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Authors: Janeesha, A. P., and Nampy, Santhosh

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A. P. JANEESHA¹ & SANTHOSH NAMPY^{1*}

Henckelia bracteata, a new species of *Gesneriaceae* from S Western Ghats, India, and lectotypification of *Didymocarpus humboldtianus* (*H. humboldtiana*)

Abstract

Janeesha A. P. & Nampy S.: *Henckelia bracteata*, a new species of *Gesneriaceae* from S Western Ghats, India, and lectotypification of *Didymocarpus humboldtianus* (*H. humboldtiana*). – Willdenowia 45: 53–59. 2015. – Version of record first published online on 02 March 2015 head of inclusion in April 2015 issue; ISSN 1868-6397; © 2015 BGBM Berlin-Dahlem.

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Henckelia bracteata (*Gesneriaceae*), from the S Western Ghats in India, is described as new to science and illustrated. It is compared with the similar *H. humboldtiana* from S India and Sri Lanka. Its conservation status is assessed according to IUCN categories and criteria. The name *Didymocarpus humboldtianus*, the basionym of *H. humboldtiana*, is lectotypified.

Additional key words: Kurisumala, Kottayam district, Vagamon hills, Kerala, Sri Lanka, taxonomy, endemic

Introduction

The genus *Henckelia* Spreng., which is easily distinguished from *Didymocarpus* Wall. by its perennial habit and plagiocarpic fruits that dehisce along the dorsal suture, was re-established by Weber & Burt (1997). In their recent papers, Weber & al. (2011) and Middleton & al. (2013) restricted the concept of *Henckelia* to include only 56 species worldwide, distributed in Sri Lanka, S and NE India, Nepal, Bhutan, S China, N Vietnam, N Laos and N Thailand. However, the above list does not include two species described from S India, namely *H. sivagiriensis* (Rajakumar & al.) E. S. S. Kumar (Santhosh Kumar 2014), based on *D. sivagiriensis* Rajakumar & al. (Rajakumar & al. 2009), and *H. pradeepiana* Nampy & al. (Manudev & al. 2012). At present, 30 species are known to occur in India, of which 13 are endemic to the Western Ghats, including the new species described here.

During a recent scientific survey in the S Western Ghats, as a part of revisionary study of *Gesneriaceae*

in India, the authors came across a few populations of *Henckelia* from Kurisumala in Kottayam district. The locality Kurisumala is a famous Catholic pilgrim centre and is part of the Vagamon hills, one of the tourist destinations in Kerala. These mist-laden hills are the abode of several endemic plants and are under threat from anthropogenic disturbances. Critical examination revealed this *Henckelia* as a distinct, hitherto undescribed species, which is described as new to science and illustrated here.

Henckelia bracteata Janeesha & Nampy, **sp. nov.** – Fig. 1 & 2.

Holotype: India, S Western Ghats, Kerala, Kottayam district, Kurisumala, near to 10th Cross, 1100 m, 7 Aug 2014, A. P. Janeesha & Santhosh Nampy 134270 (CALI; isotypes: CAL, MH).

Diagnosis — *Henckelia bracteata* Janeesha & Nampy is similar to *H. humboldtiana* (Gardner) A. Weber & B. L.

¹ Department of Botany, University of Calicut, Malappuram District, Kerala 673 635, India; *e-mail: santhoshnampy5@gmail.com (author for correspondence).



Fig. 1. *Henckelia bracteata* – A: plants in natural habitat; B: scape showing branching pattern and bracts; C: flower, just opened; D: bract; E: calyx enclosing gynoecium; note calyx reaches c. $\frac{1}{2}$ length of ovary; F: stamens with cohering anthers; G: gynoecium; H: staminode; I: capsule; note reddish brown colour of calyx and capsule (yellow spots on fruit and sepals are pollen grains); J: seeds. – A: type locality, 7 Aug 2014, photographed by A. P. Janeesha; B–J from A. P. Janeesha & Santhosh Nampy 134270.

