

Research note

A Taxonomic Revision of *Rhus chinensis* Mill. (Anacardiaceae) in Taiwan

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[Summary]

Based on our examination of taxonomic materials and field investigations, 2 varieties of *Rhus chinensis* Mill., i.e., *R. chinensis* Mill. var. *chinensis* and *R. chinensis* Mill. var. *roxburghii* (DC.) Rehder, were concluded to be distributed in Taiwan. For the flora of Taiwan, *R. chinensis* Mill. var. *chinensis* is newly recorded, and its populations are small and scattered in the mountains of Nantou and Taitung Counties. *Rhus chinensis* Mill. var. *roxburghii* (DC.) Rehder was treated as a variety under *R. javanica* L. in the *Flora of Taiwan*, 2nd edition. However, the type specimen indicated that *R. javanica* L. was a member of the genus *Brucea*, family Simaroubaceae, and was recombined into *Brucea* by E. D. Merrill in 1928 as *Brucea javanica* (L.) Merr. Herein, we accept the treatment that this is a variety under *R. chinensis* Mill. for its morphological similarity with *R. chinensis* Mill. var. *chinensis*.

Key words: Anacardiaceae, Flora of Taiwan, *Rhus chinensis* Mill. var. *chinensis*, *Rhus chinensis* Mill. var. *roxburghii* (DC.) Rehder.

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研究簡報

台灣之鹽膚木(漆樹科)分類訂正

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摘要

根據對分類材料之檢視以及野外之調查，我們認為台灣的鹽膚木共有2個變種，即鹽膚木(*Rhus chinensis* Mill. var. *chinensis*)與羅氏鹽膚木(*R. chinensis* Mill. var. *roxburghii* (DC.) Rehder)。其中，鹽膚木為台灣新記錄，於南投與台東之山區有少量分布。羅氏鹽膚木在第二版的台灣植物誌中，被處理成*R. javanica* L.下之變種。然而，*R. javanica* L.的模式標本是指苦木科(Simaroubaceae)之植物，該種且於1928年由Merrill氏組合至鴉膽子屬(*Brucea*)之下，即*Brucea javanica* (L.) Merr.，是故不宜再被用為漆樹科植物之學名。基於羅氏鹽膚木與鹽膚木在形態上之相似，本文認同將前者處理成為*R. chinensis* Mill.下變種之分類觀點。

關鍵詞：漆樹科、台灣植物誌、鹽膚木、羅氏鹽膚木。

許再文、蘇夢淮。2013。台灣之鹽膚木(漆樹科)分類訂正。台灣林業科學28(3):145-51。

INTRODUCTION

The family Anacardiaceae comprises 70 genera and about 875 species, and many of the species are economically important (Mabberly 1997). Several taxonomic opinions concerning the family Anacardiaceae in Taiwan were proposed (Li 1963, 1977a, Chang 1966, Liao 1973). Within the family, *Rhus* L. represents the largest and most widely distributed genus (Miller *et al.* 2001). A recent treatment of *Rhus* in Taiwan was reported in the *Flora of Taiwan*, 2nd edition (Hsieh 1993), in which 5 species were recognized, i.e., *R. ambigua* Lavallée ex Dippel, *R. hypoleuca* Champ. ex Benth., *R. javanica* L. var. *roxburghiana* (DC.) Rehder & E.H. Wilson, *R. succedanea* L., and *R. sylvestris* Siebold & Zucc.

Rhus javanica L. var. *roxburghiana* is a common tree that ranges from low to mid-elevations throughout Taiwan. On examining the literature and related specimens, however, we found there were 2 taxonomic problems with the name used for this plant in Taiwan.

