

Notes on the Genus *Rhynchotechum* Blume (Gesneriaceae) in Taiwan

Zhen-Yu Li^(1, 3) and Chang-Fu Hsieh⁽²⁾

(Manuscript received 26 February 1997; accepted 30 April 1997)

ABSTRACT : *Rhynchotechum discolor* (Maxim.) Burt var. *incisum* (Ohwi) Walker, a variety confined to the Okinawa Island in Japan, is here reported from southern Taiwan for the first time. *R. ellipticum* DC. var. *saurauifolium* (S. S. Ying) S. S. Ying is treated as a synonym of *R. formosanum* Hatusima. A key to the taxa of this genus in Taiwan is given and about 80 specimens examined from Taiwanese herbaria are cited.

KEY WORDS : *Rhynchotechum*, New record, Synonym, Taiwan.

INTRODUCTION

Rhynchotechum (Gesneriaceae) is a small genus only confined to the Old World. The botanical exploration of eastern Asia by the European at the end of 1800s led to the discovery of the first species of the genus from Taiwan: *Isanthera discolor* Maxim. (Forbes and Hemsley, 1889; Henry, 1895), which was later transferred to the present genus by Burt (1962). In 1939 Hatusima named *R. formosana*, based on a specimen from northern Taiwan. Kao and DeVol (1972) provided a treatment of Gesneriaceae for Taiwan, including the above mentioned two species. Recently, Ying (1987, 1989) has described a new taxon, *R. ellipticum* var. *saurauifolium* as being distinct from *R. formosana*.

The present treatment is based on extensive field observations. Materials from herbaria TAI, NTUF, PPL, TAIF and TNM were also studied. *Rhynchotechum discolor* (Maxim.) Burt var. *incisum* (Ohwi) Walker, a variety confined to the Okinawa Island in Japan, is here reported from southern Taiwan for the first time. *R. ellipticum* var. *saurauifolium* is treated as a synonym of *R. formosanum*.

TAXONOMIC TREATMENT

Rhynchotechum Blume

Rhynchotechum Blume, Bijdr. 775. 1826; Benth. et Hook. f., Gen. Pl. 2: 1016. 1876;

1. Institute of Botany, the Chinese Academy of Sciences, Xiangshan, Beijing 100093, China.

2. Department of Botany, National Taiwan University, Taipei 106, Taiwan, Republic of China.

3. Corresponding author.

Clarké in A. DC., Monogr. Phan. **4**:194. 1883; Burt in Not. Bot. Gard. Edinb. **24**: 36. 1962; W. T. Wang in Guihaia **4**(3): 185. 1984, *et* in Fl. Reip. Pop. Sin. **69**: 557. 1990.
Type species: *R. parviflorum* Blume.

Isanthera Nees in Trans. Linn. Soc. Lond. 17: 82. 1834. Type species: *I. permollis* Nees (= *R. permolle* (Nees) Burt).

Chiliandra Griff., Notul. Pl. Asiat. 4: 150. 1854. Type species: *C. obovata* Griff. (= *R. obovatum* (Griff.) Burt).

Subshrubs or small shrubs, terrestrial, often with dense indumentum. Cymes axillary, pedunculate; bracts 2, opposite. Calyx 5-sect, divided to base, persistent. Corolla white to purplish, broadly tubular, glabrous. Disc ringlike or wanting. Stamens 4, adnate usually near corolla base, included; filaments short, linear; anthers subglobose, free; thecae parallel, dehiscing longitudinally, confluent at apex; staminode 1 or wanting. Ovary ovoid, 1-loculed; style longer than ovary; stigma 1, depressed globose. Berry subglobose. Seeds elliptic, smooth, not appendaged.

Approximately 14 species. Distributed from Sri Lanka, S. India, E. Himalayas to S. China and the Philippines, south-eastwards to New Guinea (Burt, 1962); two species occur in Taiwan.

