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Henckelia connata (Gesneriaceae), a new species from eastern Himalayas, China

Xi-Zuo Shi and Li-Hua Yang

X.-Z. Shi and L.-H. Yang (<http://orcid.org/0000-0003-3676-3264>) ✉ (lihuayang@scbg.ac.cn), Key Laboratory of Plant Resources Conservation and Sustainable Utilization, South China Botanical Garden, Chinese Academy of Sciences, Guangzhou, China. XZS also at: Univ. of Chinese Academy of Sciences, Beijing, China.

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According to morphological observation and literature consultation, a new species of *Henckelia* (Gesneriaceae), *H. connata* X. Z. Shi & Li H. Yang, is described and illustrated. This new species resembles *H. dimidiata*, but differs in its dilated and connate petiole bases (versus separated), longer peduncles (4–10 cm long versus 0.3–2.2 cm long) and pedicels (1.5–4.0 cm long versus up to 1 cm long), lanceolate to triangular bracts (versus ovate), of smaller size (4–7 × 3–5 mm versus up to 16 × 13 mm), bluish purple to light blue corolla tube (versus yellow) and pubescence on most organs (glabrous or sparsely pubescent).

Keywords: *Henckelia adenocalyx*, *Henckelia dimidiata*, new taxon, taxonomy

The newly recircumscribed genus *Henckelia* Spreng. has recently received great interests from taxonomists, with no less than 17 new species described after its recircumscription (Weber et al. 2011). At present, the genus comprises ca 70 species, most of which occur in the Himalayas and Hengduan mountains while some others extend to Southeast Asia, Sri Lanka and south India (Weber et al. 2011, Middleton et al. 2013, Janeesha and Nampy 2020). Southwest China harbors a high diversity of *Henckelia*, and a total of 25 species have been recorded here. Among them, 22 species were originally described under the names of *Chirita* Buch.-Ham. ex D. Don or *Hemiboeopsis* W.T. Wang but later transferred to *Henckelia* and three species were recently described, i.e. *Henckelia xinpingensis* Y.H. Tan & Bin Yang (Yang et al. 2019), *H. nanxiheensis* Lei Cai & Z.L. Dao and *H. multinervia* Lei Cai & Z.L. Dao (Cai et al. 2019). In this study, based on extensive specimen examinations, field investigation and thorough checking of literature (Chatterjee 1948, Wood 1974, Wang et al. 1998, Li et al. 2003, Weber et al. 2011, Krishna and Lakshminarasimhan 2018, Borah et al. 2019, Janeesha and Nampy 2020, Kanthraj et al. 2020, Taram et al. 2020), a new species of this genus from E Himalayas was confirmed as described below.



***Henckelia connata* X. Z. Shi & Li H. Yang sp. nov.**
(Fig. 1–3)

A species differing from *Henckelia dimidiata* by its dilated and connate petiole bases (versus separated), longer peduncles (4–10 cm versus 0.3–2.2 cm) and pedicels (1.5–4.0 cm versus up to 1 cm), lanceolate to triangular bracts (versus ovate), of smaller size (4–7 × 3–5 mm versus up to 16 × 13 mm), bluish purple to light blue corolla tube (versus yellow) and pubescence on most organs (versus glabrous or sparsely pubescent).

Type: China, Tibet Autonomous Region: Chayu County, Chawalong Town, alt. 2633 m a.s.l., 28°47'45.23"N, 97°29'48.11"E, 28 Jul 2020 (flowering), Li H. Yang et al.

YLH1077 (holotype: IBSC-0859707, isotypes: IBSC-0859708, IBSC-0859709, IBSC-0859710, IBSC-0859711, IBSC-0859712).

Description

Annual herb, caulescent; stem erect, pubescent, cylindrical, ca 3 mm in diameter, 20–40 cm high, with internodes 5–11 cm long. Leaves opposite; leafblades ovate to ovate-elliptic, 6–10 × 3–5 cm, herbaceous, slightly oblique and broadly cuneate to rounded at base, with shallow serrate margin, acuminate at apex, adaxially densely pubescent, abaxially densely pubescent along veins; lateral veins 5–9 on each side of midrib, concave adaxially, prominent abaxially; petioles 0.8–4.0 cm long, densely pubescent, ca 3 mm wide, dilated at base and connate with the opposite one, forming a navicular structure.