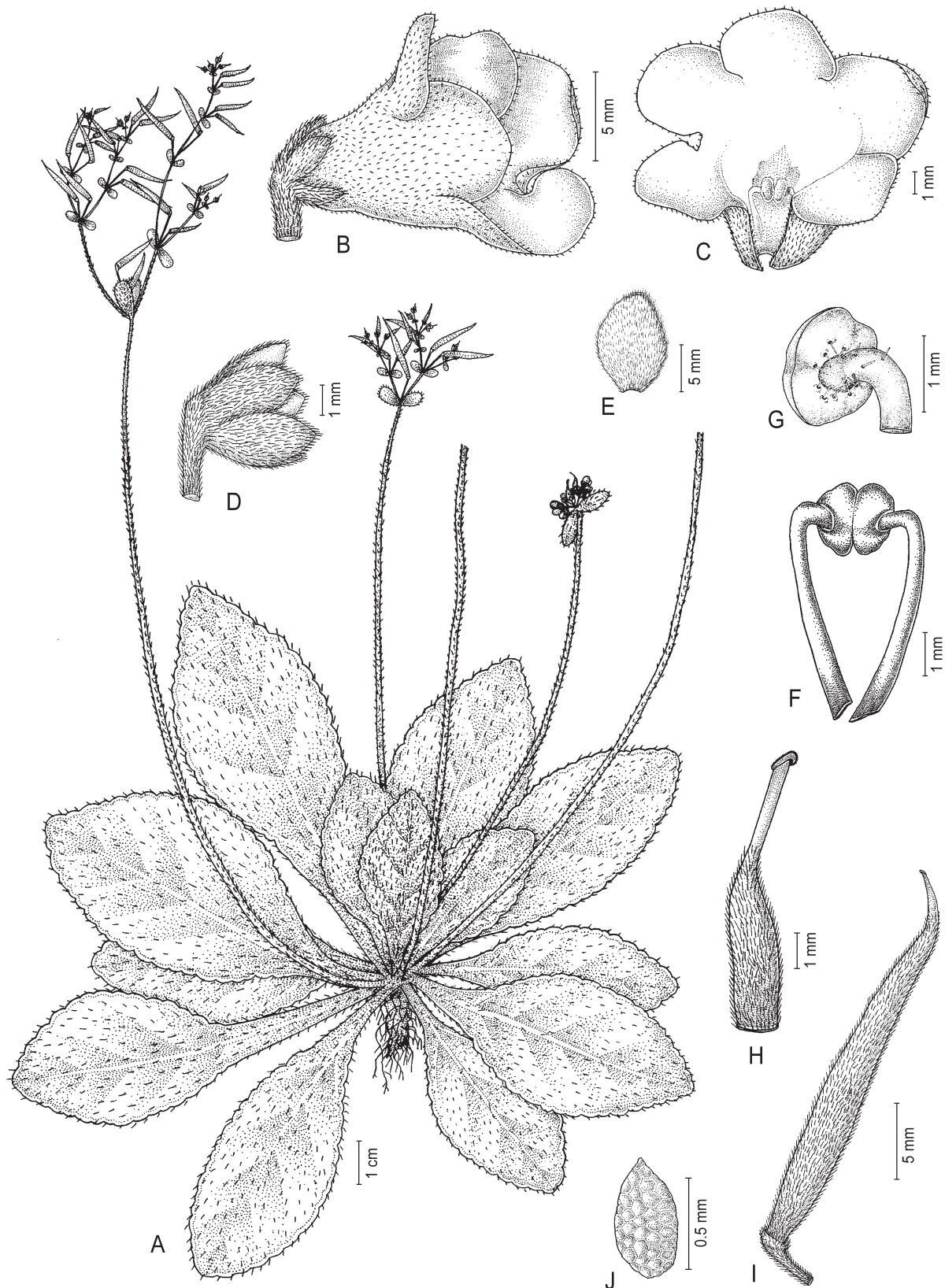


Fig. 2. *Henckelia bracteata* – A: habit; B: flower; C: corolla anterior view, cut open; D: calyx; E: bract abaxial view; F: stamens with cohering anthers; G: anther lobe and filament apex showing eglandular trichomes; H: gynoeceum; I: capsule; J: seed. – A, E–J from A. P. Janeesha & Santhosh Nampy 134270; B–D from K. M. Manudev & A. P. Janeesha 134206. – Drawn by A. P. Janeesha.