First, the variety epithet, *roxburghiana*, was error-typed (Kanehira 1936, Li 1963, 1977a, Hsieh 1993), and should have been corrected to “*roxburghii*” as the published basionym (de Candolle 1825). Second, based on the type specimen (LINN-378.4 in the Linnean Herbarium), *R. javanica* L. was presented as a plant of the genus *Brucea* (Simaroubaceae), so that name was recombined into *Brucea javanica* (L.) Merr. (Merrill 1928). Despite there being some controversy (Furtado 1939), Merrill’s treatment was widely accepted by taxonomists (Li 1977b, 1993, Min and Barfod 2008, Xia 2008), and also by the Linnean Herbarium (c.f. the Linnean Plant Name Typification Project, <http://www.nhm.ac.uk/research-curation/research/projects/linnean-typification/databasehomehtml>). Therefore, the scientific name, *R. javanica* L., should no longer be an adequate name for the plant in the Anacardiaceae. The point of view that treated this plant as a variety named *R.*

chinensis Mill. var. *roxburghii* (DC.) Rehder (Rehder 1939) is accepted in this article, because of the plant's morphological similarity with *R. chinensis* Mill. var. *chinensis*.

In addition, in our botanic inventory of central Taiwan, an unrecorded plant belonging to the genus *Rhus* was found. This plant is characterized by winged rachises of pinnate leaves, which is a unique trait of *R. chinensis* Mill. var. *chinensis* when compared to other congeners.

In this paper, we propose a taxonomic revision of *R. chinensis* Mill. in Taiwan, and include a key, taxonomic treatments, descriptions, notes, and specimens. A line drawing and photos of the newly recorded *R. chinensis* Mill. var. *chinensis* are also provided.

Key to *Rhus chinensis* Mill. in Taiwan

1a. Leaf rachises winged..... var. *chinensis*

1b. Leaf rachises wingless var. *roxburghii*

Taxonomic treatment

Rhus chinensis Mill., Gard. Dict. ed. 8, *Rhus* no. 7. 1768; Britten, J. Bot. 38:316. 1900; Merr., Trans. Am. Phil. Soc. 24(2):244. 1935; Min and Barfod, Fl. China 11:346. 2008. Type: collector, date, locality unknown, BM000884394 (BM).

Rhus osbeckii Decne. ex Steud., Nomencl. Bot. ed. 22:452. 1841.

Schinus indicus Burm. f., Fl. Indica 315. 1768.

Small deciduous tree, up to 10 m high. Branchlets pubescent. Leaves odd-pinnate, rachises winged or wingless; leaflets (7~) 9~17, sessile, lateral ones opposite, ovate to oblong-lanceolate, upper ones 6~12 cm long, 3~6 cm broad, lower ones minor, apex acute or obtuse, base rounded to cuneate, adaxially dark-green, sparsely pubescent or glabrescent, abaxially pale-green, densely pubescent, margins serrate; petioles 4~9 cm long, densely

pubescent. Flowers dioecious; inflorescence panicle, terminal, densely pubescent; staminate flower pedicel short, calyx pubescent, lobes long ovate, ca. 1 mm long, margins ciliate, petals obovate-oblong, white, ca. 2 mm long; filaments ca. 2 mm long, disk annular, yellow; pistil flower petals oblong, white, ca. 2 mm long; staminodes 4 or 5, ovary ovoid, ca. 1 mm long, densely pubescent, styles 3, stigma capitate, disk annular, yellow. Drupe depressed-globose, 4~6 mm across, red when mature.

a. var. *chinensis*..... 鹽膚木 Figs. 1, 2.

Leaf rachises winged. Flowering June~Aug., fruiting Sept.~Nov.

Bhutan, Cambodia, China, India, Indonesia, Japan, Korea, Laos, Malaysia, Singapore, Thailand, Vietnam. Taiwan, so far only known from low to mid-elevations of Nantou and Taitung Counties.

Note: *Rhus chinensis* Mill. var. *chinensis* is widely distributed in Southeast and East Asia. However, Taiwan was formerly excluded from its distribution. In 2005, a wild population with ca. 20 mature individuals of the variety was found in Puli Township, Nantou County, central Taiwan, during our botanical inventory. Subsequently, another young wild population in Haitwuan Township, Taitung County, eastern Taiwan, was recorded. Both populations were growing on slopes at roadsides, sites which seemed to be related to landscape engineering. If so, this variety might have been brought to Taiwan occasionally by landscape projects, and thus it should be treated as a naturalized plant.