Key to the taxa of *Rhyncholechum* in Taiwan

1. Leaves alternate; corolla tube *ca.* 1 mm long, upper and lower lips *ca.* 3 mm long; berry ovoid, *ca.* 5 mm long.
 2. Leaf-blades serrate 1a. *R. discolor* var. *discolor*
 2. Leaf-blades middle-lobed to shallow lobed, or coarsely few-toothed 1b. *R. discolor* var. *incisum*
1. Leaves opposite; corolla tube *ca.* 2 mm long, upper *ca.* 1 mm, lower lips *ca.* 2 mm long; berry subglobose, 6-8 mm long 2. *R. formosanum*

1. ***Rhyncholechum discolor*** (Maxim.) Burt in Not. Bot. Gard. Edinb. **24**: 37. 1962; Kao *et* DeVol in *Taiwania* **17**: 163. 1972, in Li *et al.* (eds.), *Fl. Taiwan* **4**: 681, *pl.* 1156. 1978; W. T. Wang in *Guihaia* **14**(3): 188. 1984, *et* in *Fl. Reip. Pop. Sin.* **69**: 563. 1990.

1a. ***Rhyncholechum discolor*** (Maxim.) Burt var. ***discolor***.

Isanthera discolor Maxim. in Bull. Acad. Sci. St. Petersburg. 19: 538. 1874; Clarke in A. DC., Monogr. Phan. 5: 192. 1883; Merr. in *Lingnan Sci. J.* 15: 427. 1896. Type: Taipei Co., Tamsui, 1864, *R. Oldham* 380 (holotype, K; isotype, P).

Subshrubs. Stems 25-45 cm high, apically densely appressed brown pubescent. Leaves alternate, appressed brown pubescent; petiole 0.7-2.5 cm long; leaf blade oblong-oblongate, oblong or narrowly elliptic, 6.5-16 cm long, 2.5-5 cm broad, papery or herbaceous, adaxially glabrescent, base attenuate, margin irregularly denticulate, apex slightly acute; lateral veins 7-12 pairs. Cyme 6-25-flowered, densely appressed brown pubescent; bracts lanceolate, 5-8 mm long; pedicels 1-4 mm long. Calyx segments linear, *ca.* 5 mm long, 0.5 mm broad, outside densely appressed brown pubescent, inside glabrous. Corolla *ca.* 4 mm long, lower lip nearly as long as upper lip. Berry white, ovoid, *ca.* 5 mm long, puberulous.

Distribution: Taiwan, Hainan, E. Guangdong, S. Fujian; the Ryukyu Islands, the Philippine Islands (Luzon, Alabat Island); reported also for New Guinea (Burt 1962).

Flowering from July to December; fruiting from August to February.

Habitat: Shady places in valley forests, streamsides or wet cliffs; 100-1900 m alt.

