

NOTES ON THE FLORA OF TAIWAN (11)—

Melastomataceae⁽¹⁾SHING-FAN HUANG⁽²⁾ and TSENG-CHIENG HUANG⁽³⁾

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Abstract: This study is based on dry specimens. Nineteen taxa belonging to 11 genera are treated. *Bredia rotundifolia* is treated as *B. hirsuta* var. *rotundifolia* and *Sarcopyramis delicata* as *S. napalensis* var. *delicata*. *Bredia penduliflora* is treated as a synonym of *B. gibba*. Some species are treated by following various author's opinion, such as *Barthea formosana* as *B. barthei*, *Osbeckia crinita* as *O. opipara*, *Sarcopyramis bodinieri* as *S. napalensis* var. *bodinieri*. Lectotype of *Medinilla hayataina* is proposed. Notes are given. Convenient keys, mainly based on vegetative organ, are also proposed.

INTRODUCTION

Since Hooker f. in 1867-71 described the first Taiwan's melastomataceous plants, *Bredia oldhami*, there are 14 new names proposed from Taiwan (Table 1). Eighteen native species were recorded until 1977 in the Flora of Taiwan.

Although Keng (1955), Keng & Li (1977) published many figures, their keys, mainly based on reproductive organ, are inconvenient for identification. Besides, there are many new treatments appeared after the publication of the Flora of Taiwan. Hence this paper is aimed to summarize the present knowledge and present convenient keys for the Melastomataceae of Taiwan.

The specimens examined without acronym in this paper are all deposited in TAI.

Key to the genera of Taiwan

- | | |
|---|-------------------------|
| 1. Leaves whorled, veinlets obscure; scandent shrub | 5. <i>Medinilla</i> |
| 1. Leaves opposite | 2 |
| 2. Leaf veins pinnate | 7. <i>Memecylon</i> |
| 2. Leaf veins 3-7-nerved | 3 |
| 3. Leaves rusty brown beneath; tree | 1. <i>Astronia</i> |
| 3. Leaves yellowish green beneath; shrub or herb | 4 |
| 4. Leaves glabrous above, if hairy then veins at least one pair extending from above the base | 5 |
| 4. Leaves hairy above, veins extending from the base | 8 |
| 5. Leaf veins at least one pair extending from above the base to the apex | 6 |
| 5. Leaf veins extending from the base to the apex | 7 |
| 6. Veinlets of leaves obscure, 3-nerved | 10. <i>Pachycentria</i> |
| 6. Veinlets of leaves distinct, 5-7-nerved | 4. <i>Bredia</i> |

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7. Inflorescence terminal2. *Barthea*
 7. Inflorescence axillary.....3. *Blastus*
 8. Herb small, fleshy; leaf margin distinct serrate.....11. *Sarcopyramis*
 8. Shrub or herb, tough; leaf margin obscure serrate.....9
 9. Calyx with stalked stellate hairs; petals 4; stamens 8.....8. *Osbeckia*
 9. Calyx without stellate hairs; petals 5; stamens 1010
 10. Stamens equal9. *Otanthera*
 10. Stamens unequal6. *Melastoma*

Table 1. The new taxa of Melastomataceae proposed chronologically from Taiwan

Year	Scientific name	Type locality	Type specimen	Deposited herbarium
1867- 1871	<i>Bredia oldhami</i> Hooker f.	Taipei County Tamshui	R. Oldham 118C	K
1889	<i>Bredia hirsuta</i> var. <i>scandens</i> Ito & Matsumura	Suiteiryō	Owatari s. n. 1898	TI
1908	<i>Barthea formosana</i> Hayata	Suihenkiaku, Mushazan	Kawakami & Nakahara 41; Kawakami & Mori 1148	TI
1911	<i>Osbeckia scaberrima</i> Hayata	Mt. Morrison	Kawakami & Mori s. n. 1923	TI
1912	<i>Pachycentria formosana</i> Hayata	Shintiku, Kareisha; Arisan	U. Mori 1434 Hayata & Sasaki s. n. 1912	TI
1912	<i>Medinilla formosana</i> Hayata	Hiransan-Kusshuku	Hayata & Sasaki s. n. 1912	unknown
1917	<i>Medinilla kawakami</i> Hayata		(naked name)	
1917	<i>Astronia formosana</i> Kanchira		(without specimen)	
1931	<i>Melastoma kudoii</i> Sasaki	Lake Sui-Sya	Kudo & Sasaki s. n. Sept. 1929	TAI
1936	<i>Bredia gibba</i> Ohwi	Matsuyama	J. Ohwi s. n.	KYO
1936	<i>Bredia oldhami</i> var. <i>ovata</i> Ohwi	Taitocho, Daijurin-Shushuisha	J. Ohwi 425	KYO
1955	<i>Medinilla hayataina</i> Keng	Lanyu, Hontaushan	T. Kano s. n. July 1935; Liu, Keng <i>et al.</i> 597	TAI
1972	<i>Bredia penduliflora</i> Ying	Pingtung, Laii-Tawu	S. S. Ying 1517	NTUF
1976	<i>Bredia rotundifolia</i> Liu & Ou	Chiayi, Juiji	Ou 2869	NCUF TAI

NCUF: Herbarium, Department of Forestry, National Chung-Hsing University, Taiwan

NTUF: Herbarium, Department of Forestry, National Taiwan University, Taiwan

TAXONOMIC TREATMENT

1. *Astronia* Blume

Astronia Blume, Bijdr. 1080. 1825; DC., Prodr. 3: 197. 1828; Benth. & Hook. f., Gen. Pl. 1: 771. 1867; Cogn. in DC., Monogr. Phan. 7: 1093. 1891; Krass in Engler & Prantl, Pflanzenfam. 3(7): 194. 1896; Keng in Quart. Journ. Taiwan Mus. 8: 18. 1955; Keng & Li in Fl. Taiwan 3: 840. 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 282. 1984.

Species about 70, Indo-Malaya and the Pacific Island; one species in Taiwan.

1. *Astronia ferruginea* Elmer in Leaflet. Philipp. Bot. 4: 1205. 1911; Keng in Quart. Journ. Taiwan Mus. 8: 18. *pl. 1*. 1955; Keng & Li in Fl. Taiwan 3: 840. 1977.

大野牡丹

Astronia sp. Henry, List Pl. Form. 44. 1896.

A. formosana Kanehira, Formos. Tr. 258. 1917.

A. cumingiana auct. non Vidal: Sasaki in Kanehira, Formos. Tr. rev. ed. 507. *f.* 469. 1936.

A. pulchra auct. non Vidal: Hayata in Journ. Coll. Sci. Univ. Tokyo 30: 114. 1911. Icon. Pl. Form. 2: 25. 1912.

A small tree; branches glabrous. Young leaves rusty along main veins beneath and becoming rusty tomentose when mature. Leaves 3-nerved, elliptic, acuminate at apex, obtuse at base, entire at margin, 9.5–18 cm broad; petioles 10–26 mm long; leaf scars distinct, circular or triangular-circular. Inflorescence terminal cymose; peduncles about 3 cm long. Fruit capsular, ovoid, 3–4 mm across, 2–3 mm long.

Distribution: The Philippines and Taiwan; Taiwan in the southern part, Islands Lanyu and Lutaο.

Altitude: 300–500 m.

Habitat: In forest, forest margin.

Flowering time: Jan, Mar, Jun, Jul, Sep.

Fruiting time: Jul, Aug, Sep.