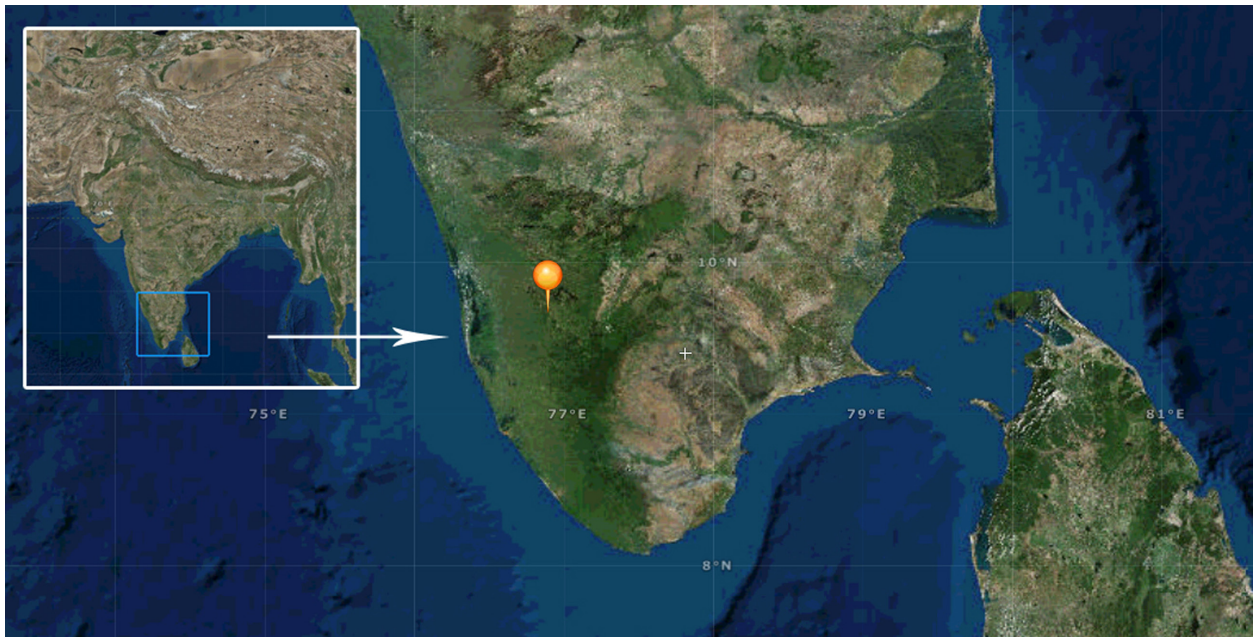


Fig. 3. *Henckelia bracteata* – type locality (extent of currently known distribution).

Burt in the shape of its leaves, the presence of bracts, and in having scapes much longer than the leaves, but is readily distinguished by its cymes having a greater number of flowers (14–38), its large elliptic to obovate bracts, ovate calyx lobes, and the presence of eglandular trichomes at the junction of the anther lobes and filaments.

Description — Herbs perennial, with rootstocks, stemless, scapigerous, hairy. *Roots* adventitious, thin. *Leaves* 8–14, basal; *petiole* 2–9 cm long, pubescent, winged, wings 2–3 mm wide; *leaf blade* elliptic-ovate, 5.5–12.5 × 3–9 cm, thick, surfaces usually rugose, both surfaces tomentulose, but more so on younger leaves and on veins abaxially, becoming less so with age, base narrowly cuneate to attenuate, margin shallowly crenate, apex acute or obtuse to rounded; *veins* 5 on each side of midrib, much branched and conspicuous abaxially. *Inflorescences* axillary, densely cymose; *cymes* 1–11 per plant, 3–5 (or 6) times divided, 14–38-flowered, pubescent; *peduncle* reddish brown, terete, 14–32 cm long, pubescent; *bracts* 2 at each branching point, elliptic to obovate, 10–21 × 5–8 mm, tomentose, margin crenate, apex obtuse to rounded; *pedicels* narrowly terete, 2–10 mm long, eglandular pubescent. *Flowers* zygomorphic, 10–20 × 4–9 mm. *Calyx* 5 (or 6)-partite, very deeply divided or basally connate; *lobes* reddish brown, ovate, 3–4 × 1–2 mm, unequal, white tomentose, margin entire, apex slightly acute. *Corolla* campanulate, 5-lobed, villous outside, glabrous inside; *tube* lilac to pale lilac with a yellow patch in throat, 7–9 × 5.5–7.5 mm; *lobes* pale lilac to lilac, 5.2–7 × 7.4–8.3 mm, unequal, apex ovate to rounded. *Stamens* 2, adnate to base of corolla, included; *filaments* colourless toward base and green at apex, 4–6 mm long, glabrous or sparsely pubescent toward region of connective; *anthers* bithecate, coherent by adaxial sur-