Taipei City: Chanchushan, *G. Masamune* 1382 (TAI); Muzishan, *Y. M. Hsu* 0192 (TAI); Shamaoshan, *Y. Simada* s. n. Dec. 13, 1914; Shantzuohou, *S. H. Lin* 386 (TAI); Tatungshan, *S. F. Huang* 958 (TAI); Yangmingshan, *S. Sasaki* s. n. Dec. 29, 1935 (TAI), *T. C. Huang* 9709 (TAI), *Kao & Chuang* 1676 (TAI), *K. C. Yang* 612 (TAI); Yangmingshan-Chihsingshan, *C. C. Hsu* 3156 (TAIF). **Taipei Co.:** Chintienkun, *C. C. Wang* 664 (TAI); Fouling waterfall, *K. C. Yang* 540 (TAI); Hsiackotou, *S. F. Huang* 4342 (TAI); Hsintien, *T. H. Hsieh* 903 (TAI); Kyudaiensyurin, *S. Sasaki* s. n. Oct. 17, 1932 (TAI); Peichatienshan, *B. L. Shie* 1027 (TAI); Pinglin, *P. B. Shyu*, s. n. Jan. 15, 1996 (TAIF); Sanhsia, *G. Masamune* s. n. Dec. 30, 1929 (TAI); Shoeiyuaninshan, *B. L. Shie* 1139 (TAIF); Toutingli Reserved Zoo, *C. M. Kuo* 9978 (TAI); Tutanshan, *C. M. Kuo* 10204 (TAI); Urai, *T. C. Huang* 9131 (TAI); Wenshan, *T. H. Hsieh* 903 (TAI), *H. Shimizu* 477 (TAI); Yinhotung, *J. C. Wang* 2742 (TAI). **Ilan Co.:** Bonbonshan, *M. T. Kao* 5960 (TAI), *Y. M. Hsu* 0566 (TAI); Oobishan, *G. Masamune* s. n. Apr. 23, 1938 (TAI); Shenmi Lake, *T. C. Huang* & *S. F. Huang* 13406 (TAI); Taipingshan, *T. C. Huang* 3973 (TAI). **Taoyuan Co.:** Chatienshan, *T. Suzuki* s. n. July 15, 1931 (TAI). **Hsinchu Co.:** Chinpingshan, *S. Uchida* s. n. Dec. 21, 1927 (TAI). **Miaoli Co.:** Tahu, *Y. C. Cheng* 123 (TAI). **Nantou Co.:** Neimaopu, *S. Sasaki* s. n. Dec. 13, 1923 (TAI); Chingshuikou, *C. C. Kuo* s. n. Oct. 30, 1958 (NTUF); Chitou, *I. M. Liu* & *M. T. Kao* 3045 (TAI), *M. T. Kao* 7862 (TAI), *C. T. Moo* 2094 (TAI), *C. F. Hsieh* 1358 (TAI), *T. Y. Yang* 1007 (TAI), *C. S. Feung* & *M. T. Kao* 322 (TAI); Meifeng, *G. Masamune* & *T. Nakamura* 2392 (TAI); Nenkaoshan, *T. C. Huang* & *M. T. Kao* 6177 (TAI); Sun Moon Lake, *Y. Kudo* & *S. Sasaki* 15354 (TAI), *S. Sasaki* s. n. Sept. 12, 1929 (TAI). **Chiayi Co.:** Alishan, *M. T. Kao* 5637 (TAI); Chinsuliao, *H. F. Yen* 1482 (TAI), *H. F. Yen* & *M. T. Kao* 10734 (TAI). **Kaohsiung Co.:** Maolin, *K. C. Wang* et al. 9685 (TAIF); Peinanchushan, *T. Yamazaki* et al. 340 (TAI); Sanpin, *T. C. Huang* 4921 (TAI). **Pingtung Co.:** Chinshuiying, *S. F. Huang* 330 (TAI); Kaoshih, *Y. Kudo* & *S. Suzuki* 15989 (TAI); Lilongshan, *T. Y. Yang* 1240 (TAI); Machia, *T. C. Huang* & *M. T. Kao* 7377 (TAI); Naiyi, *T. C. Huang* et al. 16079 (TAI); Nanjenshan, *C. H. Ou* & *M. T. Kao* 9053 (TAI), *S. F. Huang* 1130 (TAI), *T. Y. Yang* 251 (TAI). **Taitung Co.:** Chuifen, *S. Suzuki* 10718 (TAI); Daibugoshan, *S. Suzuki* 7066 (TAI); Kutzulunshan, *Kao & Chuang* 1137 (TAI); Lanyu (Orchid Island), *Y. Tashiro* s. n. Aug. 1911 (TAIF), *T. C. Huang* & *M. T. Kao* 6254, 6266 (TAI), *C. F. Hsieh* 1553 (TAI), *J. T. Wu* 1553 (TAI); Lutao (Green Island), *S. Sasaki* s. n. July 5, 1935 (TAI). **Hualien Co.:** Tungli, *S. Sasaki* s. n. Aug. 19, 1929 (TAI); Yuli, *Y. Yamamoto* & *K. Mori* 8437 (TAI).

1b. *Rhynchoatechum discolor* (Maxim.) Burt var. *incisum* (Ohwi) Walker in J. Jap. Bot. **46**: 69. 1971, et Fl. Okinawa and S. Ryukyu Isl. 946. 1976. Figs. 1 & 2

Isanthera discolor Maxim. var. *incisa* Ohwi in Acta Phytotax. Geobot. **7**: 29. 1938. Type: Japan, Okinawa, Kunigami, Nago-dake, August 8 1937, *T. Kanashiro* 9 (holotype, KYO; isotype, TAI).