PINGTUNG: Shuanchi, *J. L. Wang s.n.* May 1966 (TAIF); Kuskus, *Kudo & Suzuki s.n.* Jan. 1928; Manchou-Chialoshui, *H. J. Su 3609* (NTUF); Wanliteshan, *Su & Su 6221* (NTUF); Nanshan Road, *T. Y. Yang 258*; Nanjenshan, *S. F. Huang 1139*, *M. T. Kao 7324*, *C. S. Kuoh 7998*, *T. I. Chuang 1183*, *T. C. Huang 8967*, *T. C. Huang et al. 9532*, *Huang & Hsiao 8135*, *8152*, *T. Suzuki 5040*, *Y. F. Chen 1683*, *E. Matuda 1590*, *J. Y. Liu 178* (NTUF), *1284* (NTUF), *1288* (NTUF), *1359* (NTUF). TAITUNG: Tazun, *Ou & Kao 9442*; Souka, *Chuang & Kao 3408*; Lutaο (Green Island), *T. Soma s.n.* July 1915; Lanyu, *T. Kano 1591*, *T. Hosokawa 8097*, *S. Sasaki s.n.* June 1911, *C. C. Hsu 9520*, *12381*; *LKH & C 397*, *664*; *T. Sata 1567*, *1570*, *1571*, *1572*; *Ho & Huang 41* (NTUF), *89* (NTUF), *185* (NTUF), *186* (NTUF), *J. C. Liao 11321* (NTUF).

J. F. Maxwell determined the present species as *A. formosana* in 1982 on the TAI herbarium sheet. Owing to the shortage of available specimens of *A. ferruginea* from the Philippines, we follow Keng & Li's treatment. Judging from the distribution of *A. ferruginea*, it is reasonable that Taiwan's species is conspecific with that of the Philippines'. *A. formosana* does not have type specimen since Kanehira did not cite any specimen when publishing.

2. *Barthea* Hook. f.

Barthea Hook. f. in Benth. & Hook. f., Gen. Pl. 1: 751. 1867; Krass in Engler & Prantl, Pflanzenfam. 3(7): 174. 1893; Li in Journ. Arn. Arb. 25: 13. 1944; Keng in Quart. Journ. Taiwan Mus. 8: 19. 1955; Keng & Li in Fl. Taiwan 3: 842. 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 177. 1984. 椴果花

Monotypic, southern China and Taiwan.

1. *Barthea barthei* (Hance) Krass in Engler & Prantl, Pflanzenfam. 3(7): 175. f. 768. 1893; Chen in Fl. Reip. Pop. Sinicae 53(1): 179. 1984.

Dissochaeta barthei Hance in Benth., Fl. Honk. 115. 1861.

Barthea formosana Hayata in Journ. Coll. Sci. Univ. Tokyo 25: 97. t. 10. 1908; l. c. 30: 116. 1911, Icon. Pl. Formos. 2: 23. 1912; Kanehira, Formos. Tree 260. 1917; Formos. Tree rev. ed. 508. f. 470. 1936; Keng in Quart. Journ. Taiwan Mus. 8: 20. pl. 2. 1955; Keng & Li in Fl. Taiwan 3: 842. pl. 834. 1977.

A shrub; branches glabrous. Leaves 3-nerved, ovate or elliptic, caudex at apex, obtuse at base, wavy or very shortly toothed at margin, 7-11 cm long, 2.7-4.4 cm broad, very shortly hairy on both surfaces. Flower solitary or in terminal dichasium; peduncles sessile or subsessile, 1-9 mm long. Fruit capsular, ovoid, tetragona, 6-7 mm across, 8-11 mm long.

Distribution: Southern China and Taiwan; Taiwan throughout the island.

Altitude: 400-2400 m.

Habitat: Under forest.

Flowering time: Jan-May, Jul, Oct, Dec.

Fruiting time: Jul-Oct, Dec.

TAIPEI: Wenshan, Kaposhan, *N. Fukuyama* 19231; Peichatienshan, *C. M. Kuo* 2542; Lalashan, *T. Suzuki* 11740. ILAN: Chilanshan, *C. M. Kuo* 7281, 8446; Taipinshan, *S. Sasaki* s. n. Apr. 1930. HSINCHU: Tapachienshan, *T. C. Huang* 5949; Luchantashan, *N. Fukuyama* 3448; Kuanwu, *Hsu & Kuoh* 13975. MIAOLI: Shishuishan, *Mori* s. n. Oct. 1908 (TAIF). TAICHUNG: Pahsienshan, *Iida et al.* s. n. July 1932; Anmashan, *C. M. Kuo* 8576, *T. C. Huang* 8007, *Liu et al.* 212. NANTOU: Chitou, *T. C. Huang* 2078, *M. T. Kao* s. n. March 1955; Ren-Luen log road, *S. Y. Lu* 15895 (TAIF); Fenghuangshan, *C. Lee* 109, *M. T. Kao* 9876; Meiyen, *M. T. Kao* 6690; Chuefeng-Sunkang, *S. F. Huang* 3468. CHIAYI: Alishan, *Kanehira & Sasaki* s. n. 1918; *Ito* s. n. Apr. 1914 (TAIF). PINGTUNG: Tawushan, *S. Sasaki* s. n. Nov. 1918, *S. Suzuki* 6943, *T. C. Huang et al.* 13630; Tahanshan, *H. N. Yang* 1946; Jingshuiying, *Chung & Chang* 8063 (TAIF), *S. Sasaki* s. n. Dec. 1912, *Shimizu* 3745, *T. C. Huang* 10229. HUALIEN: Mukuashan, *Nakamura* 4587, *Liu et al.* 226.

3. *Blastus* Lour.

Blastus Lour., Fl. Cochinch. 526. 1790; Benth. & Hook. f., Gen. Pl. 1: 752. 1867; Cogn. in DC., Monogr. Phan. 7: 476. 1891; Diels in Engler, Bot. Jahrb. 65: 104. 1932; Keng in Quart. Journ. Taiwan Mus. 8: 20. 1955; Keng & Li in Fl. Taiwan 3: 842. 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 180. 1984.

Species about 18, from eastern India through Burma, Indo-China, southern China to Taiwan, the Ryukyus; one species in Taiwan.

1. *Blastus cochinchinensis* Lour., Fl. Cochinch. 526. 1790; Henry, List Pl. Form. 44. 1896; Kanehira, Formos. Trees 261. 1917; Formos. Trees rev. ed. 509. f. 471. 1936; Keng in Quart. Journ. Taiwan Mus. 8: 21. pl. 3. 1955; Keng & Li in Fl. Taiwan 3: 844. pl. 835. 1977; Chen in Fl. Reip. Pop. Sinicae 35(1): 182. 1984. 柏拉木

Blastus sp. Keng in Quart. Journ Taiwan Mus. 8: 21. 1955.

A shrubs; branches glabrous. Leaves 3-nerved, ovate, veins distinct on both surfaces, acuminate to caudex at apex, obtuse to attenuate at base, entire at margin, 7.5-15 cm long, 2.5-5.5 cm broad, very shortly hairy at both surfaces. Inflorescence axillary umbellate; peduncles sessile. Fruit capsular, ovoid, tetragona, 2-3 mm across, 3 mm long.

Distribution: From eastern India through Indo-China and southern China to Taiwan, the Ryukyus; Taiwan throughout the island.

Altitude: 100-1600 m.

Habitat: Under the forest.

Flowering time: Feb, May-Jul, Sep.

Fruiting time: Jul-Dec.