Specimens examined:

China: Anhui Prov., Hefei City, Mt. Dashu, 90 m, 26 July 2002, *H.K. Wang et al.* 2032 (TAIF). Fujian Prov., Yongan County, Yongan, 1 Sept. 2005, *Herbal Community*

0510005 (TAIF). Guangdong Prov., Lien County, Dadongshan-Jolongken, 92 m, 12 Oct. 1958, *P.X. Tan* 59767 (PE); Zhenhua County, Xinbaishe, 950 m, 19 Sept. 1958, *L. Deng* 7694 (PE). Guangxi Prov., Tzuyuan

County, Meihsi Township, 456 m, 6 Oct. 2010, *J.B. Zhang and Y.Q. Yan* 20101006100 (TAIF). Guizhou Prov., Ceheng County, 400 m, 17 Sept. 1992, *J.J. Zen* 3563 (PE); Guiyang City, Qingyan, 1300 m, 8 July 2003, *M.T.*

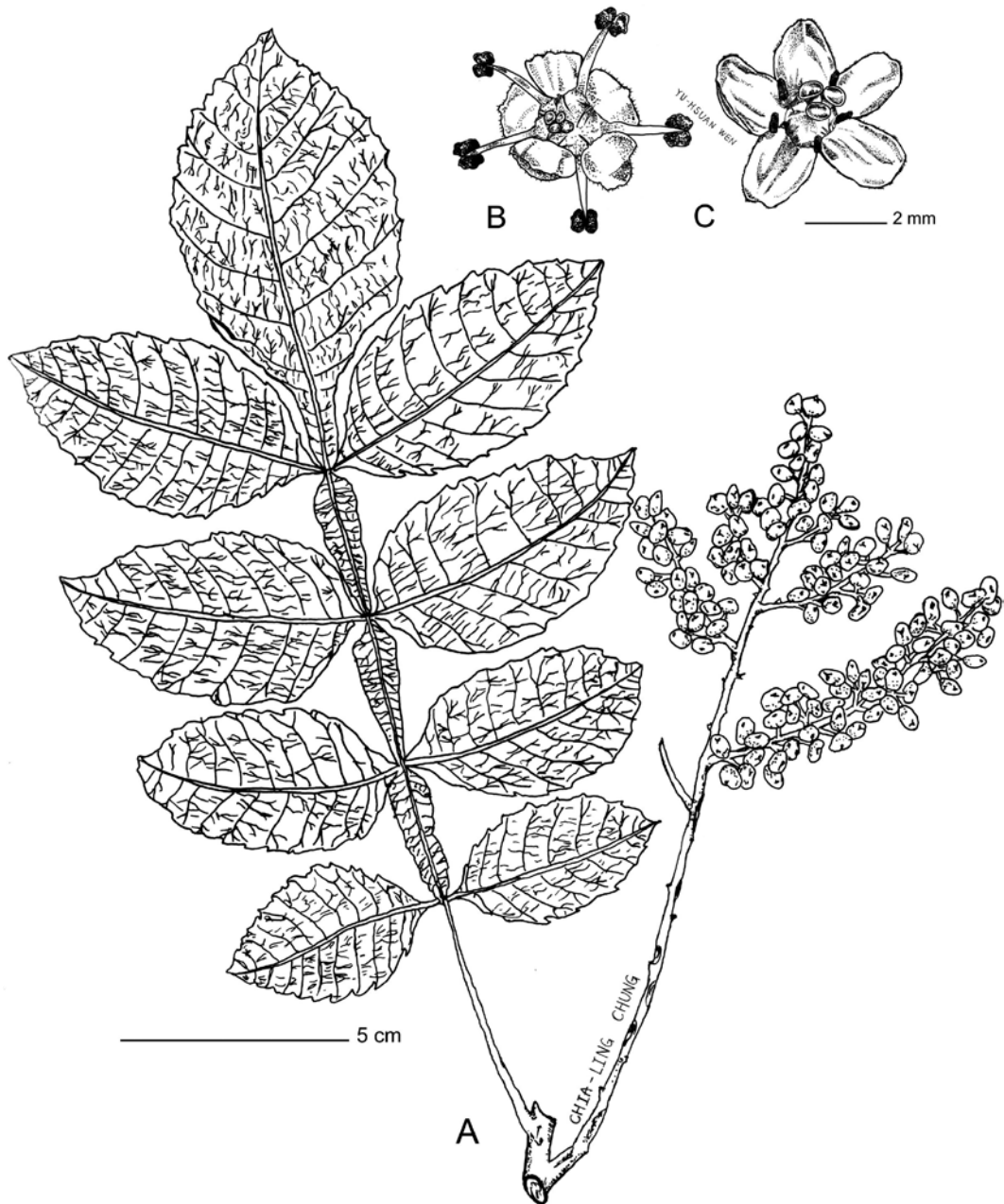


Fig. 1. *Rhus chinensis* Mill. var. *chinensis*. A, Fruiting branch; B, staminate flower; C, pistillate flower.