The variety can be distinguished from the species primarily by its incised leaves.

Distribution: Taiwan Island (Pingtung) and Okinawa Island (Kunigami).

Pingtung Co.: Nanjenshan, *C. E. Chang*, s. n. Nov. 17 1968 (PPL), roadside, Feb. 2 1985, *T. Y. Yang* 1091 (TAI).

2. *Rhynchoatechum formosanum* Hatusima in J. Jap. Bot. **15**: 132, fig. 1. 1939; Kao et DeVol in Taiwania **17**: 163-164. 1972, Li et al. (eds.), Fl. Taiwan **4**: 684. 1978; W. T. Wang in Guihaia **4** (3): 185. 1984, et in Fl. Reip. Pop. Sin. **69**: 559. 1990. Type: Taipei Co., Kankou (24°56'02"N, 121°37'09"E), *S. Hatusima*, s. n. Oct. 30, 1932 (holotype, FU).



① *Isanthera discolor* Maxim. は *Isanthera discolor* var. *incisa* Ohwi との別名区別は葉が裂るだけである。(花、果は同じ)

Rhynchosycheum discolor (Maxim.) Burtt.

DET. BY M. T. KAO

DATE VI. 30, 1972

100630

Isotype!

Herbarium Imperiale Taihokuense
臺北帝國大學標本

Rhynchosycheum discolor (Maxim.) Burtt. var. *incisum* (Ohwi) Walker
— *Isanthera discolor* Maxim. var. *incisum* Ohwi

In type! 100630



金城鉄郎採集標品 第 9 號	
<i>Isanthera discolor</i> Maxim.	
名 稱	var. <i>incisa</i> Ohwi var. <i>nov.</i> キレハノヤビノコ
科 名	科
採集地	沖繩縣那覇郡名護町名護
採集年月日	1959年 5月 20日
採集者	金城鉄郎

Fig. 1: Isotype of *Rhynchosycheum discolor* (Maxim.) Burtt var. *incisum* (Ohwi) Walker, T. Kanashiro 9 (TAI).

Lysimachia saurauifolia S. S. Ying in Quart. J. Chinese Forest. 20 (4): 123, pl. 1, f. 1. 1987. Type: Taipei Co., Hsintien, Kungpingshan, 320 m alt., S. S. Ying, s. n. Aug. 2 1986 (holotype, NTUF), **syn. nov.**

R. ellipticum DC. var. *saurauifolium* (S. S. Ying) S. S. Ying in Mem. Coll. Agri. Taiwan Univ. 29 (2): 46 ("saurauifolia"), plate 1-2. 1989, **syn. nov.**

R. saurauifolia (S. S. Ying) S. S. Ying in Mem. Coll. Agri. Tai. Univ. 29 (2): 46. 1989, *pro syn., nom. illeg.*

R. ellipticum auct. non (Wall. ex Dietr.) A. DC.: Merr. in Lingnan Sci. J. 13: 71. 1934; Chun, Fl. Hainan. 3: 528, f. 905. 1974.

Subshrubs. Stems 35-100 cm high, apically densely appressed fulvous woolly. Leaves opposite; petiole 0.5-2.5 cm long, densely appressed fulvous woolly; leaf blade elliptic, oblong or narrowly obovate, (6.6-)13-26 cm long, (2.5-)6.5-12 cm broad, papery, fulvous pubescent, adaxially glabrescent, base broadly cuneate or cuneate, margin denticulate, apex short acuminate or acute; lateral veins 9-14 pairs. Cyme 4-25-flowered, densely appressed brown villous; bracts subulate, 5-8 mm long; pedicels 4-7 mm long. Calyx segments lanceolate-linear, 3-5 mm long, 0.5-0.7 mm broad, outside densely appressed brown pubescent, inside glabrous. Corolla 4-5 mm long, lower lip twice as long as upper lip. Berry white, subglobose, 6-8 mm long, puberulous.

Distribution: N. Taiwan, S. Guangdong, Hainan, SW. Guangxi and SE. Yunnan (Wang 1984).

