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# *Lysionotus bijantiae* is identified as a new synonym of *Henckelia oblongifolia* (Gesneriaceae)

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**Abstract:** A recently described new species of Gesneriaceae, *Lysionotus bijantiae* D. Borah & A. Joe, was misidentified; it is conspecific with *Henckelia oblongifolia* (Roxb.) D. J. Middleton & Mich. Möller [previous *Chirita oblongifolia* (Roxb.) Sinclair]. We treat *Lysionotus bijantiae* as a new synonym for *Henckelia oblongifolia* by examining relevant specimens and literature. At the same time, we also describe the characteristics and distinguishing methods of the two genera *Henckelia* Spreng. and *Lysionotus* D. Don.

**Keywords:** Gesneriaceae, *Lysionotus*, *Henckelia*, new synonym

**CLC number**: Q949 **Document code**: A

# 苦苣苔科植物 *Lysionotus bijantiae* 的名实订正

**基金项目**: 国家科技基础资源调查专项项目(2017FY100100); 第二次青藏高原综合科学考察研究项目(2019QZKK0502); 中国科学院重点部署项目(KFJ-3W-No1); 广西科学院科学研究基金(2017YJJ23022) [Supported by the Science & Technology Basic Resources Investigation Program of China (2017FY100100); the Second Tibetan Plateau Scientific Expedition and Research (STEP) Program (2019QZKK0502); the STS Program of the Chinese Academy of Sciences (KFJ-3W-No1); Science Research Foundation of Guangxi Academy of Sciences (2017YJJ23022)]。

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**摘要**：通过查阅相关文献和标本，我们发现近期发表的苦苣苔科吊石苣苔属植物一新种——*Lysionotus bijantiae* D. Borah & A. Joe 实为鉴定错误，应是汉克苣苔属的长圆叶汉克苣苔(*Henckelia oblongifolia* (Roxb.) D.J.Middleton & Mich. Möller) [原长圆叶唇柱苣苔 *Chirita oblongifolia* (Roxb.) Sinclair]。因此，我们将 *Lysionotus bijantiae* 处理为 *Henckelia oblongifolia* 的新异名，同时我们也提供了吊石苣苔属和汉克苣苔属的的区分方法和主要识别特征。

