

## NEW ADDITIONS TO THE FLORA OF TAIWAN (II)

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During our work on the revision of the genus *Rubus* of Taiwan, we found three species that are with the characteristics do not agree with any of the present species recorded in Taiwan. After careful examination of the specimens concerned and special references made to the literature, we concluded that two of these three species of *Rubus* are hitherto undescribed ones. While the rest one of the three is identical with *Rubus hui* Diels, a native to central and southern mainland China, so it is a new record to the flora of this island.

(1) *Rubus (Idaeobatus) incanus* Sasaki ex Liu et Yang, sp. nov. (Plate I)

*Rubus incanus* Sasaki in sched.

Frutex ramosus, armatus. Rami ramulisque teretiusculi, tenuiter pubescentes, demum glabrati, remote aculeati; aculeis basi dilatatis, apice deorsum plus minusve recurvis. Folia pinnatim 5-foliolata, petiolata; petiolis 6-11 cm. longis, pubescentibus; stipulis linearibus, circa 5 mm. longis, a petiolo oriundis ab axilla 1 mm. distantibus, pubescentibus; foliolis chartaceis, margine duplicato-serratis, basin versus integris, supra subglabris vel tenuissime pubescentibus, subtus densissime pallido-tomentosis, costis nervisque supra compressis, subtus distincte elevatis, remote aculeolatis, venulis utroque indistinctis, nervis lateralibus utroque costae latere 5-8, mediis a costa sub angulo circa 30°-40° prodeuntibus; foliolis terminalibus longissime petiolulatis, subrhomboidis, 4.5-6.0 cm. longis, 2.0-3.5 cm. latis, apice acuminatis vel acutis, basi cuneatis vel obtusis; foliolis lateralibus sessilibus, elliptico-rhomboidis, 2.0-4.5 cm. longis, 1.0-2.5 cm. latis, apice acuminatis, basi oblique obtusis vel cuneatis. Flores in apice ramulorum paniculati, pedunculis 5-10 cm. longis; pedicellis 1 cm. longis, pedunculisque dense pubescentibus; calyces cupulari, lobis triangulo-ovatis, 5-6 mm. longis, 3.0-3.5 mm. latis, apice mucronatis utroque dense pallido-pubescentes. Fructus subglobosis, 5-7 mm. in diametro.

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Shrubs ramous and armed. Branches and branchlets rather terete, thinly pubescent, glabrous at last, sparsely prickled; prickles dilated at the base, more or less recurved at the apex. Leaves pinnately 5-foliolate, petiolate; petioles 6-11 cm. long, pubescent; stipules linear, about 5 mm. long, the adnation from the base of the petiole about 1 mm. long, pubescent; leaflets chartaceous, margins duplicate-serrate, becoming entire toward the base, upper surface sub-glabrous or thinly pubescent, lower surface densely white-grey tomentose, midrib and nerves impressed above, distinctly elevated beneath, sparsely prickled, veinlets indistinct on both surfaces, lateral nerves 5-8 per side, spreading at an angle of 30°-40° from the midrib; terminal leaflets with long petioles, subrhomboid, 4.5-6.0 cm. long, 2.0-3.5 cm. wide, apex acuminate or acute, base cuneate or obtuse; lateral leaflets sessile, elliptic-rhomboid, 2.0-4.5 cm. long, 1.0-2.5 cm. wide, apex acuminate, base oblique, obtuse or cuneate. Flowers paniculate, terminating the branchlets; peduncles 5-10 cm. long; pedicels 1 cm. long, together with peduncles densely pubescent; calyces cupular, the lobes triangular-ovate, 5-6 mm. long, 3.0-3.5 mm. wide, apex mucronate, densely white-pubescent on both sides. Fruits subglobose, 5-7 mm. in diameter.

Habitat: Nan-hu-ta-shan (Nankotaizan) (南湖大山), Sasaki s.n., July 22, 1922, Suzuki, Fukuyama & Shimada 17687; Lan-shan (鸞山), Kuo 2468, 1511; Ta-yu-ling (大禹嶺), Kuo 2630; Tien-hsian (天祥), Chuang & Kao 4390; Neng-Kao-shan (Mt. Noko) (能高山), Sasaki s.n., Aug. 4, 1919 (Typus!); Mt. Ta-lu-ger (太魯閣山), Suzuki 9503; Mt. Muh-kwa (木瓜山), Kao 4162, 4165.

Distribution: Endemic.

Type specimen: In herbarium, Department of Botany, College of Science, National Taiwan University.

This new species is very similar to *R. mesogaeus* Focke, but differs from it in having paniculate flowers and 5-foliolate leaves; while the latter has cymose flowers and 3-foliolate leaves.

(2) ***Rubus (Idaobatus) suzukianus*** Liu et Yang, sp. nov. (Plate II)

