Rubovietnamia sericantha (Rubiaceae: Gardenieae), a new combination and notes on the genus in China

Y.H. Tong[1, 2], W.B. Xu[3], Y.F. Deng[1], K.M. Wong[4] and N.H. Xia[1]

[1]Key Laboratory of Plant Resources Conservation & Sustainable Utilization,
South China Botanical Garden, Chinese Academy of Sciences,
Guangzhou, 510650, People's Republic of China
yh-tong@scbg.ac.cn, yfdeng@scbg.ac.cn (corresponding author), nhxia@scbg.ac.cn
[2]University of Chinese Academy of Sciences,
Beijing 100049, People's Republic of China
[3]Guangxi Institute of Botany, Guangxi Zhuang Autonomous Region
& Chinese Academy of Sciences, Guilin, 541006 Guangxi,
People's Republic of China
gxibwbxu@gmail.com
[4]Singapore Botanic Gardens, 1 Cluny Road, Singapore 259569
wkm2000@gmail.com

ABSTRACT. *Porterandia sericantha*, originally published as *Randia sericantha*, is re-combined as *Rubovietnamia sericantha*. Because of its earlier published specific epithet, it is the correct name for the generic type, *Rubovietnamia aristata*. *Rubovietnamia* consists of two species distributed in SW China and N Vietnam.

Keywords. China, new combination, nomenclature, *Porterandia*, taxonomy, Vietnam

Introduction

Porterandia Ridl. (1940: 593), a small genus of the Gardenieae in Rubiaceae, consists of about twenty species distributed in Peninsular Thailand, west Malaysia and Sulawesi with the centre of diversity in Borneo (Puff et al. 2005, Zahid & Wong 2010). It is characterised by distinctly sheathing stipules, a densely bristly corolla tube outer surface, absence of (or at most minute) hairs on the inner surface of the corolla-tube, and included anthers and style (Zahid & Wong 2010).

Porterandia sericantha (W.C.Chen) W.C.Chen (1999: 384) is the only species ascribed to the genus in China. It was originally described as *Randia sericantha* W.C.Chen (1987: 298) based on collections from the Guangxi and Yunnan provinces, SW China (Fig. 1). Zahid & Wong (2010) pointed out that it is quite different from typical *Porterandia* in having the stipules just slightly fused at the base and not forming a distinct tubular sheath, a sparsely hairy corolla tube outer surface, long flexuous hairs on the inner surface of the corolla tube, and exerted anthers and style. They (Zahid & Wong 2010) excluded this species from *Porterandia*, but did not place it into any genus. In fact, these characters of the species conform well to *Rubovietnamia* Tirveng. (Tirvengadum 1998: 166).

Rubovietnamia

The genus *Rubovietnamia* was established with the sole species *R. aristata* Tirveng. (Tirvengadum 1998: 167) based on collections from northern Vietnam. Later, *R. aristata* was also reported from Yunnan and Guangxi, China (Zhang et al. 2007). The genus differs from *Vidalasia* Tirveng. in having typically 2–8-flowered cymes (sometimes reduced to single flower), subentire stipuliform bracts and bracteoles, and 2–4 ovules and seeds (Tirvengadum 1998, Zhang et al. 2007, Chen & Taylor 2011). *Vidalasia* has many-flowered compound cymes, erose-setose stipules and bracts, and numerous ovules and seeds. Mou & Zhang (2010) suggested a sister relationship between *Rubovietnamia* and *Duperrea* Pierre ex Pitard (1924: 334) based on combined sequences of two chloroplast markers, but they were unable to test the relationship between *Rubovietnamia* and *Vidalasia*, implied by Tirvengadum (1998) as close.

In China, the distribution recorded for *Porterandia sericantha* overlaps with *Rubovietnamia aristata*, sharing a similar habitat. Also, these two species are very difficult to distinguish by the illustrations provided by Chen (1987, 1999) and Tirvengadum (1998), respectively. Chen (1987, 1999) included a line illustration for the species, which incorrectly depicts an unequally bi-lobed stigma. After examining the type material, it was found that the stigma is club-like, grooved, with 2 equal lobes initially cohered together (Fig. 1). Zhang et al. (2007) had studied and noted specimen material identified by Tirvengadum when they reported *R. aristata* in China. We have checked an image of the type of *R. aristata*, and have examined all specimens cited by Zhang et al. These and *Porterandia sericantha* in Chinese herbaria represent the same species. At the specific rank, the epithet "*sericantha*" has priority over "*aristata*", so that the new combination, *Rubovietnamia sericantha*, is necessary (see below).