Flowering from July to August; fruiting from August to October.

Habitat: in wet places under evergreen forests and shaded streambanks; 200-400 m alt.

Taipei Co.: Buzangun, S. Sasaki s. n. Aug. 12 1930 (TAI); Hsiaokotou, T. S. Hsieh & K. C. Yang 691 (TAI), S. F. Huang K185 (TAI); Hsintien, K. Y. Wang et al. 85 (TNM), S. S. Ying s. n. Aug. 2 1986 (NTUF).

Rhynchothecum formosanum appears to be most closely related to *R. ellipticum*, but can be distinguished from the latter by the papery leaf blade and puberulous ovary and berry. In addition, the lower lip in *Rhynchothecum formosanum* is the same length as the corolla tube, but about twice the tube length in *R. ellipticum*. *R. ellipticum* occurs in Bhutan, Nepal, NE India, Myanmar, Cambodia, Laos, Vietnam, Thailand, N. Malaysia, and SE Tibet. *R. ellipticum* var. *saurauifolium* is reduced here. In almost all respects, the type specimen of *R. ellipticum* var. *saurauifolium* falls within the overall range of *R. formosanum*.

ACKNOWLEDGMENT

We would like to extend our thanks to the directors and curators of the herbaria NTUF, PPL, TAI, TAIF and TNM for access to the specimens. We are greatly indebted to Prof. T.-C. Huang for his valuable suggestions. Thanks also extend to Dr. S.-Z. Yang, Dr. C.-H. Tsou, Dr. C.-F. Shen and Dr. T.-Y. Yang for information and comments on the *Rhynchothecum*. The first author was supported by a Grant from President of the Chinese Academy of Sciences.