TAIPEI: Wulai, Yu *et al.* 151; Kang-gu, Keng & Kao K2912, C. C. Chuang 3029, Y. Yamamoto s.n. July 1938; Shirin, Tanaka & Shimada s.n. July 1932; Yangmingshan, M. T. Kao 3617; Pataoershan, C. M. Kuo 2947; Yunsienloyuen, C. M. Kuo 6701; Menhuahu, C. M. Kuo 5481; Hsiaokotou, S. F. Huang K382. ILAN: Suao, G. Masamune s.n. Apr. 1938; Kueshantao, Masamune & Suzuki s.n. July 1932; Taipingshan, T. Suzuki 25. TAOYUAN: Chiaopanshan, T. Suzuki 4561. MIAOLI: Yangmeshan, C. M. Kuo 3617; Tahu, Y. C. Cheng 124. NANTOU: Chingshuikou, T. C. Huang 894; Sun Moon Lake, I. M. Liu 30, C. F. Hsieh 1363; Lienhuachih, Y. Yamamoto s.n. Oct. 1929, M. T. Kao 4020; Yuchih, Morimoto 788; Kuantaochi, C. F. Hsieh 1466, 1483; Nenkao Forest Experiment Station, Huang & Kao 6016. TAITUNG: Chihpen, T. C. Huang 8837. HUALIEN: Chingshuishan, Shimizu & Kao 11970.

4. *Bredia* Blume

Bredia Blume, Mus. Bot. Lugd.-Bat. 1: 24. 1849; Diels in Engler, Bot. Jahrb. 65: 108. 1932, ampl.; Li in Journ. Arn. Arb. 25: 19. 1944; Keng in Quart. Journ. Taiwan Mus. 8: 22. 1955; Keng & Li in Fl. Taiwan 3: 844. 1977; Chen in Fl. Reip. Pop. Sinicae 35(1): 197. 1984.

Species about 30, southern China, Taiwan, the Ryukyus and southern Japan; three species and one variety in Taiwan.

Key to the species

1. Branch with dense straight hairs at the upper portion; leaf base cordate, rarely rounded2
1. Branch glabrous or with sparse hooked hairs at the upper portion; leaf base acute, obtuse or rarely rounded3
2. Branch with dense long hairs at the upper portion; leaves acuminate at the apex; pedicels with dense glandular hairs; inflorescence cymose-paniculate, peduncles comparatively short; longer stamens without protrusion at the base of posterial part of anther4. *B. hirsuta* var. *scandens*

2. Branch with dense short hairs and sparsely mingled with long hairs at the upper portion; leaves obtuse at the apex; pedicels without or sparsely with glandular hairs; inflorescence umbellate-cymose, peduncles comparatively long; longer stamens with protrusion at the base of posterial anthers.....3. *B. hirsuta* var. *rotundifolia*
3. Peduncles slender, 3-6 cm long; calyx lobes setaceous at the apex, about 2.2 mm long; style longer, 10 mm long.....1. *B. gibba*
3. Peduncles tough, 1-2(-3) cm long; calyx lobes obtuse at the apex, about 1.5 mm long; style shorter, 6 mm long2. *B. oldhami*
1. *Bredia gibba* Ohwi in Journ. Jap. Bot. 12: 385. 1936; Keng in Quart. Journ. Taiwan 3: 846. 1977; Chen in Fl. Reip. Pop. Sinicae 35(1): 263. 1984. 小金石榴
- B. penduliflora* Ying in Quart. Journ. Chin. For. 6(1): 167. 1972, *syn. nov.*

A small shrub; stem hookedly hairy or glabrous. Leaves ovate or lanceolate, 5-nerved, with one pair of veins extending from above the base, acuminate at apex, obtuse or rounded at base, minutely serrate at margin, 4-11 cm long 1.5-4.2 cm broad, sparsely hairy on both surfaces, veinlets distinct beneath; petioles 6-45 mm long, sometimes hookedly hairy. Inflorescence terminal cymose; peduncles 3-6 cm long; bracts setaceous; calyx lobes 4, broadly triangular at base, setaceous at the apex, 22 mm long; stamens unequal, 4 longer and 4 shorter, the longer stamens opposite the calyx lobes; filaments flat; anthers attenuate at the apex, 7-8 mm long; shorter stamens with the anthers 4 mm long; style glabrous, 10 mm long; stigma terminal. Fruit capsular, campanulate, tetragona, 4-5 mm across, 6-7 mm long.

Distribution: Endemic, in the southern part.

Altitude: 700-2100 m.

Habitat: Under forest.

Flowering time: Jul-Sep.

Fruiting time: Sep, Dec.

KAOHSIUNG: inter Matuyama & Mutozan, *S. Suzuki s.n.* Aug. 1932. PING-TUNG: Wutai, *T. Hosokawa 5427, 5435, 5438A*; 25 compartment, *T. C. Huang & M. T. Kao 5427*; Tawushan, *T. C. Huang, S. F. Huang et al. 13585*; *G. Masamune s.n.* Dec. 1930; Sakanyalan-Tawu, *S. S. Ying 1511 (NTUF), 1517 (Type of *B. penduliflora*, NTUF!)*; Laii-Tawu, *S. S. Ying 1518 (NTUF), 1519 (NTUF)*. Central Mountain Range, Pingtung-Taitung, *Kawakami & Sasaki s.n.* Jan. 1911 (TAIF); Sahshih forest road, *Y. P. Yang s.n.* Nov. 1976 (TAIF).

2. *Bredia oldhami* Hooker f., Icon. Pl. 11: 68. t. 1085; Forbes & Hemsley in Journ. Linn. Soc. Bot. 23: 301. 1887; Henry, List Pl. Form. 44. 1896; Hayata, Icon. Pl. Formos. 2: 24. 1912; l. c. 3: 121. f. 20. 1913; Kanehira, Form. Trees rev. ed. 509. f. 472. 1936; Keng in Quart. Journ. Taiwan Mus. 8: 22. 1955; Keng & Li in Fl. Taiwan 3: 846. pl. 836. 1977; Chen in Fl. Reip. Pop. Sinicae 35(1): 201. 1984.

金石榴

B. oldhami Hooker f. var. *ovata* Ohwi in Journ. Jap. Bot. 12: 661. 1936 (Type: Taitung, *J. Ohwi 425*, KYO, not seen).

A small shrub; stem glabrous or with sparse hooked and straight hairs. Leaves lanceolate, elliptic or ovate, acuminate to obtuse at apex, obtuse or truncate

at base, minutely rough serrate at margin, 5-nerved, with one pair of veins extending from above the base, 5.5-11 cm long, 1.1-4.2 cm broad, glabrous on both surfaces; petioles 0.8-3.5 cm long. Inflorescence terminal cymose; peduncles tough, 0.5-2 cm long; calyx lobes 4, ovate-triangular, apex obtuse, 1.5 mm long; stamens 8, 4 longer, 4 shorter, longer stamens with anthers 5-6 mm long, short stamens with anthers 3 mm long; style glabrous, about 6 mm long, stigma terminal. Fruit capsular, tetragonal, 5-6 across, 8-10 mm long.

Distribution: Endemic.

Altitude: 100-1200 m.

Habitat: In open forest, forest margin.

Flowering time: Feb-May, Nov, Dec.

Fruiting time: May, Jun, Aug. Dec.