Mou & Zhang (2010) described a second species, *Rubovietnamia nonggangensis* F.J.Mou & D.X.Zhang (2010: 123), from Guangxi, China. It differs from *R. aristata* Tirveng. in having much broader foliaceous calyx lobes, and the leaves, young branches and flowers (including pedicels, ovary, styles and calyx) densely covered with hairs.

Rubovietnamia sericantha (W.C.Chen) Y.F.Deng, Y.H.Tong, W.B.Xu & N.H.Xia, **comb. nov.** Basionym: *Randia sericantha* W.C.Chen, Guihaia 7: 298 (1987). – *Porterandia sericantha* (W.C.Chen) W.C.Chen, Fl. Reipubl. Popularis Sin. 71(1): 384 (1999); Fl. Yunnan. 15:192 (2003); Chen & Taylor, Fl. China 19: 292 (2011). TYPE: China, Yunnan, Xichou Xian, Xinjie, 1200 m, 10 June 1964, *Wang 903* (holo KUN; iso KUN). (Fig. 2)

Rubovietnamia aristata Tirveng., Biogeographica 74: 167 (1988); Zhang et al., Acta Phytotax. Sin. 45: 91 (2007); Chen & Taylor, Fl. China 19: 320 (2011); **synon. nov.** TYPE: Vietnam, Hoa Binh, Paco, Mai Cheu, 19 November 1997, *Bastien & Doa 22bis* (holo P; iso HN).

Shrubs or small trees, 1–6 m tall. Bark covered with variously shaped lenticels. Young branches compressed to terete, glabrous or moderately to densely ferruginous

Fig. 1. Holotype of *Rubovietnamia sericantha*. Courtesy of the herbarium of the Kunming Institute of Botany, Chinese Academy of Sciences (KUN).

Fig. 2. *Rubovietnamia sericantha*. **A.** Flowering branch. **B.** Portion of stem showing stipules. **C.** Flower with calyx and corolla. **D.** Calyx slit and spread out. **E.** Corolla slit and spread out. **F.** Stamen. **G.** Ovary and style. **H.** Fruiting branch. A–G from *Wang 903* (KUN), H from *Ching 6401* (IBSC). (Drawn by Wang Ling.)

hirtellous. ***Stipules*** ovate to triangular, 5–7 mm, chartaceous, moderately to densely strigillose to hirtellous or glabrous, terminating with two minute interpetiolar limbs. Leaves opposite; petiole 3–15 mm, moderately to densely pilosulous or hirtellous to glabrescent; ***leaf blade*** elliptic, oblanceolate, oblong or obovate, 4–18 × 1.5–5 cm, drying papery, adaxially sparsely strigillose to subglabrous, abaxially sparsely to densely pilosulous or hirtellous, base cuneate to obtuse, margin entire, apex acute to usually short-acuminate, often appearing aristate; lateral veins 7–14 pairs, with pilosulous domatia in abaxial axils, abaxially inconspicuous, adaxially prominent. ***Inflorescences*** cymose, 2–5.5 × 3–5 cm, (1–)3–5-flowered, basically terminal but occupying a pseudo-axillary position because of sympodial growth; peduncle (0–)1–5 mm, densely pilosulous to hirtellous; bracts triangular, lanceolate or stipuliform, 2.5–3 mm long, apex acute to acuminate. ***Flowers*** with pedicels 0.5–1.7 cm; bracteoles minute, 1–2 mm long, hirtellous; calyx tube campanulate, 0.7–1 cm long, densely pilosulous and/or strigose, lobes 5, valvate in buds, ovate-oblong, 5–7 mm long, apex acute, with the central nerve dorsally ending into an arista, margin ciliate; corolla white, outside densely yellow sericeous, tube cylindrical, 2–2.2 cm long, inside glabrous except with a villous ring at middle, lobes 5, ovate to elliptic, 1–1.2 × 0.5–0.6 cm; stamens 5, inserted near the throat, exerted, filaments absent or inconspicuous, anthers linear, adnate, dorsifixed, 3–5 mm long, apex acute; ovary hirtellous, 1-locular, ovules 4; style subcylindrical, c. 2.5 cm long, hirsute; stigma bifid, 2–3 mm long, striate. ***Fruit*** a berry, subglobose, 1–1.7 cm in diam., pilosulous to strigillose; seeds about 4, ovoid or subglobose, 4–7 mm across.