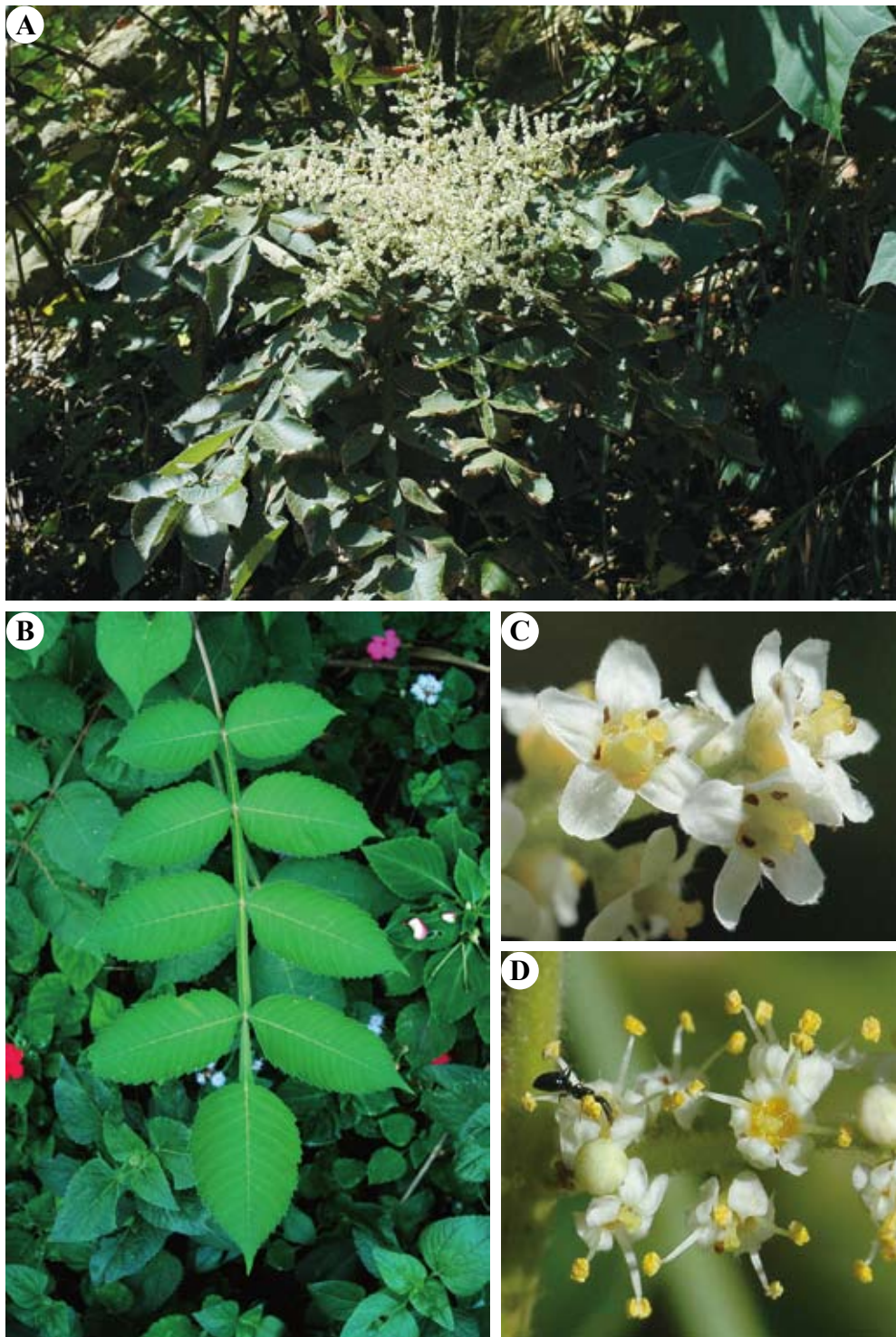


Fig. 2. Photos of *Rhus chinensis* Mill. var. *chinensis*. A, Flowering branch; B, pinnate with a winged rachis; C, pistillate flowers; D, staminate flowers.

An and *H.L. Wu* 5195 (TAIF); Sinan County, Yingwuxi, 850 m, 1 Oct. 2003, *J. Zhang* 4090 (TAIF); Wangmo County, Nashang Forestry Centre, 680 m, 10 July 2003, *G.F. Wang* 1-0540 (TAIF). Hong Kong, Kowloon, Sheungshui, 8 Dec. 1965, *M.T. Kao* 6419 (PH). Hunan Prov., Nanyue Hengshan Reservation, 630 m, 1 Sept. 2002, *Z.H. Hu* 546 (TAIF); Qidong County, Zaoyuan Village, 450 m, 24 Aug. 2002, *J.D. Li* 55 (TAIF); Sangzhi County, Badagongshan National Natural Reserve, 1500 m, 28 Oct. 2009, *J.B. Zhang et al.*, 091028012 (TAIF). Jiangxi Prov. Jiujiang County, Shimen Forestry Centre, 70 m, 24 Oct. 2000, *C.M. Tan* 00750 (TAIF). Sichuan Prov., Dujiangyan City, Boruo Temple, 700 m, 5 Oct. 2003, *D.H. Zhu et al.