**关键词**：苦苣苔科，吊石苣苔属，汉克苣苔属，新异名

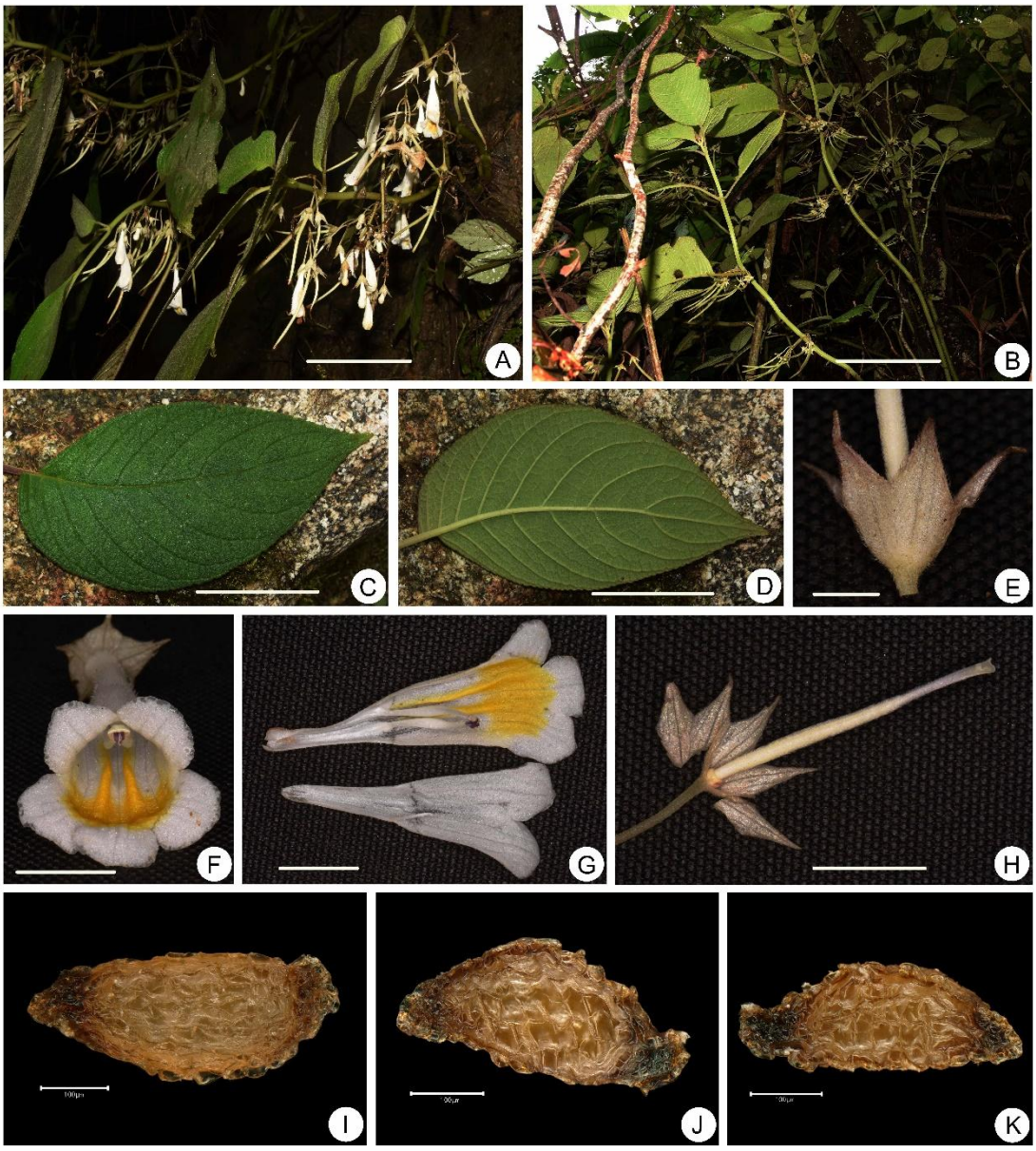


## Introduction

Recently, a new Gesneriaceae species, *Lysionotus bijantiae* D. Borah & A. Joe from the southern slopes of the Himalayas was described, and only based on morphological characters (Borah & Joe, 2018). The authors pointed out that the new species differs from *Lysionotus gamosepalus* W.T.Wang in having erect sub-shrub habit, pubescent stem/leaves/peduncles/petioles, lanceolate and villous bracts, hairy calyx, cream corolla, curved filaments, connective not prolonged into an appendage, and cream and pubescent pistil. The description and the color plates are clear. The characters listed in the description make this plant a good new species of *Lysionotus* D.Don, but that's not the case after other key features are examined more carefully. For example, the authors described as “seeds numerous with hair-like appendages on each end”, but did not provide images of seeds for this species in the paper. However, seeds from the mature capsules respectively collected from the type locality in 2020 and Motuo County, Xizang Autonomous Region, China in 2017 both have no appendages at either end of the seeds, and which indicates the new species does not belong to the genus *Lysionotus*. In addition, there are three staminodes, and not two as

reported in the original description, with a middle staminode significantly smaller than the others on the sides, therefore extremely easy to neglect. The species is also mistakenly identified as *Henckelia anachoreta* (Hance) D. J. Middleton & Mich. Möller in the taxonomic account from northeast India, although the color plate clearly showed its morphological character (Sinha & Datta, 2016). These characters above mentioned are not in accordance with the new species of *Lysionotus* but well identical with *Henckelia oblongifolia* (Roxb.) D.J. Middleton & Mich. Möller (Wang et al., 1990, 1998; Weber et al., 2011) (Fig. 1).

The genus *Henckelia* Spreng. now consists of more than 60 species mainly distributed in southern, southeastern Asia and adjacent areas after the remodeling and summary (Weber et al., 2011; Ranasinghe et al., 2016). Thirty-three species are known to occur in India (Janeeha & Nampy, 2015; Möller et al., 2017; Borah et al., 2019) and 26 species in China (Möller et al., 2016; Xu et al., 2017; Cai et al., 2019; Wen et al., 2019; Yang et al., 2019). A comparison of relevant images (Fig.1), specimens (Fig.2) and literature/monographs/local floras confirms that *Lysionotus bijantiae* is conspecific with *Henckelia oblongifolia*.




**A**. Plants with flowers & young fruits; **B**. Plants with fruits; **C**. Adaxial leaf surfaces; **D**. Abaxial leaf surfaces; **E**. Calyx; **F**. Corolla mouth; **G**. Opened corolla showing stamens and staminode; **H**. Pistil with calyx; **I-K**. Seeds. Scale bars: **A**, **C** & **D** = 5 cm; **B** = 10 cm; **E** = 5 mm; **F**, **G** & **H** = 1 cm; **I**, **J** & **K** = 100 μm.