Distribution. The species is distributed in N Vietnam and SW China (Guangxi and Yunnan) (Fig. 3).

Ecology. Rubovietnamia sericantha grows in forests or thickets at streamside in valleys, and also on slopes of limestone hills at elevations of 200–1500 m. It was observed flowering from May to June and fruiting from July to October.

Additional specimens examined: CHINA. **Guangxi.** Baise Shi, Youjiang Qu, Daleng Xiang, Longhe Cun, 8 Jun 1977, *Huang 3-22060* (GXMI), 10 Jun 1984, *Chen 37019* (GXMI); Daxin Xian, Taocheng Zhen, Baoyuan, 13 May 1981, *Chen & Ling 34194* (GXMI); Debao Xian, Longguang Xiang, 700 m, 14 Jan 1956, *Expedition to Baise 1904* (IBK, IBSC, KUN), Du'an Xiang, Fushan Cun, 14 Jul 1977, *Expedition to Debao 3-0466065* (GXMI, IBSC), Yandong Xiang, Qinjia Cun, 24 May 1977, *Expedition to Debao 3-47363* (GXMI, IBSC), Chengguan Zhen, Hanlong Cun, 31 May 1977, *Expedition to Debao 3-47384* (GXMI); Hechi Shi, 12 Jul 1928, *Ching 6401* (IBSC), Jingchengjiang Qu, Baitu Xiang, Deming Cun, Jiliao, 2 Aug 1977, *Lan 4-4-156* (GXMI); Huanjiang Xian, Mulun Xiang, Leyi to Donglai, 21 Oct 1991, *Botanical Expedition to Yunnan, Guizhou & Guangxi 70060* (IBK, KUN), Donglai, 520 m, 18 Apr 2012, *Xu, Peng & Hu ML1053* (IBK), Baidan Tun, Tantou, 270 m, 25 Apr 2012, *Jiang, Yang & Mo 11591* (IBK), Daan Xiang, Dingxin Cun, Xiagang, 16 Aug 1977, *Expedition to Huanjiang 4-3-322* (GXMI), Dongxing Zhen, Duya Cun, Caiken, 14 Aug 1977, *Expedition to Huanjiang 4-3-755* (GXMI); Jingxi Xian, Renzhuang Xiang, Bangliang Cun, 750 m, 10 Sep 2006, *Liu & Xu 8* (IBK), near Laolangdong, 590 m, 8 Sep 2010, *Huang & Pan LYJX0021* (IBK), Yuexu Zhen, Daxing Cun, 850 m, *Xu & Liang B0069* (IBK), Hurun Xiang, Dongpai Cun, 690 m, 20