* 2171 (TAIF); Leibo County, 214 Forestry Centre, 1700 m, 14 Aug. 1989, *Q.S. Zhao* 1337 (TAIF); Songtao Miao Autonomous County, Mojia, Hekou, 780 m, 4 Aug. 2003, *H. Mo* 6061 (TAIF). Yunan Prov., Lichiang City, 3256 m, 9 Aug. 2006, *T.W. Hsu* 12337 (TAIE). Zhejiang Prov., Hangzhou City, Taoyuanling, 28 July 2002, *Q.G. Zhu and Q.W. Liu* 136 (TAIF).

Japan: Kyushu Reg., Kagoshima County, Yaku Island, 5 Oct. 2001, *Y.P. Cheng* 4533 (TAIF); Tohoku Reg., Aomori County, Iwasaka, 46 m, 25 June 2007, *T.W. Hsu* 12741 (TAIE).

Taiwan: Nantou County, Hutzishan, 450 m, 1 July 2012, *M.H. Su and S.I. Chen* 701 (TAIF); Taitung County, Hsinwu to Hsiama, 4 June 2012, *T.C. Hsu* 5825 (TAIF).

b. var. *roxburghii* (DC.) Rehder, *J. Arn. Arb.* 20:416. 1939. 羅氏鹽膚木(山鹽青; 鹽埔)
Rhus semialata Murray var. *roxburghii* DC., *Prodr.* 2:67. 1825.