Fig. 1 *Henckelia oblongifolia*




Fig.2. Lectotype of *Henckelia oblongifolia*

## Taxonomic treatment

***Henckelia oblongifolia*** (Roxb.) D.J. Middleton & Mich. Möller, Taxon. 60: 776. 2011. *Chirita oblongifolia* (Roxb.) J.Sinclair, in Bull. Bot. Soc. Bengal. 9: 102. 1957; *Chirita oblongifolia* (Roxb.) B.L.Burtt, in Notes. Roy. Bot. Gard. Edinburgh 22: 307. 1958, comb. superfl; Wood, 1. c. 33 (1): 174. 1974; Wang, in Bull. Bot. Res. 5(3): 70. 1985. *Incarvillea oblongifolia* Roxb. Fl. Ind. ed., 2, 3: 113. 1832. *Chirita acuminata* Wall. ex R.Br., in Cyrtandreae: 117. 1839, nom. nud.; *Chirita acuminata* Steud., in Nomencl. Bot., ed. 2, 1: 351. 1840, nom. nud.

***Lysionotus bijantiae*** D.Borah & A.Joe, Taiwania 63(3): 232, 2018, **syn. nov.** "**Type: INDIA:** Arunachal Pradesh. Lower Subansiri District, Potin, 27º33′88.75″ N 93º79′79.64″ E, 22 Oct. 2017, *Dipankar Borah 121989* (holotype CALI; isotypes CALI, ARUN)".

The type information was cited from the paper (Borah & Joe, 2018), the initial longitude in the coordinates obviously inaccurate because of the emergence of 79′, and the coordinates should be revised to "27º20′13.03″ N, 93º47′24.51″ E" after the confirmation. The original record showed that the type specimen was collected from India. However, when the revised coordinates ("27º20′13.03″ N, 93º47′24.51″ E") were marked on the online database of the map (Map World, 2020), the site was located in Cuona County, Xizang Autonomous Region, China. Therefore, we dispute the type locality information in the initial description. Here, we just focus on solving the scientific problem and treating *Lysionotus bijantiae* as a new synonym of *Henckelia oblongifolia*.

**Lectotype: BANGLADESH.** Chittagong, October 1810, *Roxburgh 238* (BM!). (Lectotypified by Wood in Notes. Roy. Bot. Gard. Edinburgh. 33: 174. 1974).

**Phenology:** Flowering from August to October; fruiting from September to December.

**Distribution:** Bangladesh, Bhutan, China (Xizang and Yunnan), northeastern India and northern Myanmar.

**Specimens examined: CHINA.** Xizang, Motuo County: Bangxin, Lanlong-Yajiang, 1 100 m, 28 December 1982, *B.S. Li* & *S.Z. Cheng 02324* (PE); Beibeng, 750 m, 17 August 1974, *Qingzangdui 4307* (KUN); Beibeng, Xigong Lake, 1 500 m, 10 March 1983, *B.S. Li* & *S.Z. Cheng 02900* (PE); Beibeng-Motuo, 960 m, 04 August 1974, *Qingzangdui 1550* (PE); Damu-103k, 1 400 m, 29 October 1982, *B.S. Li* & *S.Z. Cheng 01560* (PE); East of Dexing Bridge, 870 m, 8 February 1983, *B.S. Li* & *S.Z. Cheng 03554* (PE); Miri-Motuo, 750 m, 5 September 1974, *Qingzangdui 5055* (KUN);