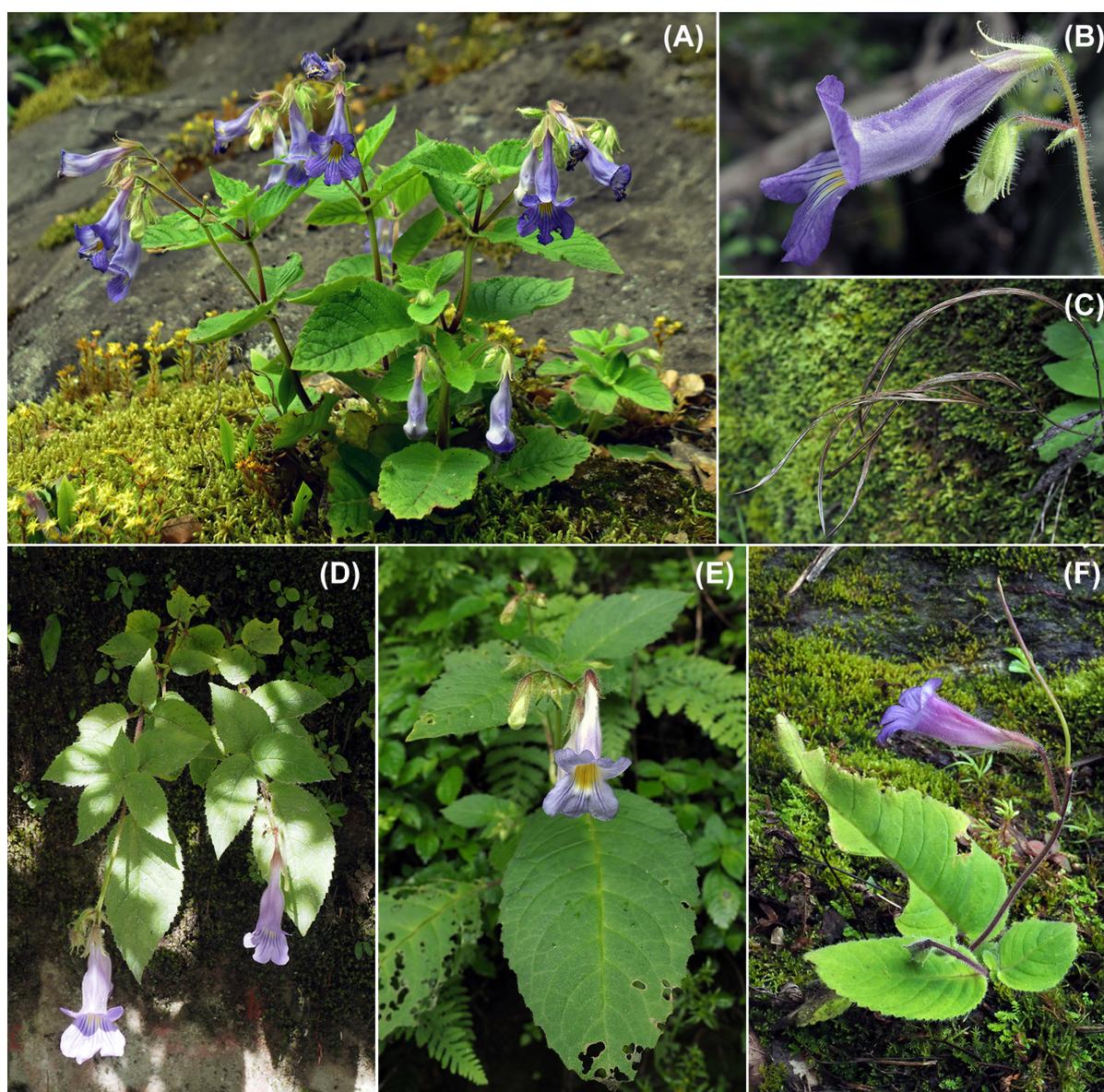


Figure 1. Habitat and habit of *Henckelia connata* X. Z. Shi & Li H. Yang^{***}, sp. nov. (A–C) photo from type locality (Chayu County), (D) photo from Motuo County, (E) photo from Bomi County, (F) photo from Gongshan County.

