

**Notes on the genus *Rhynchotechum* Blume (Gesneriaceae)
in Taiwan.**

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

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ABSTRACT : *Rhynchoetechum 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 : *Rhynchoetechum*, New record, Synonym, Taiwan.

INTRODUCTION

Rhynchoetechum (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. *Rhynchoetechum 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

Rhynchoetechum Blume

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

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Clarke 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 *Rhynchotechum* 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. ***Rhynchotechum discolor*** (Maxim.) Burt in Not. Bot. Gard. Edinb. 24: 37. 1962; Kao *et* DeVol in Taiwan 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. ***Rhynchotechum 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-ob lanceolate, 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; Shantzuhou, *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.:** Chinsuiying, *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. *Rhynchotechum 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. *Rhynchotechum formosanum* Hatusima in J. Jap. Bot. 15: 132, fig. 1. 1939; *Kao et DeVol* in Taiwaniana 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).

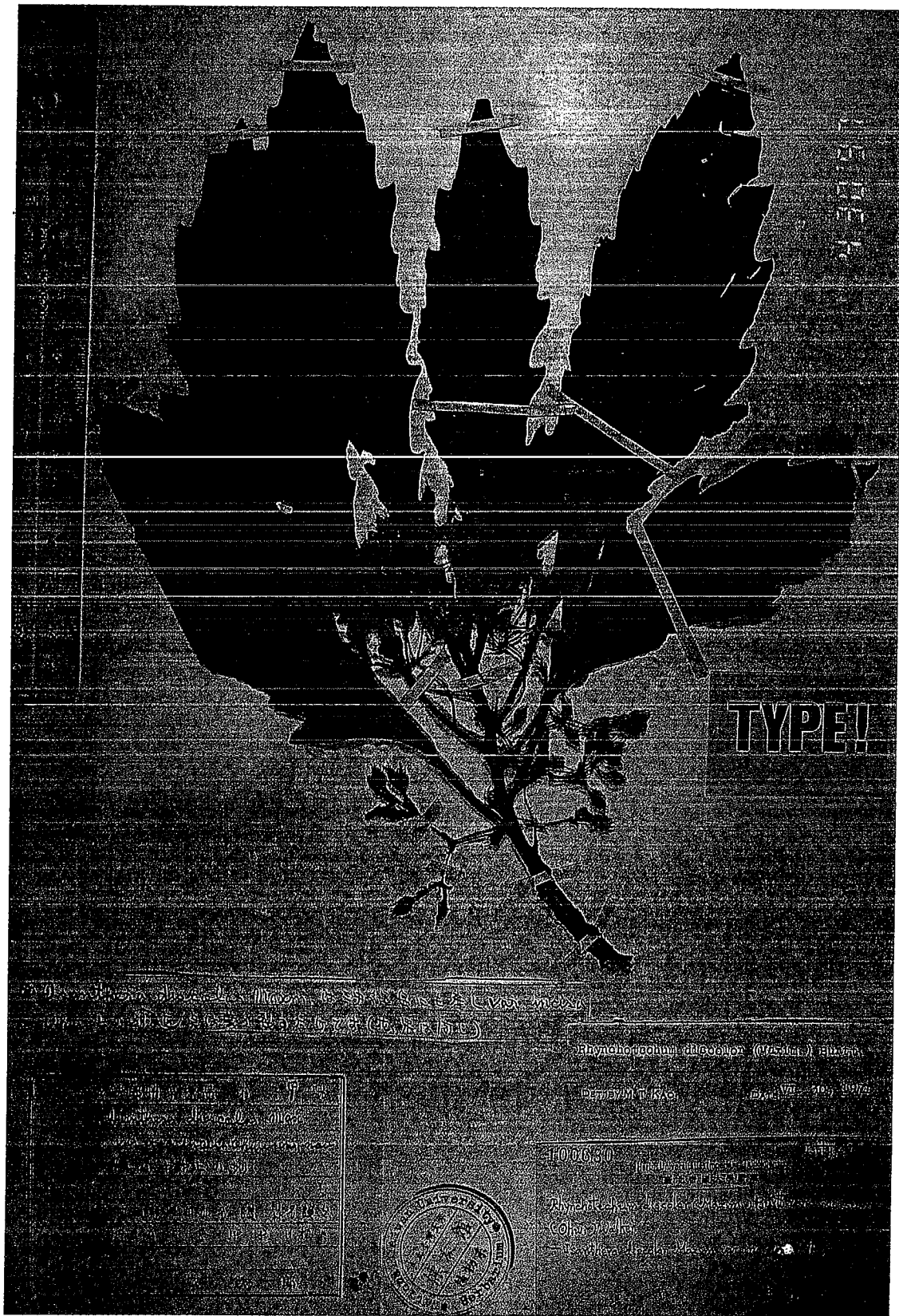


Fig. 1: Isotype of *Rhynchoscypha discolor* (Maxim.) Burtt var. *incisum* (Ohwi) Walker, T. Kanashiro 9 (TAI).

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 streamsides; 200-400 m alt.

Taipei Co.: Bunzangun, 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).

Rhynchoetechum 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 *Rhynchoetechum 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*.

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

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台灣產線柱苣苔屬（苦苣苔科）植物

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摘 要

本文記述台灣線柱苣苔屬（同蕊草屬）一分佈新記錄一羽裂線柱苣苔 *Rhynchoechum 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。

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