TAIWAN: *U. Faurie* 8203. TAIPEI: Pinglin, *C. M. Kuo* 8107; Pinglin-Pihu, *T. Y. Yang* 8; Huantidieng, *C. C. Hsu* 5409; Tatunshan, *S. Sasaki* s.n. Apr. 1931, *Keng & Kao* K1275, *Y. F. Chen* 2254, *S. F. Huang* 1585; Kaposhan, *Fukuyama* 19224; Sanhsia, *T. Y. Yang* s.n. May 1985; Wulai, *C. M. Kuo* 9731, *Kudo et al.* 433; Shihting, *C. M. Kuo* 11559, *Keng & Kao* s.n. March 1955; Santsuho, *Y. C. Jeng* 451; Hsiaokuan-yingshan, *H. Simada* 1204; Chungsing Farm, *W. S. Tang* 1407; Ayushan, *T. Suzuki* 15005; Keelung, *Y. Yamamoto* s.n. Apr. 1929. ILAN: Taipingshan, *S. Sasaki* s.n. Apr. 1940, *T. Suzuki* 4121; Bonbonsan, *M. T. Kao* 5934; Way to Shenmi Lake, *T. C. Huang & S. F. Huang* 13396. PINGTUNG: Nanjenshan, *C. S. Kuoh* 13156, *T. C. Huang* 4869, *C. I. Peng* 3457, *C. C. Hsu* 13156, *C. F. Hsieh et al.* 1022, *M. T. Kao* 8798, *T. Y. Yang* 1107; Mutan, *C. C. Hsu* 13203; Machia, *T. C. Huang* 7381, 7389; Paiwan, *E. Matuda* 7577; Wuweishan, *S. Sasaki* s.n. March, 1910; Kenting, *S. Sasaki* s.n. 1934; Jingshuiying, *C. C. Kuo* 2883 (NTUF). TAITUNG: Souka-Shushuibo, *Liu & Keng* K2792; Souka, *M. T. Kao* 9519, *Chuang & Kao* 3489, *Chuang* 3416; Taimali, *T. C. Huang* 10338; Malipulu, *Ou & Kao* 9434; Kuetien, *T. Y. Yang* 1161; Chihpen, *T. C. Huang* 8825. HUALIEN: Hoping forest road, *W. S. Tang* 1744.

3. *Bredia hirsuta* Bl. var. *rotundifolia* (Liu & Lu) S. F. Huang & T. C. Huang, *com. nov.* 圓葉布勒德藤

Bredia rotundifolia Liu & Lu ex Lu in *Quart. Journ. Chin. For.* 9(2): 118. f. 1. 1976; *Keng & Li* in *Fl. Taiwan* 3: 848. 1977; *Chen* in *Fl. Reip. Pop. Sinicae* 35(1): 205. 1984.

B. scandens auct. non Hayata: *Sasaki, Catal. Gov. Herbarium* 375. 1930.

A scandent subshrub; stem with straight hairs. Leaves orbicular to orbicular-ovate, obtuse at apex, cordate at base, serrate at margin, 2.5-3.5 cm long, 2.2-2.8 cm broad. Inflorescence terminal umbellate and sometimes cymose; peduncles and pedicels densely covered with multi-celled hairs and/or mingled with sparse glandular hairs; calyx lobes 4, obtuse at apex; stamens 8, 4 longer, 4 shorter, the longer stamens protrude at the base of anthers, 3-5 mm long, the shorter stamens with anthers 2-3 mm long.

Distribution: Endemic, in the central part.

Altitude: 1000-2000 m.

Habitat: Under forest

Flowering time: Oct.

Fruiting time: Unknown.

YUNLIN: Tachienshan, *H. Simizu* 1941. CHIAYI: Juili, *Ou* 2869 (Type!); Alishan, *S. Sasaki* s.n. Oct. 1928; Metsukeng, *Kawakami* s.n. Apr. 1909 (TAIF). KAOHSIUNG: Chishan, *Lee & Kao* s.n. Sept. 1955.

The type of this variety is different from var. *scandens* by the shorter orbicular leaves with obtuse apex, cymose-umbellate inflorescence, without glandular hairs at the pedicels, and the longer stamens with shorter anthers and protrusion (Fig. 1). But the specimens examined show that the inflorescence is variable, from solitary to umbellate, and the hair character can not be sharply distinguished. The only character holds for distinction is the protrusion of the longer stamens. Hence the taxa is treated as a variety.

Chen (1984) treated this species under the section *Sinobredia* while *B. scandens* is under the section *Bredia*. This treatment needs reconsidered.

4. *Bredia hirsuta* Bl. var. *scandens* Ito & Matsumura in Journ. Coll. Sci. Univ. Tokyo 12: 487. 1898; Chen in Fl. Reip. Pop. Sinicae 35(1): 204. 1984. 布勒德藤

Bredia scandens (Ito & Matsum.) Hayata in Journ. Coll. Sci. Univ. Tokyo 30: 114. 1911; Icon. Pl. Formos. 2: 24. 1912; Keng in Quart. Jour. Taiwan Mus. 8: 24. pl. 5. 1955; Keng & Li in Fl. Taiwan 3: 848. f. 837. 1977.

B. hirsuta auct. non Bl.: *Sasaki*, List Pl. Form. 319. 1928; *Kanehira*, Form. Trees rev. ed. 511. f. 473. 1936.

Small shrub; stem straightly hairy. Leaves ovate, acuminate at apex, cordate at base, serrate at margin, 4-14 cm long, 2.1-5.5 cm broad. Inflorescence terminal cymose, pedicels densely covered with glandular and multi-celled hairs; calyx lobes 4; stamens 8, 4 longer, 4 shorter, the longer stamens with anthers 6-7 mm long, with protrusion at the base of posterial base, the shorter stamens with anthers 3 mm long.

Distribution: Endemic, throughout the island.

Altitude: 500-1600 m.

Habitat: On moist shaded roadside.

Flowering time: Oct-Dec, Jan.

Fruiting time: Dec, Feb, Mar.

MIAOLI: Tiengo, *T. C. Huang & S. F. Huang* 13251; Tahu, *T. C. Huang* 10301. TAICHUNG: Pahsienshan, *T. Suzuki* 2493, 5687; *S. Sasaki* s.n. Nov. 1922. NANTOU: Chitou-Chiti, *Yu et al.* 114, *C. C. Hsu* 9009; Chingshuikou, *T. C. Huang* 989, 1908; Luku, *S. Sasaki* s.n. Dec. 1930; Shuili, *Liu & Kuo* 332 (NTUF), 341 (NTUF); Kuantaochi, *C. F. Hsieh* 1474; Santsalunn, *C. C. Hsu* 5127; Chitou-Nehu, *C. S. Kuoh* 3578. YUNLIN: Touliu, Tachienshan, *Shimizu* s.n. March 1936. CHIAYI: Alishan, *Kawakami & Mori* 3704 (TAIF), *Kawakami* s.n. Nov. 1923 (NTUF); Fengchihu, *S. S. Ying* 4461 (NTUF), 4537 (NTUF), 4543 (NTUF), 4545 (NTUF); Chiaoliping-Juili, *K. C. Yang* 3523. KAOHSIUNG: Nanshen, *Lee et al.* s.n. 1955. PINGTUNG: Nanjenshan, *J. Y. Liu* 679 (NTUF). HUALIEN: Tailuko, *S. Suzuki* 9677; Tapolon, *Matuda* s.n. Aug. 1918 (TAIF).

Bredia scandens differs from *B. hirsuta*, as pointed out by Hayata (1911) and Keng (1955), by the length and protrusion of longer stamens (Fig. 1). Owing to their strong similarity in outer appearance, many taxonomists treated them conspecific. The comparison among *B. hirsuta* and its believed related species is given

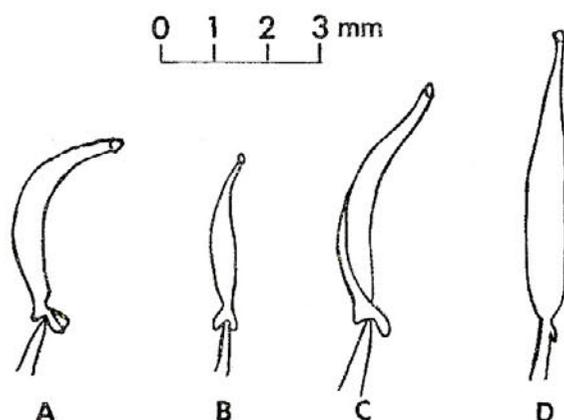


Fig. 1. The longer stamens of *Bredia hirsuta* and its related species. A, *B. hirsuta* (Tagawa & Konta 255); B, *B. rotundifolia* (Ou 2869); C, *B. rotundifolia* (Sasaki s. n. Oct. 1928); D, *B. scandens* (Huang 3284).