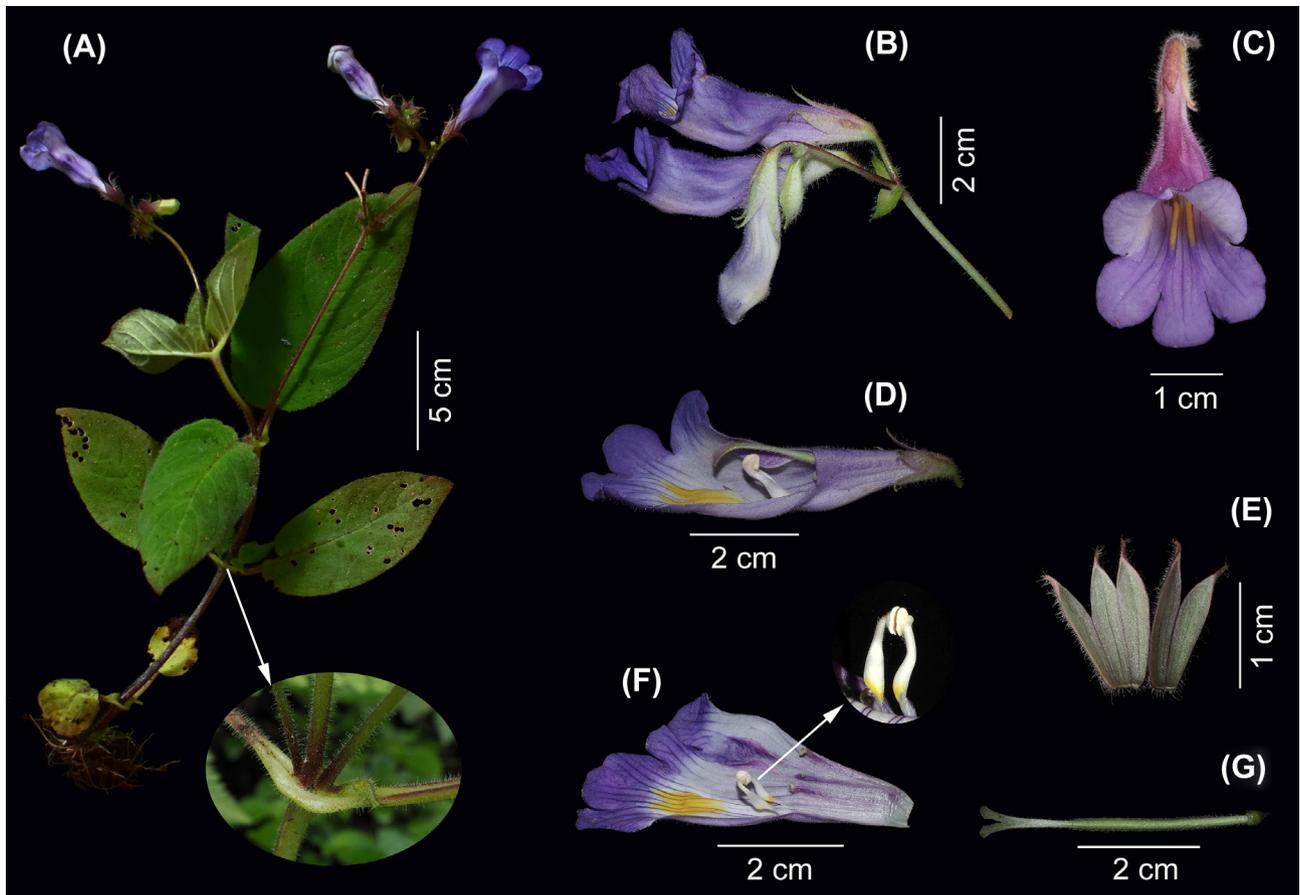


Figure 2. *Henckelia connata* X. Z. Shi & Li H. Yang, sp. nov. (A) habit, (B) inflorescence with bracts, (C) flower in front view, (D) flower in lateral view, (E) calyx, (F) opened corolla, showing stamens and staminodes, (G) pistil.

