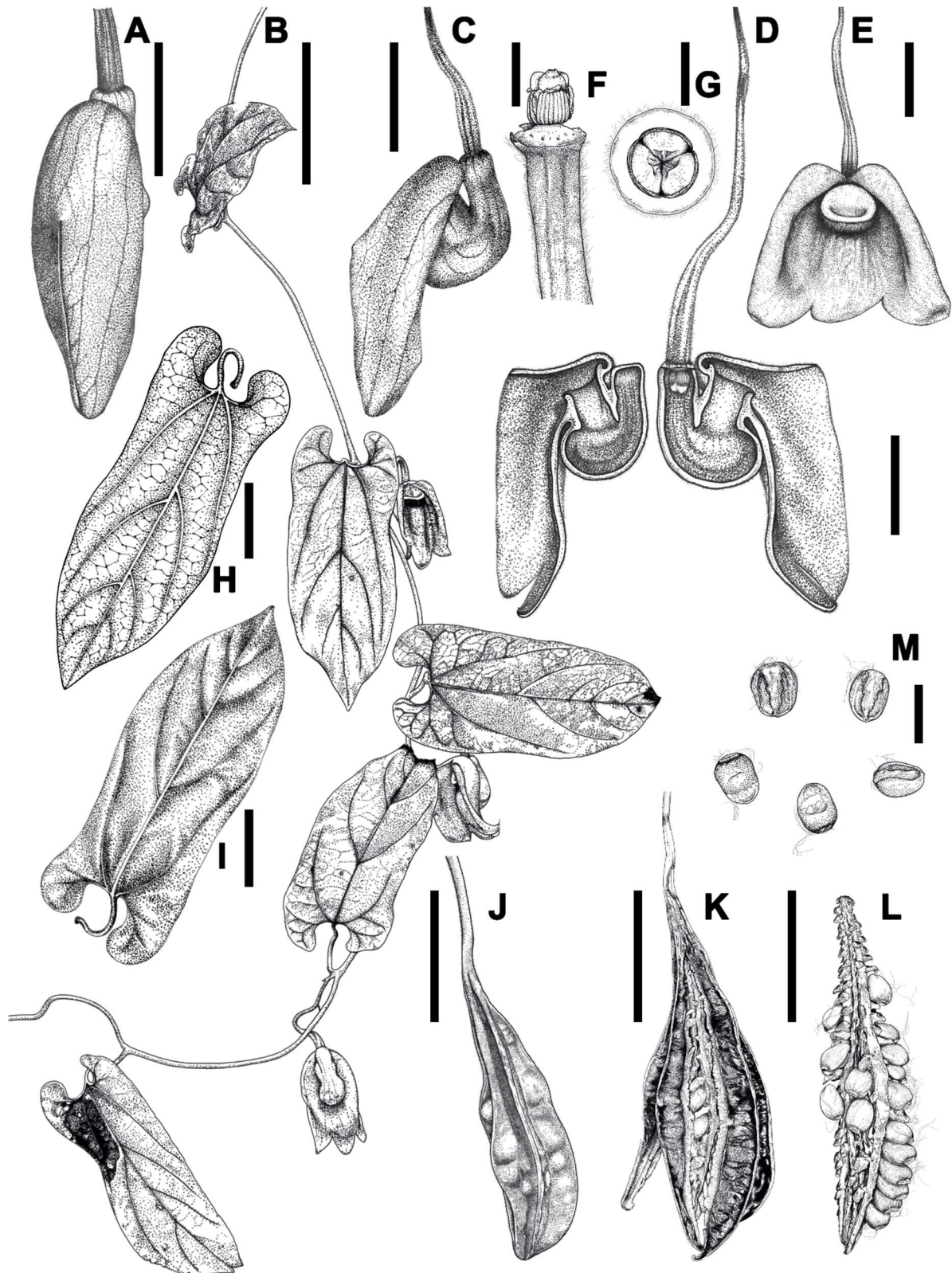


Fig. 2. Line drawing of *A. pendulistoma*. **A.** Bud, frontal view. **B.** Habit, showing the twining vine, leaves, and axillary flower position. **C.** Bud, lateral view. **D.** Longitudinal dissection of the flower. **E.** Opened flower, showing the pendulous, downward-elongated, 3-dentate calyx limb. **F.** Lateral view of the gynostemium. **G.** Top view of the 3-lobed gynostemium. **H.** Leaf, abaxial surface. **I.** Leaf, adaxial surface. **J.** Young 6-ridged capsule. **K.** Mature capsule with basipetal dehiscence. **L.** Seeds attached to the carpels. **M.** Seeds. Scale bars: A–E, H–L = 2 cm; F, G, M = 5 mm.