Fruticosis. Rami et ramuli tereti, atropurpurei, nitidi, glabri, aculeati; aculeis 3-4 mm. longis, basi dilatatis, falcatis vel plus minus recurvis. Folia 3-5-foliolata, suprema interdum simplicia, petiolata; petiolis 2-3 cm. longis, supra canaliculatis, remote aculeolatis; stipulis a petiolo oriundis ab axilla circa 3 mm. distantibus, linearibus, 5-6 mm. longis, glabris; foliolo terminali ovato-elliptico, 4-6 cm. longo, circa 3 cm. lato, apice breviter acuminato vel acuto, basi rotundato, margine

duplicato-serrato, serris secundariis inter serras primarias 3-4 et mucronatis, pagine supra glabro sed secus costas nervisque hirsuto, subtus toto glaberrimo; costis nervisque supra distincte impressis, subtus elevatis, rubescentibus, venulis reticulatis utroque distinctis, nervis lateralibus utroque costae latere 8-11, mediis a costa sub angulo circa  $45^\circ$  prodeuntibus; petiolulo folioli terminalis 2-2.5 cm. longo, supra canaliculato, cum costa folioli sparsim hirsuto; foliolis lateralibus oppositis, cum foliolo terminali conformibus sed vix minoribus, plus minus obliquis vel brevi-petiolutis. Flores racemis 2-5-floriferis ad apicem ramulorum terminales; pedicellis circa 1.5 cm. longis, glabris; calycis lobis caudato-triangularibus, 6-8 mm. longis, 3-4 mm. latis, apice caudatis, extus glabris, parcissime albo-punctiformibus, intus pubescentibus; petala oblongo-rotundata, 8 mm. longa, 5 mm. lata, apice rotundata.

Fruticose. Branches and branchlets terete, blackish-purple, shining, glabrous and aculeolate; prickles 3-4 mm. long, dilated at the base, falcate or more or less recurved. Leaves 3-5-foliolate, the topmost leaflet sometimes simple, petiolate; petioles 2-3 cm. long, canaliculate above, sparsely prickled; stipules linear, 5-6 mm. long, glabrous, the adnation from the base of the petiole about 3 mm. long; terminal leaflet ovate-elliptic, about 4-6 cm. long, 3 cm. wide, apex short acuminate or acute, base rotundate, margins duplicate-serrate, the primary serration with 3-4 secondary serratures, upper surface glabrous, but hirsute along the midrib and nerves, lower surface glabrous; midrib and nerves distinctly impressed above, elevated and rubescent beneath, veinlets reticulated, distinct on both surfaces; lateral nerves 8-11 per side, spreading at an angle of  $40^\circ$ - $45^\circ$  from the midrib; the petiolules of the terminal leaflets 2-2.5 cm. long, canaliculate; lateral leaflets opposite, similar to the terminal ones, but rather small, more or less oblique and with short petiolules. Flowers racemose with 2-5-flowers, terminating the branchlets; pedicels about 1.5 cm. long, glabrous and thinly whitish-punctate outside, pubescent inside; petals oblong-rotundate, 8 mm. long, 5 mm. wide, apex rotundate.

Habitat: Charn-shwu-shan (鱸鱸山), Suzuki s.n., Dec. 18, 1927 (Typus!); Fun-lan-shan (芳蘭山), Kawakami & Shimada 12251.

Distribution: Endemic.

Type specimen: In herbarium, Department of Botany, College of Science, National Taiwan University.

The present species is very closed to *R. leucanthus* Hance, but differs from

it in the caudate-acuminate calyx-lobes and the double-serrate leaf-margins; while the latter has leaves which are with loosely serrate margins, and calyx-lobes that are mucronate at the apex.

This species is named after the late Japanese botanist Mr. S. Suzuki, in honor of his collecting the type specimen during his stay in Taiwan in 1927.

(3) *Rubus* (*Malachobatus*) *hui* Diels, Science (Science Soc. of China) 7: 608, 1922; Hu & Chun., Ic. Pl. Sinicarum t. 74. 1927. (Plate 111)

Scandent shrubs. Stems densely dark-brownish tomentose, minutely sparsely prickled; prickles slender, straight or falcate. Leaves simple, broadly ovate in outline, 10-13 cm. long, 7-11 cm. wide, apex acute or obtuse, base deeply cordate, 5-lobed, the terminal lobe about 1/2-2/3 as long as the lateral ones, 7-8 cm. long, 4.0-5.5 cm. wide, the lateral lobes obtuse at the apex, 5-nerved at the base; midrib and nerves densely hirsute above, raised and minutely prickled beneath, veinlets obscurely on both sides; margins coarsely serrate, upper surface dark-brownish hirsute when young, nearly glabrous or puberulous at maturity, lower surface densely golden-brownish lanate; petioles 3.0-5.5 cm. long, dark-brownish tomentose and sparsely minutely prickled; stipules obovate, about 1.3 cm. long, 8 mm. wide, lacinate, the lobes linear-lanceolate, villose-tomentose outside, nearly glabrous inside, villose along the margins. Inflorescences in short racemes or fascicles, axillary; calyces campanulate, calyx-lobes triangular-ovate, about 8-10 mm. long, 4 mm. wide, lacerate at the apex, brownish villose outside, tomentose inside; pedicels very short, up to 1 cm. long, villose-tomentose and unarmed; receptacle elongated and villose; petals elliptic, about 7-9 mm. long, 4-5 mm. wide. Fruits small, reddish.

Habitat: Mt. Nuan-nuan (Mt. Bon-bon) (暖暖山), Matsuda 12414, Kuo 1270; Vicinity of Wen-shan (文山附近) Taipei, Suzuki 18677.

Distribution: Central and southern mainland China and Taiwan.

*Rubus hui* is a new record from Taiwan. It is characterized by larger leaves with densely golden-brownish lanate hairs on the lower surface and dark-brownish in color on the upper surface. The lacinate stipules is also an important character of this species.



Plate II. *Rubus suzukianus* Liu et Yang, sp. nov.

A. Flowering branchlet ( $\times 4/5$ ).  
 B. Leaf, back view ( $\times 1\ 1/2$ ).  
 C. Pistil ( $\times 20$ ).  
 D. Sepals ( $\times 4$ ).

E. Petal ( $\times 3$ ).  
 F. Stamens ( $\times 12$ ).  
 G. Bract ( $\times 3$ ).  
 H. Stipules ( $\times 3$ ).