Cymes 1–5, axillary, 2–8-flowered; peduncles 4–10 cm long, ca 2 mm in diameter, densely pubescent; bracts 2, opposite, free, lanceolate to triangular, 4–7 × 3–5 mm, pubescent outside, glabrous inside, with entire margin and acuminate apex; pedicels 1.5–4.0 cm long, densely pubescent. Calyx 5-lobed, fused almost up to $\frac{2}{3}$ of its length; lobes broadly lanceolate, 12–18 × 2–3 mm, acuminate at apex, with entire margin, glandular pubescent outside, glabrous inside. Corolla 5–7 cm long; throat with yellow marking and dark blue stripes, densely pubescent outside, glabrous inside; tube bluish purple to light blue, infundibuliform, 4–5 cm long, ca 1 cm in diameter at throat; limb bluish purple, distinctly 2-lipped; adaxial lip 2-lobed, with lobes broadly ovate, 9–11 × 8–10 mm, rounded at apex; abaxial lip 3-lobed, with oblong lobes, 12–15 × 7–9 mm, rounded at apex. Stamens 2; filaments adnate to ca 18 mm above corolla tube base, strongly geniculate just below middle, swollen at bend, twisted in lower half, white, sometimes with yellow marking, sparsely pubescent near the top; anthers coherent face to face, ca 3 × 2 mm, glabrous. Staminodes 3, adnate to ca 18 mm above corolla tube base; two lateral staminodes ca 5 mm long; the middle one ca 2 mm long. Pistil 3.2–4.5 cm long; stigma deeply 2-lobed, 4–6 mm long; style 7–10 mm long, pubescent; ovary 2.5–3.0 cm long, densely pubescent. Disc annular,

ca 1 mm high. Capsule ca 12 cm long, linear, pubescent, dehiscent loculicidally.

Etymology

The specific epithet refers to the dilated and connate petiole bases of this new species.

Phenology

Flowering from July to September, and fruiting from August to October.

Vernacular name

The Chinese mandarin ‘He Bing Han Ke Ju Tai’ (合柄汉克苣苔).

Distribution and habitat

Henckelia connata is known from several localities in the eastern Himalayas (Fig. 4), at elevations of 1650–2633 m a.s.l.. Plants of this species like to grow in shady rock outcrops and surrounding open habitat.

Notes

While checking specimens, we found that *Henckelia connata* had previously been incorrectly identified as *Chirita*



Figure 3. Holotype of *Henckelia connata* X. Z. Shi & Li H. Yang, sp. nov. (IBSC-0859707).

adenocalyx Chatterjee [\equiv *Henckelia adenocalyx* (Chatterjee) D.J. Middleton & Mich. Möller] or *Chirita dimidiata* Wall. ex Clarke [\equiv *Henckelia dimidiata* (Wall. ex C.B. Clarke) D.J. Middleton & Mich. Möller] by different people, but it is easily distinguished from these two species by the characters summarized in Table 1. The misidentifications based on herbarium specimens indicate that the taxonomy of *Henckelia* should not rely solely on dry specimens. Some characteristics are obvious on the fresh materials, but are unnoticeable on dry specimens, such as the dilated and connate petiole bases of this new species. Therefore, field investigation and further observation of fresh materials are necessary for the taxonomy

of this genus. As noted by Chen et al. (2020), the absence of detailed morphological observations from both herbaria and field pose problems to Gesneriaceae taxonomy.