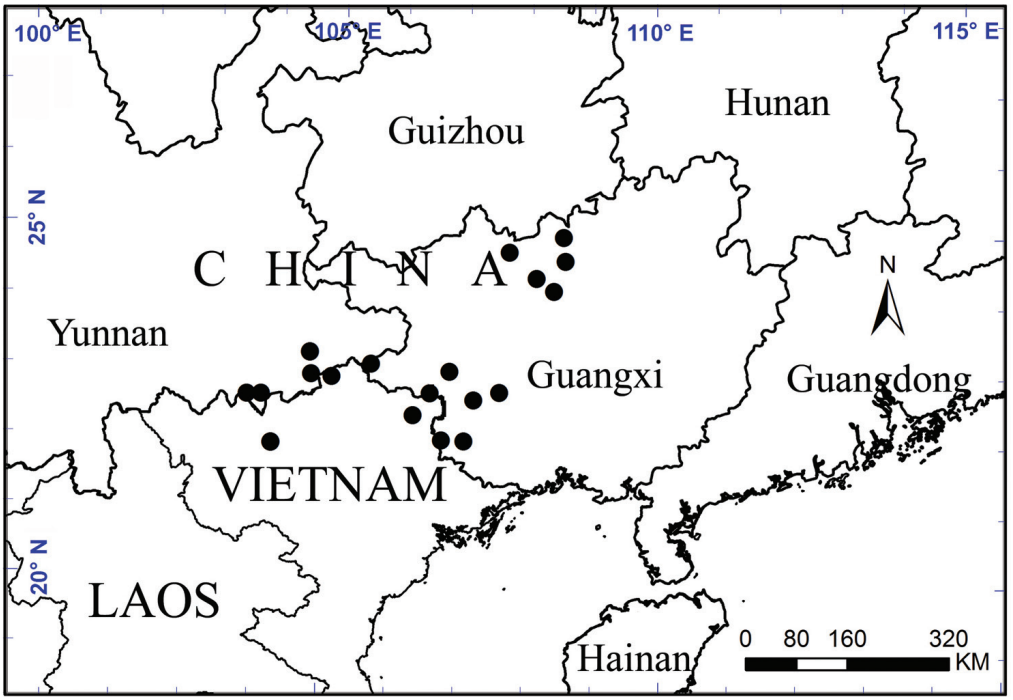

Fig. 3. Distribution of *Rubovietnamia sericantha* (●).

Sep 2010, *Huang & Wu LYJX0574* (IBK), Sanhe Xiang, Gelu Cun, 840 m, 15 Sep 2010, *Huang & Wu LYJX0361* (IBK), Nanpo Xiang, Diding Cun, Baling Tun, 890 m, 25 Sep 2010, *Huang & Wu LYJX0696* (IBK), Dizhai, 850 m, 21 Dec 1958, *Chang 15116* (IBK, IBSC), Wuping Xiang, Yixing Cun, 20 Dec 1958, *Chang 14820* (IBK, IBSC), Biaolin Xiang, Tongde, Laohuaidashan, 24 Aug 1935, *Ko 55605* (IBK, IBSC), Tanggang to Dean, 3 Nov 1956, *Li P00815* (IBK, IBSC), Tanggang to Anzhen, roadside, on slope, 3 Nov 1956, *Li 3472* (IBSC), Dizhou Xiang, Fuliu Cun, 26 Jul 1977, *Lin 21602* (GXMI); Long'an Xian, Pingshan Xiang, 18 May 2005, *Shui, Chen & Zhang B2005-311* (KUN, PE), 18 May 2005, *Shui, Chen & Zhang B2005-325* (KUN, PE); Longzhou Xian, Jinlong Zhen, Banbi, 9 Jun 1965, *Fang & Liang 21602* (GXMI), 350 m, 14 Apr 2010, *Xu & Pan 10067* (IBK), 6 Jun 1977, *Expedition to Longzhou 2-007* (GXMI), Longdao, 320 m, 23 Jul 2009, *Huang, Ye & Li H09620* (IBK), Shashu, 4 May 1956, *Li 282* (IBK, IBSC), Nonggang, 230 m, 16 Jul 2009, *Huang, Wu & Chen H09099* (IBK), 240 m, *Expedition to Guangxi 2016* (IBK), 300 m, 7 Oct 2010, *Xu & Wu LZ113* (IBK), 600 m, 10 Jul 2010, *Xu & Wu 10544* (IBK), Qinglongshan, 160 m, 11 Aug 2008, *Expedition to Guangxi 2570* (IBK), Sanlian Xiang, 290–370 m, *Expedition to Guangxi 3755* (IBK), 370 m, 16 May 2009, *Huang H09473* (IBK), Xiadong Xiang, Nahua Cun, Longqin, 350 m, 15 Oct 2008, *Expedition to Guangxi 3955* (IBK), Xiangshui Xiang, Siqing Dadui, Longshui, 16 Jun 1979, *Expedition of Longzhou Institute of Medicine 0358* (GXMI), Zhupu Xiang, 200 m, 13 Oct 2008, *Liang et al. 8268* (IBK), 21 Sep 1935, *Guangxi Museum 60* (IBSC), Shuikou Xiang, Shishan, 16 Sep 1958, *Chang 12089* (IBSC), Paizong Xiang, Bagouniu, 380-650 m, 24 Aug 1957, *Chen 13952* (IBK, IBSC); Luocheng Xian, Qiaoshan Xiang, Qiaoben Cun, Lading, 26 May 1977, *Expedition to Luocheng 4-1-1233* (GXMI), Huaiqun Zhen, Zhenxin Cun, Changdong, 29 May 1977, *Expedition to Luocheng 4-1-1563* (GXMI), Tianhe Zhen, Beijiang Cun, 21 Jun 1977,

