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Vincetoxicum jinshaense (Apocynaceae), a new species from Yunnan, China

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Vincetoxicum jinshaense X.D. Ma & J.Y. Shen (Apocynaceae) is described as a new species from Luquan, Yunnan, China. It morphologically resembles *V. yunnanense*, *V. secamonoides* and *V. rotundifolium*, but differs from them in many features of the leaves and flowers. Based on the IUCN categories and criteria, and considering imminent threats to the species, it is assessed as Critically Endangered (CR).

Vincetoxicum has long been recognized as one of the most taxonomically complex genera within Apocynaceae. The genus underwent significant taxonomic revisions, beginning with Persoon's (1805: 274) transfer of the generitype *V. hirundinaria* and other Eurasian species to *Cynanchum*, a classification later adopted in, for example, *Flora of China* (Li *et al.* 1995). However, according to morphological and molecular analyses by Liede (2001), *Cynanchum* and *Vincetoxicum* are phylogenetically distinct, a conclusion corroborated by Rapini *et al.* (2007), Liede-Schumann *et al.* (2012) and Fishbein *et al.* (2018). Recent phylogenetic studies have further reshaped the genus, incorporating members of the subtribe Tylophorinae (including *Tylophora* and several minor genera) into *Vincetoxicum* (Liede-Schumann *et al.* 2012, 2016, Liede-Schumann & Meve 2018, Shah *et al.* 2021).

In its current circumscription, *Vincetoxicum* is one of the largest and most widespread genera within Apocynaceae. POWO lists 264 accepted species (https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:30010004-2). They are native to Africa, Asia and Europe, with introduced populations in North America (Liede-Schumann & Meve 2018, Güven *et al.* 2021). In China, approximately 82 *Vincetoxicum* species have been documented, of which about 34 occur in Yunnan (Li *et al.* 1995, Tseng *et al.* 2011, Jiang *et al.* 2018, Liede-Schumann & Meve 2018, Hsu *et al.* 2021, Shah *et al.* 2021, Zeng *et al.* 2021, Ye *et al.* 2022, Zhang *et al.* 2022, 2024, Xu *et al.* 2024).

During a botanical expedition in the Jinsha River valley, Luquan County, Yunnan Province, southwestern China, an unusual species of *Vincetoxicum* was discovered in the thickets in the hot, dry parts of the valley. Morphologically similar to *V. yunnanense*, *V. secamonoides* and *V. rotundifolium*, this species was subsequently identified as distinct after examination of herbarium specimens and consultation of the relevant literature cited above. We formally describe it here as a new species.