Rhus roxburghii Decne. ex Steud., *Nomencl. Bot. ed.* 2. 2:452. 1841.

Rhus javanica L. var. *roxburghii* (DC.) Rehder & E.H. Wilson in Sargent, *Pl. Wilson.*

2:179. 1916; Hsieh, *Fl. Taiwan* 2nd ed. 3:585. 1993 (*non roxburghiana*).

Leaf rachises wingless. Flowering Aug.~Sept., fruiting Oct.~Dec.

South China to Southeast Asia. Taiwan, in low to mid-elevations throughout the island.

Specimens examined:

China: Jiangxi Prov., Anfu County, Wukonshan-Kwanyingyen, 1450 m, 22 Aug. 1963, *J.S. Yue et al.* 3700 (PE).

Taiwan: Hsinchu County, Chienshi, 24 Apr. 2002, *M.Y. Shen* 3016 (TAIE); Shihlukutao, 1400 m, 20 Nov. 2002, *Y.H. Tseng* 3346 (TAIE). Hualien County, Chilaipi, 9 Oct. 2002, *M.L. Huang* 004 (TAIF); Luanshan, 20 Oct. 1967, *T.C. Huang* 4282 (TAI). Ilan County, Ssuchi to Liumaoan, 2 July 1930, *S. Suzuki* 4919 (TAI). Kaohsiung City, Chiah-sien, 1 Jan. 1977, *Y.C. Jeng* 628 (TAI); Fengshan, 10 Nov. 1915, *E. Matuda* 1204 (TAI); Tashu, 24 Nov. 1935, *K. Moriya* 27 (TAI). Machu, Peikan, 33 m, 29 Aug. 2009, *T.W. Hsu* 13258 (TAIE). Miaoli County, Sihua, 150 m, 5 Oct. 1995, *C.I. Peng* 16404 (HAST); Taian, 1110 m, 8 Oct. 1996, *C.H. Chen* 1627 (TAIE). Nantou County, Lienhuachih, 600~700 m, 25 July 2003, *H.Y. Chang s. n.* (TAIF); Maolan-Sun Moon Lake, 17 Sept. 1929, *Kudo and Sasaki* 15122 (TAI). New Taipei City, Ankeng, 21 Oct. 1923, *S. Sasaki s. n.* (TAI); Gueishan neighborhood, 0~100 m, 19 Oct. 2003, *C.C. Chen* 870 (TAIF); Kuanyinshan, 15 Sept. 1940, *N. Fukuyama and S. Miuda* 92 (PH, TAI). Pingtung County, Hsiaoli-uchiu, 3 Apr. 1930, *T. Hosokawa* 2062 (TAI); Kenting Park to Kenting, 4 Oct. 1967, *C.C. Hsu and R.H. Hsu* 4185 (TAI); Laiyi, Aug. 1927, *S. Sasaki s. n.* (TAI). Taichung City, Chiapaotai, 900~1100 m, 4 Sept. 1956, *M.T. Kao* 477 (TAI); Chungshing Ling to Takeng, 500~600 m, 2 Nov. 1986, *C.I. Peng* 9978

(HAST); Tatushan, 7 Sept. 1994, *Y.C. Sun 519* (TAIE). Tainan City, Kwanzeling, 6 Aug. 1955, *W.Y. Chang s. n.* (HAST); Shuangchun, 22 Apr. 1999, *M.Y. Shen 2744* (TAIE). Taipei City, Mucha, 26 Jan. 2011, *M.J. Jung 5368* (TAIF); Shilin, 1 Sept. 1934, *Y. Simada 5458A* (HAST); Wanhsi Property Road, 12 Dec. 2009, *I.A. Chung et al. s. n.* (TAIF). Taitung County, Coastal Range, July 1929, *Y. Yamamoto s. n.* (TAI). Taoyuan County, Paling, 600 m, 6 July 1987, *C.I. Peng 11005* (HAST).

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