Additional specimen examined

China, Yunnan Province: Gongshan County, Dulongjiang Town, Gaoligongshan nature reserve, 27°43'47"N, 98°23'29"E, alt. 2050–2150 m a.s.l., 17 Jul 2000, Heng Li et al. 12906 (KUN, E [E00132439, digital image!]); *ibid.*, 27°46'48.96"N, 98°36'44.47"E, alt. 1889 m. a.s.l., 23 Jul 2020, Li H. Yang et al. YLH1072 (IBSC!). Tibet Autonomous Region: Chayu County, Cibagou, 27 Aug 1983,

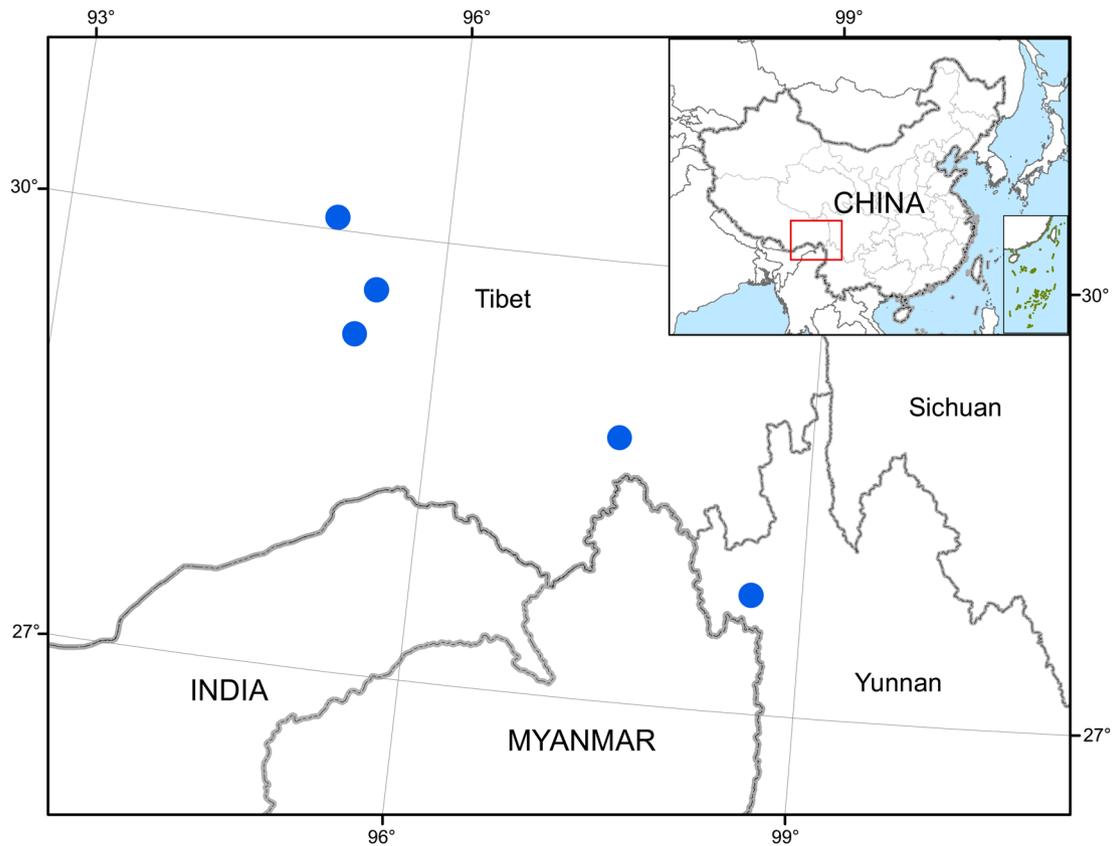


Figure 4. Geographic distribution of *Henckelia connata*.

Table 1. Morphological comparisons between *Henckelia connata* sp. nov., *H. dimidiata* and *H. adenocalyx*.