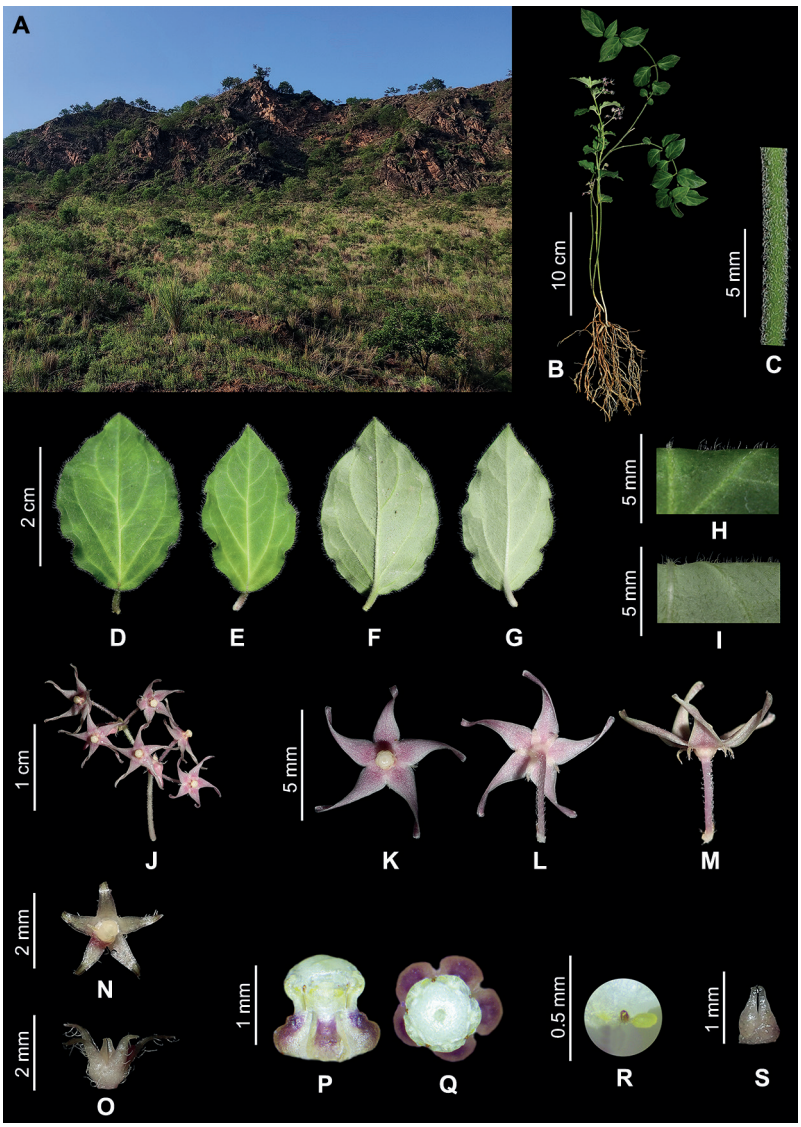

Fig. 1. *Vincetoxicum jinshaense* (B–S from the holotype). — **A**: Natural habitat. — **B**: Plant. — **C**: Stem. — **D** and **E**: Leaves, adaxial view. — **F** and **G**: Leaves, abaxial view. — **H** and **I**: Adaxial and abaxial leaf surfaces. — **J**: Inflorescence. — **K–M**: Flower, front, back and side views. — **N** and **O**: Calyx, front and side views. — **P** and **Q**: Gynostegium with corona, side and front views. — **R**: Pollinarium. — **S**: Ovary.

Vincetoxicum jinshaense X.D. Ma & J.Y. Shen, *sp. nova* (Figs. 1 and 2A–C)

Type: China. Yunnan Province, Luquan County, Jiaopingdu Town, Jiaoping Village, dry-hot valley, 26°17′N, 102°23′E, 1068 m a.s.l., 5 June 2025, *Xing-da Ma* & *Yi-qiang Yin MXD0064* (holotype HITBC; isotype HITBC).

Etymology. The species is named after the type locality in the Jinsha River valley.

Diagnosis. *Vincetoxicum jinshaense* differs from *V. yunnanense*, *V. secamonoides* and *V. rotundifolium* e.g. by its broadly cuneate (vs. rounded) leaf base, slightly reflexed (vs. spreading) sepals, and truncate (vs. spreading) apices of corolla lobes.

Description. Perennial, erect herb, up to 40 cm tall, occasionally twining at tip. Roots dense, fleshy, 3–15 cm long, 0.3–1.2 mm in diameter. Stems and branches slender, terete, branched, greenish, densely pilose. Leaves opposite; petiole terete, 4–6 mm long, *ca.* 1.2 mm in diameter, densely pilose, adaxially decurrently grooved; blade ovate to ovate-oblong, 1.6–3 × 0.8–1.4 cm, papery, densely pilose, adaxially green, abaxially pale green, base broadly cuneate, margin entire, ciliate, apex acuminate to cau-