Motuo-Dexing Bridge, 736 m, 9 October 2017, *L. Cai & Z.L. Dao CL009* (KUN); Xianaba-Damu,1 900 m, 26 October 1982, *B.S. Li* & *S.Z. Cheng 01364* (PE); Ximeng River, 900 m, 22 August 1980, *W.L. Chen 14459* (PE); Yarang River, 900 m, 10 September, *W.L. Chen 15047* (PE). Yunnan: Gongshan County, Dulong River, Dadieshui, 1 300 m, 18 December 1990, *Dulongjiangkaochadui 1173* (KUN); Gongshan County, Dulong River, Qinlangdang, 1 300 m, 10 March 1991, *Dulongjiangkaochadui 4464* (KUN); Kiukiang Valley, South of Kongpong, 1 200 m, 26 September 1938, *T.T. Yu 20458* (PE, E). **BANGLADESH**. East Bengal, April 1863, *Herbarium of the late East India Company 3829* (P); Kelaciili, 8 December 1944, *J. Sinclair 3853* (E); Pundua, *F. De Silva* 802 (K). **BHUTAN.** Near Zimgang, shongar Chu nr Mongar, 1 475 m, 15 June 1979, *A.J.C. Grierson & D.G. Long 1964* (E). **INDIA.** Assam, Dehho, 700 ft. (ca. 213 m), 29 March 1895, *11044* (P); Assam, Haflong, 2 500 m, August 1908, *William G Craib 192* (E); Assam, *Master* (P); Niwoa to wawa, 1 441 m, 2 September 1958, *G. Panigrahi 15046* (E); 5 000 ft. (ca. 1 524 m), 1 September 1892, *Dr King* (E, P); Pynursla, 25 November 1956, *G. Panigrahi 4633* (E); Pynursla, Khasi, Hills, 4 000 ft. (ca. 1 219 m), 23 August 1949, *T.R. Chand 2059* (E); Lower Subansiri District, Potin, 1 Nov. 2017, *D. Borah 121990* (CALI); Lower Subansiri District, Potin, 21 Jan. 2020, *D. Borah 5067* (HAU 2029). **MYANMAR.** Kachin State: Ndum-Zup to Hpuginhku, 6000–6500 ft. (ca. 1 830–1 980 m), 30 December 1961, *J. Keenan, U Tun Aung & Tha Hla 3092* (E); Namnca to Nammuca, 1 000 ft. (ca. 305 m), 1910, *J.H. Lace 5187* (E); Sorrounds of Hpuginhku 5 000 ft. (ca. 1 524 m), February 1962, *J. Keenan, U Tun Aung & Tha Hla 3691* (E); Upper Burma: Nwai Valley, 9 September 1914, *F. Kingdon-Ward 1931* (E); Upper Chinawin: Kodan Channg near Yeson Camp, 800 ft. (ca. 244 m), 26 November 1917, *C. Gilbert Rongers 1023* (E); Valley of the Nam Tamai, 3 September 1937, *F. Kingdon-Ward 13122* (E). **Country of origin:** not specified: P03884206 (P); P03884207 (P); P03884209 (P); P03884210 (P); P03884213 (P); P038842134 (P).

## Notes

In the traditional classification of Chinese Gesneriaceae, the genus *Lysionotus* was deposited into Trib. Trichosporeae Fritsch, Subfam. Cyrtandroideae Burnett, based on the understanding that seeds of all species of *Lysionotus* have appendages at each end of the spindly seed. In *Henckelia*, there are no appendages on the apexes of the seed (Wang et al., 1990, 1998; Li & Wang, 2005).

The scanned seed morphology of this species shows that it should not belong to *Lysionotus* because it lacks appendages at each end of the seed. The species, *Lysionotus bijantiae*, cannot be distinguished from other many collected specimens of *Henckelia oblongifolia* from Bangladesh, Bhutan, China, India and Myanmar, which are stored in BM, CALI, HAU, KUN, PE, E and P.

*Lysionotus* was once divided into three sections, Sect. *Didymocarpoides* W.T. Wang, Sect. *Lysionotus* and Sect. *Cyathjocalyx* W.T. Wang (Wang, 1983). The vast majority of *Lysionotus* species share a special character: leaves usually many, along stem, whorled by three ones. Although the description of three species in Sect. *Didymocarpoides* (*Lysionotus longipedunculatus* (W.T. Wang) W.T. Wang, *L. oblongifolius* W.T. Wang and *L. denticulosus* W.T. Wang) show their leaves are opposite, but their leaves are usually whorled after carefully observation for specimens and living plants in the field (Li & Wang, 2005). There are a few species, *L. wilsonii* Rehd., *L. sulphureus* Hand.-Mazz., *L. kwangsiensis* W.T. Wang in Sect. *Lysionotus* and only one specie, *L. chingii* Chun ex W.T. Wang, in Sect. *Cyathjocalyx* having opposite leaves (Wang, 1975a, 1975b). Furthermore, the key characters to distinguish Sect. *Didymocarpoides* from other two sections are as below: erect subshrub, no phellem on stem, chartaceous leaf blades, smaller flowers, calyx 5-sect from base, shorter subulate appendages (0.1–0.25 mm long) on the apexes of the seed. So, although *Lysionotus bijantiae* looks like a member of Sect. *Didymocarpoides* in appearance, it is entirely different from *Lysionotus* because of the lack of appendages at each end of the seed.

**Acknowledgements:** We are grateful to Mr. Lian-Yi Li for scanning the seeds of this species, and we thank Momang Taram and Rubu Rinyo for their help in the field. Sincere thanks are given to Michael Möller, the Royal Botanic Garden Edinburgh, Stephen Maciejewski, the Gesneriad Society and Michael Lo-Furno, Temple University for their assistance on species identification, editing and providing valuable suggestions.

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