face, milky white, reniform, 1.5–1.8 × 0.8–0.9 mm, with eglandular trichomes at junction of anther lobes and filament. *Staminodes* (2 or) 3; *filaments* hyaline, 2.5–3 mm long, glabrous; *antherodes* not seen. *Ovary* unilocular, green, ovoid to oblong, 5–7 × 1.25–1.5 mm, pubescent, placentation parietal; *style* green, terete, 2–2.5 mm long, glabrous; *stigma* 0.8–1.1 × 0.5–0.82 mm, papillate. *Capsule* reddish brown, cylindrical, straight or slightly curved, stout, 18–30 × 1.6–2 mm, tomentulose with rudimentary stigma. *Seeds* numerous, elliptic, 0.4–0.6 × 0.2–0.25 mm, base truncate, apex slightly acute; *testa* dark brown to black, pitted.

Phenology — The new species flowers and fruits from July to October.

Distribution and ecology — *Henckelia bracteata* is endemic to the S Western Ghats, currently known only from the type locality, Kurisumala in Kottayam district (Fig. 3). The species grows in wet humus in granite rock crevices at altitudes of c. 1100 m. It is found in association with species of grasses (*Poaceae*), *Mitracarpus* Zucc. (*Rubiaceae*), *Selaginella* P. Beauv. (*Selaginellaceae*), several mosses, and *Porella* L. (*Porellaceae*).

Conservation status — *Henckelia bracteata* is currently known only from three populations in an unprotected area, separated by a distance of only 30–50 m. A total of only 42 mature individuals was found in the area. Therefore the species may be assessed as Critically Endangered CR B1ab(iii)+2ab(iii); D (IUCN 2012), considering the future possibility of further ecological disturbances.

Etymology — The specific epithet “*bracteata*” refers to the very prominent bracts of the new species.