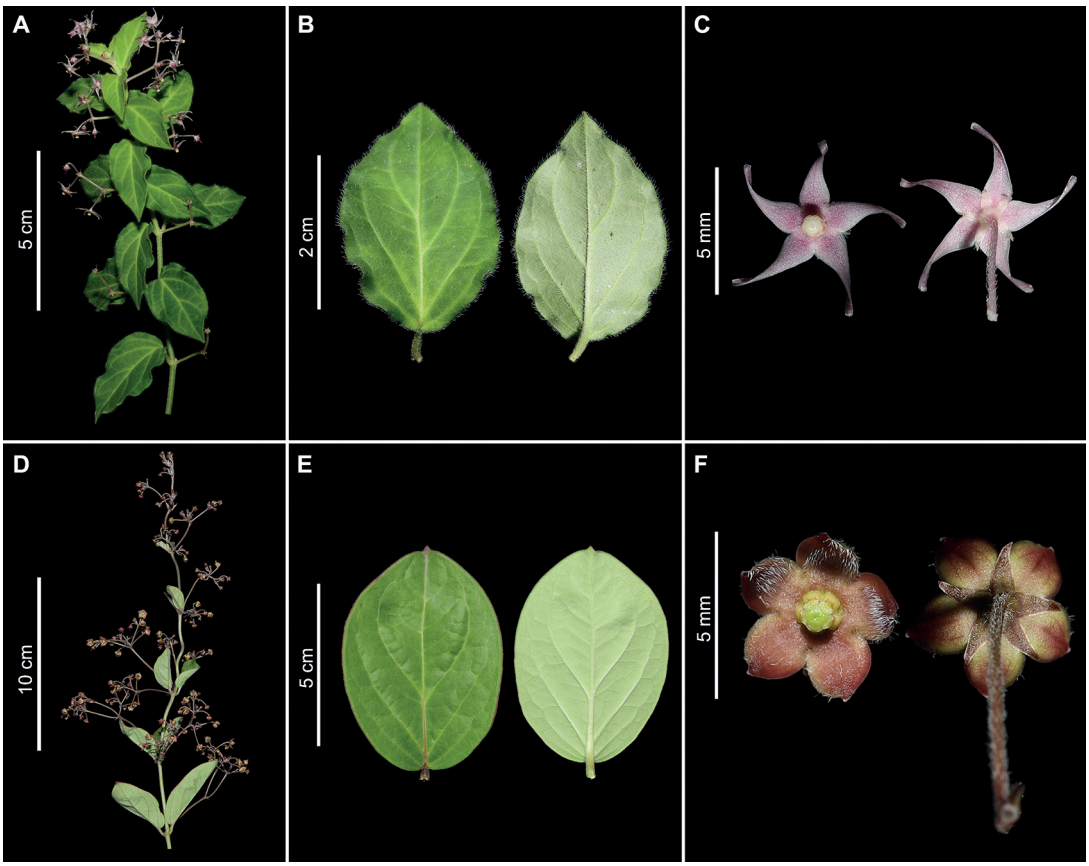

Fig. 2. Morphological comparison of the branches, leaves and flowers of *Vincetoxicum jinshaense* (**A**–**C** from the holotype) and *V. yunnanense* (**D**–**F** from *Xing-da Ma 0021*, HITBC).

date; midvein adaxially flat or slightly depressed, with a group of glands at base, abaxially prominent, lateral veins 4–5 pairs, obliquely ascendant, adaxially flat or slightly depressed, abaxially convex, tertiary veins reticulate. Inflorescences one per node in upper part of branch, dichasial cyme, 5- to 12-flowered; peduncle 5–10 mm long, *ca.* 0.8 mm in diameter, slightly milky, densely pilose, first node rachis 4–8 mm long; bracts 5–12, subulate, *ca.* 1 mm long, greenish or pale purple red, apex acuminate, densely pilose; pedicel 5–7 mm long, *ca.* 0.5 mm in diameter, pale milky to pale purple red, densely pilose. Flower buds conical, *ca.* 2 mm in diameter, pale purple red. Sepals lanceolate, *ca.* 1 × 0.4 mm, pale milky to pale purple red, slightly reflexed, adaxially glabrous, abaxially densely pilose, apex acuminate, margin translucent, with a group of glands at base. Corolla rotate, pale milky to pale purple red, 6–9 mm in diameter, deeply lobed; lobes narrowly lanceolate, 3–4 × 1–1.5 mm, apex truncate, glabrous on both surfaces, margin recurved. Gynostegial corona 1/2 as long as gynostegium; lobes adnate to gynostegium, fleshy, ovate, *ca.* 0.5 × 0.3 mm, pale purple red, margin translucent. Gynostegium cylindrical, *ca.* 1 mm long; apical anther appendages membranous, rounded, *ca.* 0.5 mm in diameter, inflexed over stigma; pollinia oblong, horizontal or slightly oblique upwards, *ca.* 0.08 × 0.05 mm, yellow, attached to oblong brownish corpusculum by short translator arms; style-head disciform, *ca.* 1 mm in diameter, translucent milky. Ovary conical, *ca.* 0.7 × 0.3 mm, glabrous. Follicles and seeds not seen. Flowering observed in June.