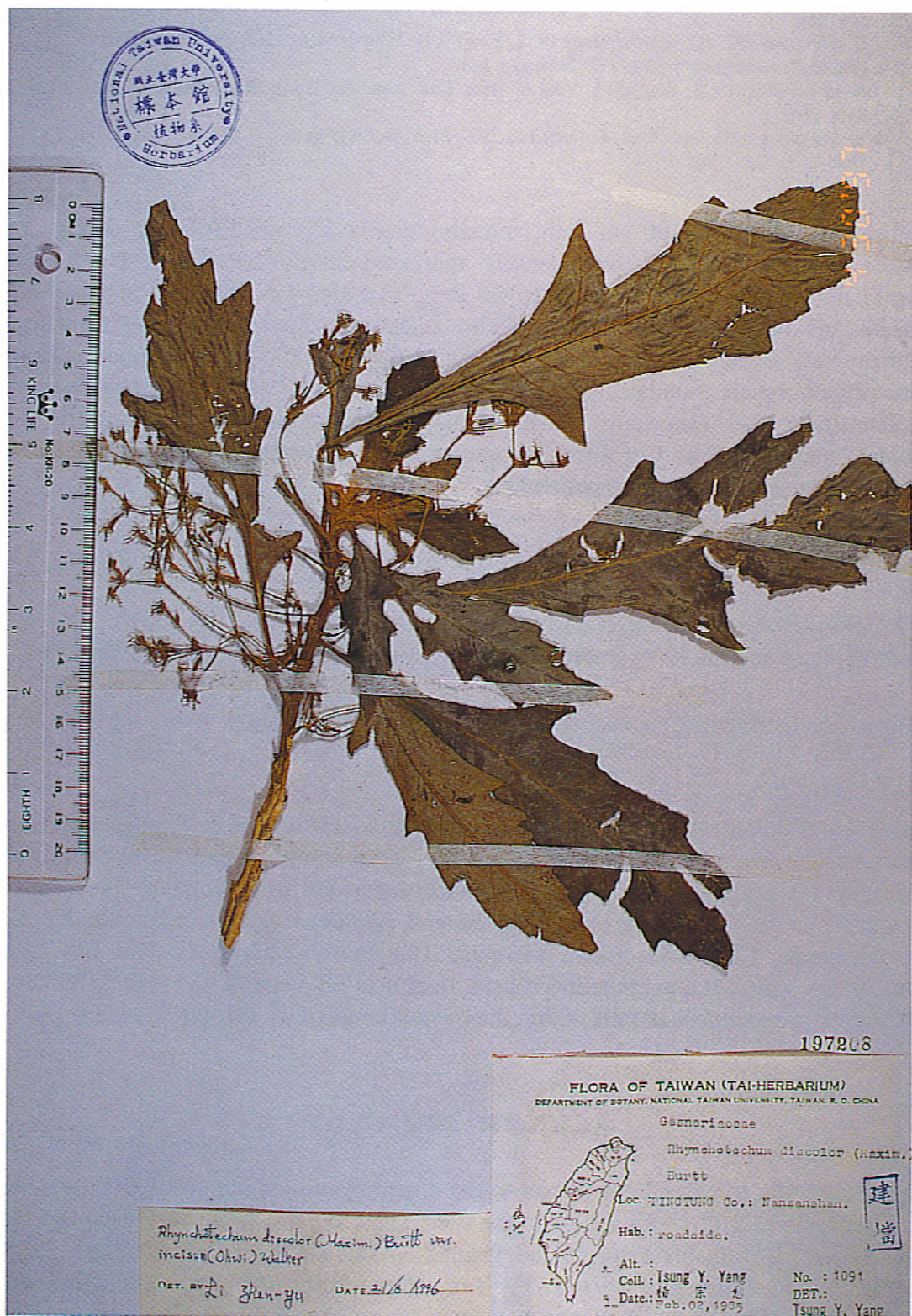


Fig. 2: *Rhynchosyris discolor* (Maxim.) Burtt var. *incisum* (Ohwi) Walker (T. Y. Yang 1091, TAI), a new record to Taiwan.

LITERATURE CITED

- Burt, B. L. 1962. Studies in the Gesneriaceae of the Old World XXII: *Rhynchocheum* and *Isanthera*. Not. Bot. Gard. Edinb. **22**: 547-568.
- Forbes, F. B. and W. B. Hemsley. 1889. An enumeration of all plants known from China proper, Formosa, Hainan, Corea, the Luchu Archipelago, and the Island of Hongkong, together with their distribution and synonymy. J. Linn. Soc. Bot. **26**: 225.
- Hatusima, S. 1939. Contributions ad dendrologiam Nipponiae australis (V). J. Jap. Bot. **15**: 132-133.
- Henry, A. 1895. A list of plants from Formosa with some preliminary remarks on the geography, nature of the flora and economic botany of the island. Trans. Asiat. Soc. Jap. **24**. Suppl.: 68.
- Kao, M.-T. and C. E. DeVol. 1972. The Gesneriaceae of Taiwan. *Taiwania* **17**: 142-169.
- Wang, W.-T. 1984. Revisio *Rhynchochei* Sinici (Gesneriaceae). *Guihaia* **4**: 183-190.
- Ying, S.-S. 1987. Miscellaneous notes on the flora of Taiwan (VI). *Q. J. Chin. For.* **20**: 123-125.
- Ying, S.-S. 1989. Miscellaneous notes on the flora of Taiwan (XII). *Mem. Coll. Agri. Taiwan Univ.* **29**: 46-47.

台灣產線柱苣苔屬（苦苣苔科）植物

李振宇^(1,3)、謝長富⁽²⁾

(收稿日期：1997年2月26日；接受日期：1997年4月30日)

摘 要

本文記述台灣線柱苣苔屬（同蕊草屬）一分佈新記錄—羽裂線柱苣苔 *Rhynchotechum discolor* (Maxim.) Burt var. *incisum* (Ohwi) Walker。將 *R. ellipticum* DC. var. *saurauifolium* (S. S. Ying) S. S. Ying 併入台灣線柱苣苔 *R. formosanum* Hatusima，並提供屬下分類群檢索表，同時引証台灣標本館收藏的約 80 份標本。

關鍵詞：線柱苣苔屬，新記錄，新異名，台灣。

1. 中國科學院植物學研究所，北京市100093，香山南辛村20號，中國。
2. 國立台灣大學植物學系，台北市106，羅斯福路四段一號，台灣，中華民國。
3. 通信聯絡員