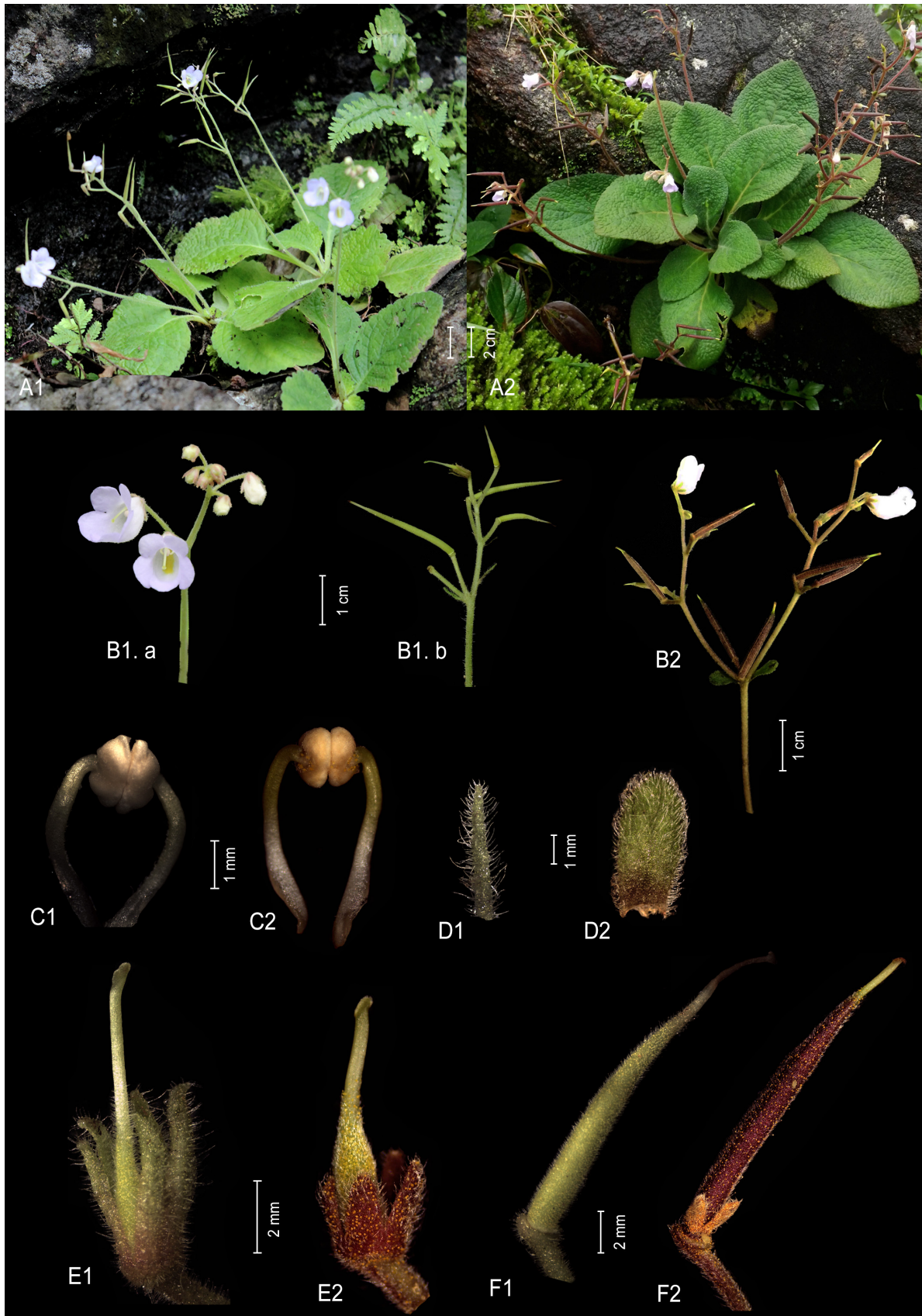


Fig. 4. Comparison of *Henckelia humboldtiana* (1) and *H. bracteata* (2) – A: habit; B: inflorescence; C: stamens; D: bract; E: calyx enclosing pistil; F: capsule. – A1: India, Kerala, Kozhikkode district, Malabar Wildlife Sanctuary, 21 Aug 2014, photographed by Santhosh Nampy; A2: type locality of *H. bracteata*, 7 Aug 2014, photographed by A. P. Janeesha; B1–F1 from A. P. Janeesha & Santhosh Nampy 134221; B2–F2 from A. P. Janeesha & Santhosh Nampy 134270.



Fig. 5. Lectotype specimen of *Didymocarpus humboldtianus* (\equiv *Henckelia humboldtiana*): Gardner 600 (K000858189). © The Board of Trustees of the Royal Botanic Gardens, Kew. Reproduced with the consent of the Royal Botanic Gardens, Kew.

Remarks — *Henckelia bracteata* is robust and dull green, with the peduncle, pedicel, calyx and capsules generally reddish brown. Although the margin of the leaf blade is crenate, the crenation is shallow when compared to the similar *H. humboldtiana*, which is distributed in S India and Sri Lanka. The corolla is pale lilac with a yellow blotch at the throat in its natural habitat, but in cultivation in the

greenhouse at the University of Calicut (60 m in altitude), the corolla colour is dark lilac or violet. The morphological differences between *H. bracteata* and *H. humboldtiana* are illustrated in Fig. 4 and summarized in Table 1.

Additional specimens seen (paratypes) — INDIA: KERALA: S Western Ghats, Kottayam district, Kurisumala, 17

Table 1. Comparison of *Henckelia bracteata* and *H. humboldtiana*.