Conservation assessment. *Vincetoxicum jinshaense* is only known from the type locality.

Table 1. Morphological differences among *Vincetoxicum jinshaense, V. yunnanense*, *V. secamonoides* and *V. rotundifolium* (data on the latter three from Li *et al.* 1995).

	V. jinshaense	*V. yunnanense*	*V. secamonoides*	*V. rotundifolium*
Leaf base	broadly cuneate	rounded	rounded	rounded
Leaf size (cm)	1.6–3 × 0.8–1.4	3–8 × 1.5–3.5	2–4 × 0.8–1.2	4–9 × 3.5–8
Leaf surface	densely pilose on both surfaces	puberulent on both surfaces	adaxially glabrous, abaxially puberulent	sparsely puberulent on both surfaces
Leaf venation	pinnate, lateral veins 4–5 pairs	pinnate, lateral veins *ca.* 4 pairs	basal veins 3, lateral veins 1 pair	pinnate, lateral veins 4–6 pairs
Flower colour	pale milky to pale purple red	brownish red	brownish red	yellow
Sepal shape	lanceolate, slightly reflexed	linear-lanceolate, spreading	oblong-ovate, spreading	ovate-triangular, spreading
Corolla lobe				
shape	narrowly lanceolate, apex truncate	oblong, apex spreading	ovate-oblong, apex spreading	oblong, apex spreading
surface	glabrous on both surfaces	glabrous outside, pilose inside	glabrous on both surfaces	glabrous on both surfaces

In 2024 and 2025, we conducted two comprehensive surveys of the Jinsha River valley and found only three isolated occurrences of the species, occurring sporadically in thickets adjacent to farmlands and roads. Local agricultural activities, including cultivation and animal grazing, have caused significant habitat degradation. Based on the IUCN Red List Categories and Criteria (https://www.iucnredlist.org/resources/categories-and-criteria) and the imminent threats to the species, *V. jinshaense* can be classified as Critically Endangered (CR).

Vincetoxicum jinshaense is morphologically similar to *V. yunnanense*, *V. secamonoides* and *V. rotundifolium*, but there are several consistent differences (Table 1).

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References

Fishbein M., Livshultz T., Straub S.C., Simoes A.O., Boutte J., McDonnell A. & Foote A. 2018: Evolution on the backbone: Apocynaceae phylogenomics and new perspectives on growth forms, flowers, and fruits. — *American Journal of Botany* 105: 495–513, https://doi.org/10.1002/ajb2.1067.

Güven S., Coskuncelebi K. & Makbul S. 2021: A new *Vincetoxicum* (Apocynaceae) species from Eastern Anatolia and its relationship based on biosystematic properties. — *Nordic Journal of Botany* 39: e03405, https://doi.org/10.1111/njb.03405.

Hsu T.C., Huang W.J. & Chung S.W. 2021: *Vincetoxicum* (Apocynaceae: Asclepiadoideae) in Taiwan: Two new combinations and a new record. — *Phytotaxa* 478: 287–290, https://doi.org/10.11646/phytotaxa.478.2.11.

Jiang L.Q., Li Y.Y., Zhu X.X., Wang Y.H. & Peng H. 2018: *Vincetoxicum xinpingense* (Asclepiadeae, Asclepiadoideae, Apocynaceae), a new species from Yunnan Province, China. — *Phytotaxa* 361: 56–64, https://doi.org/10.11646/phytotaxa.361.1.4.

Li P.T., Gilbert M.G. & Stevens W.D. 1995: Asclepiadaceae. — In: Wu Z.Y. & Raven P.H. (eds.), *Flora of China*, vol. 16: 189–270. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis.