each site. All individuals recorded were reproductive and are therefore here treated as mature individuals; no seedlings or juvenile plants were found. Although additional populations may occur in the botanically underexplored Gaoligong and Biluo mountains, the number of mature individuals currently known is fewer than 10. *A. pendulistoma* is therefore best assessed as Critically Endangered (CR D) under the IUCN Red List Categories and Criteria, because the total population is estimated to comprise fewer than 50 mature individuals. Ex situ conservation appears feasible: cuttings collected from the type plant were successfully established at the Kunming Institute of Botany, where they have grown well, propagated clonally, flowered abundantly, and set fruit and seed following hand pollination, although seed viability has not yet been tested. We further recommend that this species be considered in future updates of China's National Key Protected Wild Plants List, which was most recently revised and promulgated in 2021 (available from <http://www.forestry.gov.cn/main/5461/20210908/162515850572900.html/>) (Lu *et al.*, 2021; Shao *et al.*, 2025) and treated as a priority taxon under the conservation program for Plant Species with Extremely Small Populations (PSESP) (Ma *et al.*, 2013).

Paratype: CHINA. Yunnan Province, Nujiang Lisu Autonomous Prefecture, Lushui City, Gudeng Township, under subtropical forest in Biluo Mountain, 4 May 2024, X.J. Zhao JYL2915 (CSH!).

DISCUSSION

The discovery of *Aristolochia pendulistoma* further highlights the Nujiang drainage as an important region for the diversity and endemism of *Aristolochia*, especially subg. *Siphisia*. Recent taxonomic studies have increasingly shown that many newly described species of subg. *Siphisia* in China are characterized by extremely narrow distributions, strong local endemism, and very small known populations (Zhu *et al.*, 2019b; Yang *et al.*, 2024; Wang *et al.*, 2025, 2026). *A. pendulistoma* conforms closely to this emerging pattern. It is currently known from only two highly localized populations, each with very few mature individuals, indicating that this species, like many of its congeners, may face an inherently fragile conservation status in the wild. Although additional populations may yet be discovered through further botanical exploration, the repeated appearance of such narrowly distributed and sparse species suggests that rarity may be a common feature in this lineage rather than an exceptional condition. At the same time, biological and conservation knowledge for these species remains far behind their growing taxonomic diversity. In this context, the formal recognition of *A. pendulistoma* is an essential first step, while also underscoring the need for more comprehensive conservation-oriented studies on this species and on subg. *Siphisia* as a whole.

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LITERATURE CITED

- Buchwalder, K., Samain, M.-S., Sankowsky, G., Neinhuis, C., Wanke, S. 2014 Nomenclatural updates of *Aristolochia* subgenus *Pararistolochia* (Aristolochiaceae). *Aust. Syst. Bot.* **27**(1): 48–55.
- Do, T.V., Luu, T.H., Wanke, S., Christoph, N. 2015 Three new species and three new records of *Aristolochia* subgenus *Siphisia* from Vietnam including a key to the Asian species. *Syst. Bot.* **40**(3): 671–691.
- González, F. 1999 Inflorescence morphology and the systematics of Aristolochiaceae. *Syst. Geogr. Pl.* **68**(1/2): 159–172.
- González, F., Stevenson, D.W. 2000a Gynostemium development in *Aristolochia* (Aristolochiaceae). *Bot. Jahrb. Syst.* **122**: 249–291.
- González, F., Stevenson, D.W. 2000b Perianth development and systematics of *Aristolochia*. *Flora* **195**(4): 370–391.
- González, F., Wagner, S.T., Salomo, K., Symmank, L., Samain, M.-S., Isnard, S., Rowe, N.P., Neinhuis, C., Wanke, S. 2014 Present trans-Pacific disjunct distribution of *Aristolochia* subgenus *Isotrema* (Aristolochiaceae) was shaped by dispersal, vicariance and extinction. *J. Biogeogr.* **41**(2): 380–391.
- Guo, Z., Wang, Y., Onyenedum, J.G., Li, J. 2025 *Aristolochia geantha* (Aristolochiaceae), a new species from Yunnan, China. *Taiwania* **70**(2): 293–300.
- Hwang, S.M. 1981 Materials for Chinese *Aristolochia*. *Acta Phytotax. Sin.* **19**(2): 222–231.
- IUCN 2012 IUCN Red List Categories and Criteria: Version 3.1. Second edition. IUCN, Gland, Switzerland and Cambridge, [iv+] 32 pp.
- IUCN 2024 Guidelines for Using the IUCN Red List Categories and Criteria Version 2024-3. Standards and Petitions Committee of the IUCN Species Survival Commission. 122 pp.
- Lu, C.T., Yang, C.L., Hung, Y.L., Chen, P.H., Wang, J.C. 2022 A taxonomic revision on *Isotrema* (Aristolochiaceae) in Taiwan, including one new species. *Taiwania* **67**(3): 391–407.
- Lu, Z., Qin, H., Jin, X., Zhang, Z., Yang, Q., Hong, D., Li, D., Li, K., Yuan, L., Zhou, Z. 2021 On the necessity, principle, and process of updating the list of national key protected wild plants. *Biodivers. Sci.* **29**(12): 1577–1582.
- Ma, Y., Chen, G., Edward Grumbine, R., Dao, Z., Sun, W., Guo, H. 2013 Conserving plant species with extremely small populations (PSESP) in China. *Biodivers. Conserv.* **22**(3): 803–809.