Character	<i>Henckelia bracteata</i>	<i>Henckelia humboldtiana</i>
Leaf blade	thick, base narrowly cuneate to attenuate	thin, base slightly cordate to cuneate
Scape	3–5 (or 6) times divided, with 14–38 flowers	c. 3 times divided, with 8–12 flowers
Bracts	elliptic to obovate, 10–21 × 5–8 mm	oblong, c. 6 mm long
Pedicel	2–10 mm long, not glandular hairy	12–18 mm long, glandular hairy
Calyx lobes	ovate, 3–4 × 1–2 mm, reaching c. ½ length of ovary	linear, 5–6 × 0.5–0.6 mm, always reaching length of ovary
Stamens	with eglandular trichomes at junction of anther lobes and filament	without trichomes at junction of anther lobes and filament
Capsule	reddish brown, stout, 18–30 × 1.6–2 mm	green, thin, 12–25 × 1–1.2 mm

Aug 2013, K. M. Manudev & A. P. Janeesha 134206 & 134209 (CALI); *ibid.*, way to 6th cross, 7 Aug 2014, A. P. Janeesha & A. P. Roshan 134268 (CALI); *ibid.*, near to 6th cross, 7 Aug 2014, A. P. Janeesha & A. P. Roshan 134269 (CALI).

Lectotypification of *Didymocarpus humboldtianus*

Didymocarpus humboldtianus Gardner in Calcutta J. Nat. Hist. 6: 477. 1846 [*“humboldtiana”*] ≡ *Roettlera humboldtiana* (Gardner) Kuntze, Revis. Gen. Pl. 2: 476. 1891 ≡ *Henckelia humboldtiana* (Gardner) A. Weber & B. L. Burt in Beitr. Biol. Pflanzen 70: 346. 1998. – **Lectotype (designated here):** Sri Lanka [*“Ceylon”*], Rambodde, Gardner 600 (K000858189; isolectotype: K000858188).

Henckelia humboldtiana was first described as *Didymocarpus humboldtianus* (Gardner 1846), from Ceylon (i.e. Sri Lanka), with the citation: “Hab. – On moist shady rocks above Rambodde; at an elevation of from 4000–5000 feet above the sea.” As per the protologue, the species is characterized by an ovate-elliptic leaf blade with tomentose hairs, subcordate base, crenate margin and obtuse apex, longer scapes that divide three times, with oblong bracts and linear calyx lobes. Weber & Burt (1997) transferred this species to *Henckelia* along with many other species of *Didymocarpus*. While searching for Gardner’s materials in different herbaria it was found that there are two sheets at K, both apparently part of a single gathering, Gardner 600. One sheet (K000858188) bears a small label annotated “600 | Gardn | Ceylon” and four plants in flower, one of them also with a young fruit. The other sheet (K000858189) bears a larger label annotated “600. | *Didymocarpus Humboldtiana* [sic!], Gardn. | Rambodde, Ceylon” and three plants in flower, one of them also with several well-developed fruits. The latter sheet is the better specimen and is therefore selected here as the lectotype (Fig. 5).

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References

- Gardner G. 1846: Contributions towards a flora of Ceylon, being descriptions of several new species of plants belonging to the tribe *Cyrtandreae*. – Calcutta J. Nat. Hist. **6**: 471–493.
- IUCN 2012: IUCN Red List categories and criteria. Version 3.1, ed. 2. – Gland & Cambridge: IUCN.
- Manudev K. M., Weber A. & Nampy S. 2012: *Henckelia pradeepiana*, a new species of *Gesneriaceae* from southern Western Ghats, India. – *Rheedea* **22**: 119–123.
- Middleton D. J., Weber A., Yao Y. T., Sontag S. & Möller M. 2013: The current status of the species hitherto assigned to *Henckelia* (*Gesneriaceae*). – *Edinburgh J. Bot.* **70**: 385–404.
- Rajakumar T. J. S., Selvakumari R., Murugesan S. & Chellapperumal N. 2009: *Didymocarpus sivagiriensis*, a new species of *Gesneriaceae* from Tirunelveli district, Tamil Nadu, India. – *Indian J. Forest.* **32**: 481–483.
- Santhosh Kumar E. S. 2014: A new combination in *Henckelia* (*Gesneriaceae*). – *Polish Bot. J.* **59**: 149.
- Weber A. & Burt B. L. 1997: Remodelling of *Didymocarpus* and associated genera (*Gesneriaceae*). – *Beitr. Biol. Pflanzen.* **70**: 293–363.
- Weber A., Middleton D. J., Forrest A., Kiew R., Lim C. L., Rafidah A. R., Sontag S., Triboun P., Wei Y.-G., Yao T. L. & Möller M. 2011: Molecular systematics and remodelling of *Chirita* and associated genera (*Gesneriaceae*). – *Taxon* **60**: 767–790.