Table 2. The morphological characters of *Bredia hirsuta*, *B. rotundifolia* and *B. scandens*

Character	<i>B. hirsuta</i>	<i>B. rotundifolia</i>	<i>B. scandens</i>
Branch	straight hair	straight hair	straight hair
Leaves	ovate	orbicular to orbicular-ovate	ovate
apex	acute to acuminate	obtuse to acute	acute to acuminate
base	cordate	cordate	cordate
size (cm)	6-14.5×3.7-7.5	2.5-3.5×2.2-2.8	4-14×2.1-5.5
Inflorescence	terminal cymous and rarely umbellate	terminal umbellate and cymous	terminal cymous
Pedicels (glandular hairs)	dense or sparse with	without or sparse with	dense with
Calyx lobes	4, triangular	4, triangular	4, triangular
apex	obtuse	obtuse	acute
Long anthers	3-4 mm	3-5 mm	6-7 mm
ventral appendage	almost separate from the filament	half length attached the filament	half length attached the filament
dorsal appendage	present	present	absent
Short anthers	2 mm	2-3 mm	3 mm

in Table 2. The distinction among these taxa can not be sharply decided. These taxa, hence, are treated conspecific here.

The specimens of *B. hirsuta* var *hirsuta* examined are given as follows:

JAPAN: Kyushu, Kagoshima, Tagawa & Konta 255. THE RYUKYUS: Okinawa, T. Kawiya s. n. Apr. 1910 (TAIF); Tashiroi s. n. Jan. 1924 (TAIF); Nagoyabu, s. coll. s. n. Aug. 1908. WITHOUT LOCALITY, Masamune & Nakamura 3330, 3432.

5. *Medinilla* Gaud.

Medinilla Gaud. in Freyc., Voy. Bot. 484. t. 106. 1826; Benth. & Hook. f., Gen. Pl. 1: 759. 1867; Cogn. in DC., Monogr. Phan. 7: 572. 1891; Keng in Quart. Journ. Taiwan Mus. 8: 25. 1955; Keng & Li in Fl. Taiwan 3: 849. 1977; Chen in Fl. Reip. Pop. Sinicae 35(1): 268. 1984.

Species about 400, tropical Africa, Madagascar, India, China, Taiwan, Pacific islands and northern Australia; two species in Taiwan.

Key to the species

1. Leaves with 2 pairs of vein extending from above the base to the apex, 5-nerved; branch nodes densely surrounded with appendages; inflorescence terminal.....2. *M. formosana*
1. Leaves with 1 pair of vein extending from above the base to the apex, 3-nerved; branch nodes sparsely surrounded with appendages; inflorescence axillary1. *M. hayataina*
1. *Medinilla formosana* Hayata, Icon. Pl. Formos. 2: 110. 1912; Kanehira, Form. Trees rev. ed. 512. 1936; Keng in Quart. Journ. Taiwan Mus. 8: 25. 1955; Keng & Li in Fl. Taiwan 3: 851. pl. 838. 1977; Chen in Fl. Reip. Pop. Sinicae 35(1): 272. 1984. 臺灣野牡丹藤

A scandent shrub; branch glabrous; nodes densely surrounded with appendages. Leaves whorled, elliptic, 5-nerved, with 2 pairs of vein extending from above the base, acuminate at apex, acute or obtuse at base, entire at margin, veinlets obscure, 16.5-21 cm long, 5.5-8 cm broad. Inflorescence terminal umbellate-paniculate; peduncles 8-9 cm long. Fruit berries, ovoid, 4-4.5 mm across, 4-4.5 mm long.

Distribution: Endemic, in the southern part.

Altitude: ca. 300 m.

Flowering time: Jan.

Fruiting time: Feb, Sep, Oct.

PINGTUNG: Souka, Chuang & Kao 3415; Hengchun peninsula, J. C. Liao 10404 (NTUF), Wanliteshan, Su & Su 6514 (NTUF); Nanshan Road, C. F. Hsieh 1429; Nanjenshan, Huang & Hsiao 8140, T. Y. Yang 1060, J. Y. Liu 160 (NTUF), 813 (NTUF), C. C. Hsu 7840, R. T. Li 3212, C. S. Kuoh 4123A. TAITUNG: Jingshuiying, Shimizu 3647; Tawu, C. C. Chuang 3449; Alanweshan, C. F. Hsieh 713.

1. *Medinilla hayataina* Keng in Quart. Journ. Taiwan Mus. 8: 26. pl. 6. 1955; Li, Woody Fl. Taiwan 657. f. 263. 1963; Keng & Li in Fl. Taiwan 3: 851. pl. 839. 1977; Chen in Fl. Reip. Pop. Sinicae 35(1): 279. 1984. 蘭嶼野牡丹藤

M. kawakami Hayata, Gen. Ind. Fl. Formos. 29. 1916, *nom. nud.*

A scandent shrub; branch glabrous, nodes sparsely surrounded with appendages. Leaves whorled, elliptic, 3-nerved, with one pair of vein extending from above the base to the apex, acuminate at apex, acute at base, entire at margin, 10-11 cm long, 3-3.5 cm broad. Inflorescence axillary umbellate-paniculate, pendulous; peduncles 8-20 cm long. Berry 3-5 mm across, 3-4 mm long.

Distribution: Endemic to the island Lanyu.

2. *Melastoma candidum* D. Don in Mem. Wern. Soe. 4: 288. 1823; Matsum. & Hayata in Journ. Coll. Sci. Univ. Tokyo 22: 146. 1906; Hayata, Icon. Pl. Form. 1: 23. 1911; Li, Woody Fl. Taiwan 659. f. 265. 1963; Keng & Li, Fl. Taiwan 3: 855. pl. 840. 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 157. 1984. 野牡丹

M. seplemnervium Lour., Fl. Cochinch. 273. 1790, non Jacq. 1760; Kanehira, Formos. Trees rev. ed. 512. f. 474. 1936.

M. candidum D. Don var. *nobotan auct. non* Makino: Suzuki in Masamune, Short Fl. Form. 153. 1936.

A shrub, up to 3 m high; stem with dense appressed scaly hairs. Leaves ovate, ovate-elliptic, 5-7-nerved, obtus to acuminate at apex, rounded or slightly cordate at base, obscure serrate at margin, 3.5-15 cm broad, hairy at both surfaces; petioles with dense scaly hairs, 3-20 mm long. Flower in terminal cymes; calyx with dense scaly hairs, lobes 5, lanceolate. Fruit ovoid, about 10 mm long.