Liede S. 2001: Molecular considerations on the subtribe Astephaninae Endl. ex Meisn. (Apocynaceae – Asclepiadoideae). — *Annals of the Missouri Botanical Garden* 88: 657–668.

Liede-Schumann S. & Meve U. 2018: *Vincetoxicum* (Apocynaceae – Asclepiadoideae) expanded to include *Tylophora* and allies. — *Phytotaxa* 369: 129–184, https://doi.org/10.11646/phytotaxa.369.3.1.

Liede-Schumann S., Kong H., Meve U. & Thiv M. 2012: *Vincetoxicum* and *Tylophora* (Apocynaceae: Asclepiadoideae: Asclepiadeae) — two sides of the same medal: Independent shifts from tropical to temperate habitats. — *Taxon* 61: 803–825, https://doi.org/10.1002/tax.614007.

Liede-Schumann S., Khanum R., Mumtaz A.S., Gherghel I. & Pahlevani A. 2016: Going west — A subtropical lineage (*Vincetoxicum*, Apocynaceae: Asclepiadoideae)

expanding into Europe. — *Molecular Phylogenetics and Evolution* 94: 436–446, https://doi.org/10.1016/j.ympev.2015.09.021.

Persoon C.H. 1805: *Synopsis Plantarum*, vol. 1. — Apud. Carol. Frid. Cramerum, Parisiis Lutetiorum & Apud. J.G. Cottam, Tubingæ.

Rapini A., van den Berg C. & Liede-Schumann S. 2007: Diversification of Asclepiadoideae (Apocynaceae) in the New World. — *Annals of the Missouri Botanical Garden* 94: 407–422, https://www.jstor.org/stable/40035751.

Shah S.A., Sultan A., Wen J., Ullah Z., Nisa S.U., Ren Z., Alam M.M., Iqbal J. & Mumtaz A.S. 2021: Taxonomy of *Vincetoxicum* s. str (Asclepiadoideae, Apocynaceae) from southern Asia including three new species and resurrected names. — *PhytoKeys* 179: 35–73, https://doi.org/10.3897/phytokeys.179.62514.

Tseng Y.H., Chao C.T. & Lin H.W. 2011: A new species of *Tylophora* from coral reef areas in Hengchun Peninsula, Taiwan, China. — *Journal of Systematics and Evolution* 49: 160–164, https://doi.org/10.1111/j.1759-6831.2011.00121_3.x.

Xu W.B., Liu Y.L., Li X.W., Yan J.J. & Shen J.Y. 2024: *Vincetoxicum gongshanense* (Apocynaceae), a new species from Yunnan, China. — *Taiwania* 69: 168–172, https://doi.org/10.6165/tai.2024.69.168.

Ye B.J., Tu X.D., Zhou C.Y., Liu B., Cao X.F. & Chen S.P. 2022: *Vincetoxicum junzifengense* (Apocynaceae), a new species from Fujian, China: Evidence from morphological and molecular analyses. — *Phytotaxa* 539: 203–209, https://doi.org/10.11646/phytotaxa.539.2.7.

Zeng S.Y., Yang Q.Y., Yu J. & Shen J.Y. 2021: *Vincetoxicum emeiense* (Asclepiadeae, Asclepiadoideae, Apocynaceae), a new species from Sichuan, China. — *Phytotaxa* 505: 56–62, https://doi.org/10.11646/phytotaxa.505.1.3.

Zhang C.F. & Hu G.W. 2024: *Vincetoxicum bungei* (Apocynaceae), a new combination for a common medicinal species from East Asia. — *Phytotaxa* 664: 224–228, https://doi.org/10.11646/phytotaxa.664.3.9.

Zhang C.F., Wang Y., Chen F., Zhou H.L., Liao M., Odago W.O., Hu G.W. & Wang Q.F. 2022: *Vincetoxicum pingtaoanum* (Apocynaceae: Asclepiadeae), a new species from the Three Gorges District in Central China. — *Phytotaxa* 564: 59–70, https://doi.org/10.11646/phytotaxa.564.1.4.