Expedition to Luocheng 4-1-1777 (GXMI); Nandan Xian, Baxu Xiang, Li'ao Cun, Jiuxu, 28 Sep 1977, *Expedition to Nandan 4-5-828* (GXMI); Napo Xian, Baidu Xiang, Nongbu Cun, 1200 m, 20 May 198, *S China Expedition 845* (IBSC), 18 Oct 1977, *Fang 3-1529* (GXMI), Nonghua Cun, Nonghua, 950 m, 20 Jun 1982, *Fang, Lai & Wang 25150* (GXMI), Nonglong Cun, 4 Jul 2012, *Tong & Bai 12070419* (IBSC), Delong Xiang, 21 May 1959, *Liang 3094* (GXMI), Pingmeng Zhen, 16 Oct 1997, *Sino-Japanese Botanical Expedition to Yunnan & Guangxi of China 1114* (IBK, KUN), Lengzhong Xiang, Longxu, 900 m, 3 Dec 1956, *Li 3472* (IBK, IBSC), Baihe Xiang, Shanglong Cun, 27 Oct 1977, *Fang 3-1573* (GXMI); Ningming Xian, Longrui, 250 m, 29 Apr 1980, *Expedition to Nonggang 11897* (IBK), 300 m, 25 May 2008, *Expedition to Guangxi 1181* (IBK), 110–280 m, 13 Oct 2008, *Expedition to Guangxi 3861* (IBK); Yizhou Shi, Lali Xiang, Baowei Cun, Machao, *Chen & Sha 55953* (GXMI), 15 May 1991, *Rao 55846* (GXMI), Desheng Zhen, Xinhui Cun, 29 Sep 1977, *Expedition to Yishan 4-2-1-266* (GXMI), Qianhe Cun, 2 Oct 1977, *Expedition to Yishan 4-2-1-506* (GXMI). **Yunnan.** Hekou Xian, Nanxi Zhen, Luyingqing, 700–950 m, 21 Oct 2001, *Shui et al. 15160* (KUN), Yaoshan Xiang, Dudian Cun, Baiquanchong, 760 m, 27 Oct 1954, *Feng 5185* (KUN); Maguan Xian, Gulinqing Xiang, Laofangzi, 103º57'53"E 22º46'49"N, 1400 m, 16 Oct 2002, *Shui, Chen & Sheng 31547* (KUN, PE); Malipo Xian, Babu Xiang, Yunling Cun, Huangjinyin, 28 Nov 1964, *unknown coll. 9944* (KUN), 1100 m, 20 Jan 1940, *Wang 86267* (IBSC, KUN), 28 Nov 1964, *Wu 9944* (KUN), 1030 m, 28 Nov 1964, *Lin 658* (KUN), in 1947, *Feng 13166* (KUN), 1100–1400 m, 15 Nov 1947, *Feng 13259* (IBSC, KUN), 20 Aug 2012, *Tong & Bai 12082012* (IBSC), Ganhe Xiang, 1100 m, 11 Nov 1951, *Mao 645* (HITBC, KUN), Tiechang Xiang, Guangao, 1000 m, 14 Feb 1940, *Wang 86806* (IBSC, KUN), Xiantian, 24 Nov 1963, *Liu et al. 101861* (KUN), 1000 m, 3 Jan 1940, *Wang 86133* (IBK, IBSC, KUN), Dongding Cun, 1000–1100 m, 18 Nov 1947, *Feng 13364* (IBSC, KUN), 1000 m, 4 Jan 1940, *Wang 86193* (IBSC, KUN), Xiajinchang, near Jiangjia Tun, 1210 m, 3 Oct 2003, *Shui, Chen & Sheng 21642* (IBSC, KUN, PE), 1210 m, 3 Oct 2003, *Shui, Chen & Sheng 32727* (KUN, PE), Majie Xiang, 1300–1500 m, 14 Oct 1947, *Feng 12484* (IBSC, KUN); Xichou Xian, Dongma Xiang, Guoditang, Dadi, 1350 m, 11 Jun 1991, *Shui B91-140* (KUN), Cha-ban, 1000 m, 27 Dec 1939, *Wang 86093* (IBSC, KUN).

VIETNAM. **Cao Bang.** Trung Khanh District, Ngoc Khe Municipality, Pac Nga village, 22º54'59"N 106º31'44"E, 700–750 m, 10 Jun 2004, *Averyanov, Loc, The & Vinh 5529* (MO, P). **Ha Giang.** Quan Ba District, Pass between Ha Giang and Quan Ba, 4–5 km outside Quan Ba, 23º06'03"N 105º01'20"E, 11 Jul 2002, *van der Werff, Dao, Gray & Doan 17282* (MO, P), *17286* (MO, P).

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