TAIWAN: *U. Faurie* 8002. TAIPEI: *S. Suzuki s.n.* May 1929; Tsaoshan, *Kudo et al. s.n.* Apr. 1929; Shantsuho, *T. Y. Yang* 620; Chihsingshan, *L. Y. Lin* 38, *T. Y. Yang* 619; Kuanyingshan, *Y. T. Jeng* 9; Kankou, *Lin & Shern s.n.* May 1933; Hsiao-kotou, *S. F. Huang* K288; Sanhsia, *J. C. Wang* 3302; Keelung, *S. M. Liao* 6. ILAN: Chiao-chi, *Y. Yamamoto s.n.* Oct. 1929; Oobizan, *G. Masamune s.n.* Apr. 1938; Kue-shan Island, *G. Masamune et al. s.n.* Jul. 1932. TAOYUAN: *G. Masamune* 647; Jenmei, *C. M. Kuo* 6233. MIAOLI: Tahu, *Y. C. Cheng* 48. NANTOU: Sun Moon Lake, *Kudo & Sasaki s.n.* Sep. 1929; Lienhuachih, *Morimoto s.n.* Jul. 1936, *Hibino & Suzuki s.n.* 1930; Puli, *Wu et al. s.n.* 1970. CHANGHUA: Yuanlin, *Morimoto* 787. CHIAYI: Kuantsuling, *Morimoto* 518; Chuchiao, *M. T. Kao* 10684. PINGTUNG: Machia, *T. C. Huang & M. T. Kao* 7507; Tachin, Weiliao Shan, *A. Iwami* 478; Nan-jenshan, *T. Y. Yang* 1108, *Huang & Hsiao* 8163. TAITUNG: Talilikusya, *S. Sasaki s.n.* May 1924.

Distribution: Southern China and Taiwan. Taiwan, throughout the whole island.

Altitude: 0-700 m.

Table 3. The characters different between *Melastoma affine* and *M. candidum*

Character	<i>M. affine</i>	<i>M. candidum</i>
Stem	appressed scaly hairs, hair flat, margin comb like	same
Leaf	lanceolate, ovate-lanceolate, elliptic, ovate	ovate, broadly ovate, ovate-elliptic
apex	acuminate	acute to acuminate
base	round, cuneate	round, slightly cordate
nerves	3-5	5-7
hairs	appressed above, appressed and soft beneath	appressed or appressed and soft above, appressed and soft beneath
Bract	lanceolate	lanceolate
Dry specimen	greenish	yellowish

Habitat: In open field, grassland or forest margin, rare in forest.

Flowering time: Mar-May, Aug-Sep.

Fruiting time: Oct-Dec, Feb, July.

Melastoma affine is very similar to *M. candidum*. The characters used to distinguish *M. affine* and *M. candidum* are given in Table 3.

M. affine can not be distinguished from *M. candidum* except by the color of dry specimen, greenish against yellowish. The other characters are all continuous. Since we do not study the fresh material, we follow the conventional treatment. But future study may prove them to be conspecific.

Li (1944) pointed out that *M. normale* D. Don distributes in Taiwan without citing any Taiwan's specimen. Our specimens, however, do not match the description of *M. normale* so far.

3. *Melastoma intermedia* Dunn in Journ. Linn. Soc. Bot. 38: 360. 1908; Li, Woody Fl. Taiwan 659. f. 266. 1963; Keng & Li, Fl. Taiwan 3: 855. pl. 841. 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 154. 1984. 水社野牡丹

M. kudoii Sasaki in Trans. Nat. Hist. Soc. Form. 21: 113. 1931; Kanehira, Form. Trees rev. ed. 513. 1936; Keng in Quart. Journ. Taiwan Mus. 8: 29. pl. 7. 1955.

A shrub. Leaves elliptic, 5-nerved, 2.1-3 cm long, 1.2-1.9 cm broad, obtuse at apex, obtuse at base, with appressed hairs above, along veins beneath, slightly serrate at margin. Flower solitary, terminal. Fruit ovoid, 8-10 mm cross, 7-8 mm long, with spreading scaly hairs.

Distribution: Southern China and Taiwan. Taiwan, around the area of Sun Moon Lake.

Altitude: 500-700 m.

Habitat: Beside a lake.

Flowering time: Sep, Dec.

Fruiting time: Sep, Dec.

NANTOU: Sun Moon Lake (Lake Suisua), *Kudo & Sasaki s.n.* Sep. 1929 (Type of *Melastoma kudoii* TAI!) *S. Sasaki s.n.* Sep. 1929 & Dec. 1931; Lienhuachih, *Kudo & Yamamoto s.n.* Jul. 1929.

7. *Memecylon* L.

Memecylon L., Sp. Pl. 349. 1753; Benth. & Hook. f., Gen. Pl. 1: 773. 1862; Cogn. in DC., Monogr. Phan. 7: 1130. 1891; Krass in Engler & Prantl, Pflanzenfam. 3(7): 198. 1893; Keng & Li, Fl. Taiwan 3: 858. 1977; Chen, Fl. Reip. Pop. Sinicae 53(1): 184. 1984.

Species about 130, in Africa, tropical Asia, Pacific Islands and Australia. One species in Taiwan.

1. *Memecylon lanceolatum* Blanco, Fl. Filip. 301. 1837; Chang in For. Journ. Pingt. 6: 3. pl. 4. 1964; Keng & Li in Fl. Taiwan 3: 858. 1977; Chen, Fl. Reip. Pop. Sinicae 53(1): 286. 1984. 革葉羊角扭

A shrub, branch terete, glabrous. Leaves elliptic, lanceolate or ovate-elliptic, 7-8 cm long, 2.3-3.5 cm broad, acuminate at apex, obtuse at base, veins pinnate,

veinlets obscured, entire at margin; petioles 3-5 mm long. Flowers in axillary cymose. Fruits globose, glabrous, 8 mm across, 7-8 mm long.

Distribution: The Philippines, Borneo, Celebes. Taiwan, confined to the island Lanyu.

Altitude: 300-500 m.

Habitat: In forest margin along a stream.

Flowering time: May.

Fruiting time: Aug.

TAITUNG: Lanyu, T. C. Huang & M. T. Kao 5243, C. C. Hsu 9414, C. E. Chang 3647, Y. L. Jong 927, S. Z. Yang et al. 2768 (NTUF), T. T. Lin 134 (NTUF), M. C. Ho 363 (NTUF).

8. *Osbeckia* L.

Osbeckia L., Sp. Pl. 345. 1753; Benth. & Hook. f., Gen. Pl. 1: 744. 1862; Cogn. in DC., Monogr. Phan. 7: 312. 1891; Keng in *Taiwania* 8: 30. 1955; Keng & Li in *Fl. Taiwan* 3: 859; Chen, *Fl. Reip. Pop. Sinicae* 53(1): 138. 1984.

Species about 100, in Tropical old World. Two species in Taiwan.

Key to the species

1. Leaves ovate, about 3 cm broad; calyx with spreading stellate hairs throughout..... 2. *O. oipipara*
1. Leaves lanceolate-oblong, 0.8-1.2 cm broad; calyx with stellate hairs at the sinus..... 1 *O. chinensis*
1. *Osbeckia chinensis* L., Sp. Pl. 345. 1753; Hook. in *Bot. Mag.* 69: t. 4026. 1843; Matsu-mura & Hayata in *Journ. Coll. Sci. Tokyo* 22: 145. 1906; Hayata, *Icon. Pl. Form.* 2: 22. 1912; Kanehira, *Form. Trees* rev. ed. 514. 1936; Keng in *Quart. Journ. Taiwan Mus.* 8: 31. *pl.* 8. 1955; Li, *Woody Fl. Taiwan* 660. *f.* 267. 1963; Keng & Li in *Fl. Taiwan* 3: 859. *pl.* 842. 1977; Chen in *Fl. Reip. Pop. Sinicae* 53(1): 141. 1984. 金錦香

An erect subshrub; stem hairy. Leaves lanceolate-oblong, 5-7-nerved, 1.8-3.2 cm long, 0.8-1.2 cm broad, obtuse at apex, rounded at base, slightly serrate at margin; petioles 1-2 mm long. Inflorescence terminal cymose; peduncle and pedicel sessile; calyx long hairy and with stellate hairs at the sinus. Fruit 7 mm across, 6 mm long.

Distribution: Malaysia to southern China, the Ryukyu, Taiwan and Japan.

Altitude: 0-1600 m.

Habitat: In dry forest margin, grassland.

Flowering time: Jun, Oct.