Characters	<i>H. connata</i>	<i>H. dimidiata</i>	<i>H. adenocalyx</i>
Habit	annual herb	annual herb	perennial herb
Petiole base	dilated and connate	separated	separated
Peduncles	4–10 cm long	0.3–2.2 cm long	ca 5 cm long
Bract shape	lanceolate to triangular	ovate	ovate or ovate-lanceolate
Bract size	4–7 × 3–5 mm	up to 16 × 13 mm	18–28 × 6–5 mm
Pedicels	1.5–4.0 cm long	up to 1 cm long	2.0–2.2 cm long
Calyx lobes	broadly lanceolate, fused	narrowly triangular, fused	elongate conical, free
Corolla tube color	bluish purple to light blue	yellow	lemon yellow
Corolla lobes	abaxial lip slightly longer than adaxial lip and straight	abaxial lip slightly longer than adaxial lip and straight	abaxial lip obviously longer than adaxial lip and curved
Ovary	pubescent	pubescent	glabrescent
Indumentum on stem, petiole, leaf blade, peduncle, pedicels, bract, calyx and corolla	white pubescent	glabrous or sparsely pubescent	white or yellowish-brown pubescent

Bo-Sheng Li et al. 6882 (PE!); Bomi County, Tongmai Town, 30°3'57.06"N, 95°9'8.22"E, alt. 2200 m a.s.l., 29 Jul 2020, Li H. Yang et al. YLH1079 (IBSC!); Motuo County, 29°37'24.16"N, 95°29'1.62"E, alt. 1650 m a.s.l., 6 Aug 2020, Li H. Yang et al. YLH1087 (IBSC!); *ibid.*, 29°18'19.68"N, 95°21'10.32"E, alt. 2033 m a.s.l., 6 Aug 2020, Li H. Yang* et al. YLH1098 (IBSC!).

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References

- Borah, D. et al. 2019. *Henckelia collegii-sancti-thomasi*: a new species of *Henckelia* (Gesneriaceae) from northeastern India. – *Phytotaxa* 415: 247–251.
- Cai, L. et al. 2019. Two new species of *Henckelia* (Gesneriaceae) from southeastern Yunnan, China. – *PhytoKeys* 130: 151–160.
- Chatterjee, D. 1948. New plants from India and Burma. – *Kew Bull.* 3: 57–65.
- Chen, W. H. et al. 2020. Gesneriaceae in China and Vietnam: perfection of taxonomy based on comprehensive morphological and molecular evidence. – *PhytoKeys* 157: 1–5.
- Janeesha, A. P. and Nampy, S. 2020. A taxonomic revision of *Henckelia* (Gesneriaceae) in south India with a new species, one new combination and seven lectotypifications. – *Rheedea* 30: 48–95.
- Kanthraj, A. S. et al. 2020. *Henckelia umbellata* (Gesneriaceae), a new species from the eastern Himalaya of India. – *Rheedea* 30: 143–149.
- Krishna, G. and Lakshminarasimhan, P. 2018. A new species of *Henckelia* (Gesneriaceae) from Arunachal Pradesh, India. – *Taiwania* 63: 397–401.
- Li, R. et al. 2003. Additions to the Flora of China. – *J. Wuhan Bot. Res.* 21: 153–154, in Chinese, with English abstract.
- Middleton, D. J. et al. 2013. The current status of the species hitherto assigned to *Henckelia* (Gesneriaceae). – *Edinb. J. Bot.* 70: 1–20.
- Taram, M. et al. 2020. *Henckelia siangensis* (Gesneriaceae): a remarkable new species from northeast India. – *PhytoKeys* 160: 1–6.
- Wang, W. T. et al. 1998. Gesneriaceae. – In: Wu, Z. Y. and Raven, P. H. (eds), *Flora of China*, Vol. 18. Science Press and Miss. Bot. Gard. Press, pp. 77–120.
- Weber, A. et al. 2011. Molecular systematics and remodeling of *Chirita* and associated genera (Gesneriaceae). – *Taxon* 60: 767–790.
- Wood, D. 1974. A revision of *Chirita* (Gesneriaceae). – *Notes R. B. G. Edinb.* 33: 123–205.
- Yang, B. et al. 2019. Four new species of Gesneriaceae from Yunnan, southwest China. – *PhytoKeys* 130: 183–203.