- Mo, M.-L., Wu, Y.-D., Huang, Y.-S., Lu, Z.-C. 2025 *Isotrema jinquanii* (Aristolochiaceae), a new species from limestone areas of Guangxi, China. *Nord. J. Bot.* **2025**(6): e04667.
- Ohi-Toma, T., Sugawara, T., Murata, H., Wanke, S., Neinhuis, C., Murata, J. 2006 Molecular phylogeny of *Aristolochia* sensu lato (Aristolochiaceae) based on sequences of *rbcL*, *matK*, and *phyA* genes, with special reference to differentiation of chromosome numbers. *Syst. Bot.* **31**(3): 481–492.
- Ohi-Toma, T., Murata, J. 2016 Nomenclature of *Isotrema*, *Siphisia*, and *Endodeca*, and their related infrageneric taxa of *Aristolochia* (Aristolochiaceae). *Taxon* **65**(1): 152–157.
- Shao, S.-C., Xie, X.-T., Liu, H.-M., Schneider, H., Li, B. 2025 Recommendations to Reinforce the Implementation of China's Updated National Key Protected Wild Plants List. *Integr. Conser.* **4**(4): 527–533.
- Wagner, S.T., Hesse, L., Isnard, S., Samain, M.-S., Bolin, J., Maass, E., Neinhuis, C., Rowe, N.P., Wanke, S. 2014 Major trends in stem anatomy and growth forms in the perianth-bearing Piperales, with special focus on *Aristolochia*. *Ann. Bot.* **113**(7): 1139–1154.
- Wang, Y., Liao, S., Landrein, S., Nguyen, K.S., Onyenedum, J.G., Guo, Z. 2026 *Aristolochia ferox*, a new species of subg. *Siphisia* (Aristolochiaceae) from Guangxi, China. *PhytoKeys* **273**: 171–183.
- Wang, Y.F., Guo, Z.R., Landrein, S., Onyenedum, J.G., Liao, S. 2025 *Aristolochia zhuhaiensis*, a self-supporting new species of Aristolochiaceae from Guangdong, China and notes on *Aristolochia thwaitesii*. *PhytoKeys* **254**: 61–76.
- Wanke, S., González, F., Neinhuis, C. 2006 Systematics of pipevines: combining morphological and fast-evolving molecular characters to investigate the relationships within subfamily Aristolochioideae (Aristolochiaceae). *Int. J. Plant Sci.* **167**(6): 1215–1227.
- Wanke, S., Granados Mendoza, C., Müller, S., Paizanni Guillén, A., Neinhuis, C., Lemmon, A.R., Lemmon, E.M., Samain, M.-S. 2017 Recalcitrant deep and shallow nodes in *Aristolochia* (Aristolochiaceae) illuminated using anchored hybrid enrichment. *Mol. Phyl. Evol.* **117**: 111–123.
- Yang, J., Cai, L., Liu, D., Chen, G., Gratzfeld, J., Sun, W. 2020 China's conservation program on Plant Species with Extremely Small Populations (PSESP): Progress and perspectives. *Biol. Conserv.* **244**: 108535.
- Yang, J.-M., Huang, R.Z., Liu, J.Z., Zhang, C.J., Yang, Y.R., Yin, L. 2024 *Aristolochia sanheensis* (Aristolochiaceae), a new species from Yunnan, Southwest China. *Phytotaxa* **666**(3): 223–228.
- Ying, S. 2025 New Taxa and New Names. **8**. Research Center of Flora of Taiwan, Taipei. 572 pp.
- Zhang, H.L., Wang, Y.F., Guo, Z.R., Zhu, T., Yang, H.H., Yin, Z.J. 2024 *Aristolochia pulvinata*, a new species of Aristolochiaceae from Yunnan, Southwest China. *Phytotaxa* **675**(3): 261–272.
- Zhu, X.X., Li, X.Q., Liao, S., Du, C., Wang, Y., Wang, Z.H., Yan, J., Zuo, Y.J., Ma, J.S. 2019a Reinstatement of *Isotrema*, a new generic delimitation of *Aristolochia* subgen. *Siphisia* (Aristolochiaceae). *Phytotaxa* **401**(1): 1–23.
- Zhu, X.X., Zheng, H.L., Wang, J., Gao, Y.Q., Ma, J.S. 2019b Taxonomic studies on the genus *Isotrema* (Aristolochiaceae) from China: I. *I. cangshanense*, a new species from Yunnan. *PhytoKeys* **134**: 115–124.
- Zhu, X.X., Ma, J.S. 2022 *Aristolochia* and *Isotrema* of Aristolochiaceae in China. In: Ma, J.S. *et al.*, (eds.), *China, Mother of Gardens, in the Twenty-First Century*, 1st ed. **2**: 190–330. China Forestry Publishing House, Beijing, China.

Supplementary materials are available from the journal website