Fruiting time: Oct.

TAIWAN: U. Faurie 8421. TAIPEI: Yehliu, M. T. Kao s.n. June 1957; Tatun-shan, S. Sasaki s.n. June 1928. NANTOU: Lungyenlin, H. Simada 4464 (TAIF). CHIAYI: Tungpushan, S. Sasaki s.n. Oct. 1909. KAOHSIUNG: Tengchih, T. C. Huang et al. 13918. PINGTUNG: Nanjenshan, S. Sasaki s.n. June 1912 (TAIF). TAITUNG: Chenkwangao, Kobayashi 4774 (TAIF).

2. *Osbeckia opipara* C. Y. Wu & C. Chen in *Guihaia* 2(4): 184. f. 1, 13-14. 1982; Chen in *Fl. Reip. Pop. Sinicae* 53(1): 144. 1984. 朝天籬

O. crinita auct. non Benth.: Keng in *Quart. Journ. Taiwan Mus.* 8: 31. 1955; Keng & Li in *Fl. Taiwan* 3: 861. 1917.

An erect shrub; stem with spreading hairs. Leaves ovate, 5-nerved, about 5.5 cm long, 3 cm broad, acute at apex, rounded at base, serrate at margin, hairy on both surfaces. Inflorescence terminal cymose, pedunculate; leaves gradually becoming smaller into bracts at the top of branch; pedicels subsessile; calyx with stellate hairs throughout. Fruit oval, 1.4-2 cm long.

Distribution: Indo-China, Thailand, southern China and Taiwan. Taiwan, only found in the central part.

Altitude: ca. 700 m.

Habitat: Beside a lake.

Flowering time: May.

Fruiting time: Unknown.

CHINA: KWANGTUNG: Yangshan County, *T. M. Tsui* 633; Lohchang, *W. T. Tsang* 20756; Wungyuen, *S. K. Lau* 24109, 24513, *C. Wang* 38427. TAIWAN: NAN-TOU: Sun Moon Lake, *S. Sasaki* s. n. May 1929.

Osbeckia opipara, once considered conspecific with *O. crinita*, was described in 1982. The distinction between *O. opipara* and *O. crinita* is given in Table 4. The distinction of these two species is mainly by hair condition and the color of dry specimen, brown in *O. crinita* against yellowish in *O. opipara*. Since our specimens are just the same as those from Kwangtung Province, we follow the treatment of Chen (1984). But further study is necessary.

The following specimen in TAI refers to *O. crinita*. CHINA: Szuchuan: Oomei, Paoningchih-Lungmentung, *Tsou* 6408, 6932; Fuhuchih, *W. P. Fang* 15505.

Table 4. The characters different between *O. opipara* and *O. crinita* (modified from Chen (1984))

Character	<i>O. crinita</i>	<i>O. opipara</i>
Stem	spreading hair	appressed or ascending hair
Leaf		
above	appressed hair	appressed hair
beneath	appressed hair along veins; brown when dry	appressed hair, soft hair and glandular dot; yellow or yellowish when dry
Calyx	with stellate hair	with stellate hair and soft hair
lobe	lanceolate	triangular or ovate-triangular
Distribution	west of Kwangsi Prov.	east of Kwangsi Prov.

9. *Otanthera* Blume

Otanthera Blume, *Flora* 488. 1831; Benth. & Hook. f., *Gen. Pl.* 1: 746. 1867; Cogn. in DC., *Monogr. Phan.* 7: 339. 1891; Krass in Engler & *Plantl. Pflanzfam.* 3(7): 153. 1893; Keng in *Quat. Journ. Taiwan Mus.* 8: 32. 1955; Keng & Li in *Fl. Taiwan* 3: 861. 1977; Chen in *Fl. Reip. Pop. Sinicae* 53(1): 151. 1984.

Species about 8, in India, Burma, Malaysia, Australia, the Philippines and Taiwan. One species in Taiwan.

1. *Otanthera scaberrima* (Hayata) Ohwi in Journ. Jap. Bot. 12: 386. 1936; Keng in Quart. Journ. Taiwan Mus. 8: 32. *pl.* 9. 1955; Keng & Li in Fl. Taiwan 3: 862. *pl.* 843. 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 152. 1984. 糙葉耳藥花

Osbeckia scaberrima Hayata in Journ. Coll. Sci. Univ. Tokyo 31(1): 115. 1911, Icon. Pl. Form. 2: 22. 1912; Kanehira, Form. Trees rev. ed. 513. *f.* 475. 1936.

O. asper auct. non Blume, Matsumura & Hayata in Journ. Coll. Sci. Univ. Tokyo 26: 146. 1906.

An erect shrub; stem with stiff appressed hairs. Leaves ovate or lanceolate, 5-nerved, 2.2-5.5 cm long, 1-2.2 cm broad, obtuse at apex, rounded to acute at base, slightly serrate at margin, with long stiff appressed hairs at both surfaces; petioles about 2 mm long. Flowers in terminal cymes or dichasium; peduncles sessile to 6 mm long. Fruit globose, 6-7 mm long, with stiff appressed hairs.

Distribution: Endemic, throughout the island.

Altitude: 100-2500 m.

Habitat: In roadside or hill slope.

Flowering time: May, Jul-Oct.

Fruiting time: May-Aug, Oct.

TAIWAN: *U. Faurie* 8438. TAIPEI: Rimogan, *T. Suzuki* 17476. ILAN: Suao, *Y. M. Hsu* 132; Taipingshan, *S. Sasaki s.n.* Sep. 1925; Tahanshan, *S. Suzuki* 1134. TAICHUNG: Chiapaotai, *M. T. Kao* 9756; Pahsienshan, *T. Suzuki* 5589; Tahsueshan forest track, *S. Y. Lu* 15869 (TAIF). NANTOU: Tungpu-Patungkuan, *M. Tamura et al.* 21865; Musya-Baikei, *Kudo & Mori* 2347A; Puli, *C. C. Hsu* 11350. CHIAYI: Along Alishan High Way, *S. Y. Lu* 16016 (TAIF); Alishan, *S. Sasaki s.n.* Jan. 1936; Kuantsuling, *Morimoto* 519. KAOHSIUNG: Sanping, *Ou & Kao* 9213. PINGTUNG: Jinshuiying, *Fukuyama s.n.* Jan.; Kuanshan, *Mori s.n.* Nov. 1907 (TAIF). HUALIEN: *S. Sasaki s.n.* May 1932, *S. Suzuki s.n.* Dec. 1931; Tailuko, *Liu et al.* 170; Tayuling, *Chuang & Kao* 4420; Chimei, *H. J. Su* 5872 (NTUF); Chimei-Juishue, *Liu & Lin* 1888 (NTUF), 1893 (NTUF), 1894 (NTUF), 1895 (NTUF), 1898 (NTUF), 1914 (NTUF); Tienhsian, *C. S. Kuoh et al.* 7005, *M. T. Kao* 8815; Tulanshan, *Liu & Lin* 1767 (NTUF); Luanshan, *C. C. Hsu* 3701. TAITUNG: Lanyu, *LKH & C* 458, *Chuang & Hsu* 2411; Kwehu, *C. C. Hsu* 3366; Chihpen-Juefen, *T. Hosokawa* 5185; Chihpen, *T. C. Huang* 8827; Tachukao, *S. Sasaki s.n.* May 1924 (TAIF).

10. *Pachycentria* Blume

Pachycentria Blume, Flora 14: 519. 1831; Benth. & Hook. f., Gen. Pl. 1: 760. 1867; Cogn. in DC., Monogr. Phan. 7: 605. 1891; Krass in Engler & Prantl, Pflanzenfam. 3(7): 182. 1898; Keng in Quart. Journ. Taiwan Mus. 8: 33. 1955; Keng & Li in Fl. Taiwan 3: 862; 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 280. 1984.

Species about 8, in Burma, Malaysia and Taiwan. One species in Taiwan.

1. *Pachycentria formosana* Hayata, Icon. Pl. Form. 2: 109. 1912; Kanehira, Form. Trees rev. ed. 514. *f.* 476. 196; Keng in Quart. Journ. Taiwan Mus. 8: 33. *pl.* 10. 1955; Keng & Li in Fl. Taiwan 3: 862. *pl.* 844. 1977; Chen in Fl. Reip. Pop. Sinicae 53(1): 281. 1984. 臺灣厚距花

Tashiroea okinawaensis auct. non Matsumura: Hayata in Journ. Coll. Sc. Univ. Tokyo 30: 114. 1911.

A creeping shrub; stem lenticellate, glabrous. Leaves elliptic, 3-nerved with the nerves extending from above the base, 4-14 cm long, 1.4-4.5 cm broad, obtuse or acuminate with obtuse tip at apex, acute or cuneate at base, slightly dentate at margin, with very short hairs at both surfaces; petioles 5-15 mm long. Inflorescence terminal cymose; peduncles sessile to 5 mm long; bracts 2 linear. Fruit ovoid to subglobose, 5-6 mm across, 5-7 mm long.

Distribution: Endemic, throughout the island.

Altitude: 300-2100 m.

Habitat: Under forest, forest margin.

Flowering time: Apr-Aug.

Fruiting time: Aug-Dec, Feb.

TAIPEI: Tunghou, C. L. Huang 901; Wulai, S. Suzuki 3281, S. Sasaki s.n. May 1919, M. T. Kao 8643; Wuliao-Sanhsia, S. Suzuki 5909; Hapen, T. Suzuki 16715; Pataoershan, C. M. Kuo 9148. ILAN: Bonbonshan, M. T. Kao 5931; Tayenshan, M. T. Kao K3198. TAICHUNG: Tungmaoshan, M. T. Kao 9671; Hohanshan, T. C. Huang 4686; Chinshan-Kukuan, T. C. Huang et al. 9662; Pahsienshan, T. Suzuki 5555. NANTOU: Kuantaochi, Wu & Hsieh 1447; Fenghuangshan, C. C. Hsu 6157, 6197, 6209; Sanlinchi, S. F. Huang 107; Chitou, C. C. Chuang 4000; Nenkao forest station, T. C. Huang & M. T. Kao 6026; Lushan, I. M. Liu 38; Chinshuikou, T. C. Huang 929. CHIAYI: Fenchihu, S. S. Ying 4500 (NTUF), 4502 (NTUF). KAOHSIUNG: Sanping, T. C. Huang 4928, M. T. Kao 7450, Chuang & Kao 3269; Nanfengshan, H. J. Chang 2083. PINGTUNG: En route to Tawushan, T. C. Huang et al. 13609; Wutai, S. Suzuki s.n. Sep. 1932; 25 compartment, T. C. Huang 10227, S. F. Huang 355; Tahanshan forest track, S. Y. Lu 14678 (TAIF); Nanjenshan, S. Sasaki s.n. June 1912 (TAIF). HUALIEN: Luanshan, T. C. Huang 4271; Chingshuishan, T. Nakamura 3833, C. C. Liao s.n. July 1978 (NTUF); Mukuashan, M. T. Kao 4214; Luomawangshan, S. S. Ying 1209 (NTUF); Taipalan, S. S. Ying 3475 (NTUF), 3478 (NTUF).

11. *Sarcopyramis* Wall.

Sarcopyramis Wall., Tent. Fl. Nep. 1: 32. t. 23. 1826; Benth. & Hook. f., Gen. Pl. 1: 754. 1864; Cogn. in DC., Monogr. Phan. 7: 517. 1891; Krass in Engler & Prantl, Pflanzenfam. 3(7): 176. 1898; Keng in Quart. Journ. Taiwan Mus. 8: 34. 1955; Keng & Li in Fl. Taiwan 3: 865. 1977; Hansen in Bot. Tidsskrift 73(3-4): 177-183. 1980; Chen in Fl. Reip. Pop. Sinicae 53(1): 245. 1984.

Monotypic, in Nepal, India, China, Taiwan, the Philippines, Borneo, Java and Malaysia. Two varieties in Taiwan.

Key to the varieties

1. Calyx 2-3 mm long, lobes rectangular with 2 horn-like hairs; petals 3-4 mm long; seeds with expansive raphe.....1. *S. napalensis* var. *bodinieri*
1. Calyx 4-5 mm long, lobes triangular with 5-7 horn-like hairs; petals 8-14 mm long; seeds with narrow raphe.....2. *S. napalensis* var. *delicata*

1. *Sarcopyramis napalensis* Wall., Tent. Fl. Nepal. 32. t. 23. 1824; Cogn. in DC., Monogr. Phan. 7: 517. 1891; Hansen in Bot. Tidsskrift 73(3-4): 180. 1980.

1a. var. *bodinieri* Lévl., Fl. Kouy-Techeou 278. 1914.

S. bodinieri Lévl. & Van. in Mem. Soc. Sci. Nat. Cherbourg 35: 397. 1906, in Fedde Repert. Sp. Nov. 4: 95. 1907; Hu in Journ. Arn. Arb. 33: 172. 1952; Chen in Fl. Reip. Pop. Sinicae 53(1): 246. 1984; Huang & Huang in Taiwania 33: 128. f. 2. 1988.

1b. var. *delicata* (C.B. Robinson) S.F. Huang & T.C. Huang, *com. nov.*

S. delicata C.B. Robinson in Bull. Torrey Bot. Club. 35: 72, 75. 1908; Hayata, Icon. Pl. Form. 3: 124. 1913; Keng in Quart. Journ. Taiwan Mus. 8: 35. 1955; Keng & Li in Fl. Taiwan 3: 865. pl. 845. 1977; Huang & Huang in Taiwania 33: 130. 1988.

S. bodinieri var. *delicata* (C.B. Robinson) C. Chen in Bull. Bot. Res. 4(3): 63, 1984, in Fl. Reip. Pop. Sinicae 53(1): 246. 1984.

Hansen (1980) monographically revised *Sarcopyramis* and adopted only one species, *S. napalensis* Wall., for the characters being continuous. Since the characters are continuous, we follow his treatment. But in Taiwan, obviously there are two distinguishable populations (Huang & Huang, 1988). Moreover Chen (1984) did not accepted Hansen's treatment. It perhaps means that the populations in China are also distinguishable. Hence we propose the intraspecific state to elucidate the regional differentiation.

The description and specimens examined refer to Huang and Huang (1988).

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臺灣植物誌之觀察 (11)

野牡丹科

黃星凡 黃增泉

摘要

本研究以乾燥標本為主，總共處理 11 屬包含 19 個分類羣，其中圓葉布勒德藤 (*Bredia rotundifolia*) 布勒德藤 (*Bredia scandens*)，東方肉穗草 (*Sarcopyramis delicata*) 及肉穗草 (*Sarcopyramis bodinieri*) 處理為變種；垂序布勒德藤 (*Bredia penduliflora*) 處理為小金石榴 (*Bredia gibba*) 之異名；深山野牡丹 (*Barthea formosana*) 為椴果花 (*Barthea barthei*) 之異名；潤葉金錦香 (*Osbeckia crinita*) 更正為朝天罐 (*Osbeckia opipara*)；並從蘭嶼野牡丹藤 (*Medinilla hayataina*) 之等價模式標本 (syntype) 中選取模式標本 (lectotype)。文中每一種屬均加入檢索表，有問題之分類羣亦加附註解。