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_Euphorbia jolkini_ Savatier in Inuma, Somoku-Dzusetsu, ed. 2, IX. (1874), fol. 21 recto, no. 19, non Boiss.

Perennial, glabrous, attaining about 3–4 decim. high in flower; rhizome elongate, slender, horizontally long-creeping, terete, rooting throughout, laxly dispersed with deltoid dark-brown appressed scales throughout, 3–6 mm. across; roots short, fibrous, patent. Stem terminating the rhizome, erect, terete, thick and stout, about 6–7 mm. across, smooth, purpurascence, scaly at the base, simple but more or less approximately ramose towards the top, the superior portion above the branches often provided with a few leaves and a few axillary peduncles; branches sterile, erect-patent, axillary, foliiferous towards the top, slender, smooth, purpurascence. Leaves sparse, spreading, exstipulate, lanceolate or oblong-lanceolate, obtuse at the apex, obtuse at the base but very shortly attenuated at the very base, very shortly petiolate, quite entire, flaccid, thickish-membranaceous, 7 cm. or less long, 2 cm. or less broad, green and often shaded with purple above, paler beneath, very angustately subpellucid and often purpurascence margined; midrib pale, obtusely prominent beneath, somewhat impressed above when fresh; veins many, inconspicuous, delicate, erect-patent; petiole pale, or pale-greenish, broad, broadly subcanaliculate in front, lunate in transverse section,
2–3 mm. long; floral leaves subtending the umbel, 5, smaller, pseudo-verticillate, patent, unequal in size, the outermost one about 2½–3 cm. long and the innermost one about 1½–2 cm. long in flower. Umbel 5-rayed; rays (peduncles) erect-patent, about 1–2 cm. long in flower, slender, terete, viridescent-purpurascence, forked only at the tips; bracts 2, opposite at the top of the rays (peduncles), sessile, deltoidly rhombeo-subreniform, obtuse at the apex, broadly truncate at the base, entire, about 7–10 mm. long and 11–13 mm. broad in flower, erect-patent or spreading, flabellately veined, herbaceous, viridescent and shaded with purple; 2nd bracts 2, much smaller, opposite and sessile at the top of the 2nd rays (pedicels), rhombic-oval, about 5 mm. broad. Involucres about 4 mm. long, 5–6 mm. across, sessile at the top of the peduncle (ray) or pedicel (2nd ray), subtended by the opposite bracts, campanulato-turbinate, membranaceous, glabrous on both surfaces, 5-lobed; lobes small, distant each other, subsquare, retuso-truncate at the apex, membranaceous, glabrous dorsally, puberulent towards the margin internally, rose-purpurascence; glands 4, spreading, transversely lunate or lunato-reniform with obtuse short points, thick, 2½–3½ mm. long, viridescent then flavidulous, glabrous but minutely puberulent on the inner side. Male-flowers many, exserted; pedicel linear-filiform, glabrous, at first viridescent then white; filament much shorter than the pedicel, glabrous; anther didymous, yellow; anther-cells rounded; scales among the male-flowers linear-subulate, glabrous, pale, 1–1½ mm. long. Female-flower exserted, higher than the male-flowers, nutant; pedicel stout, terete, smooth, glabrous, light green; ovary globose, smooth, glabrous, light green, scarcely 3-lobed and scarcely 3-grooved, 1½ mm. across, 3-celled, 1-ovuled in each cell; styles 3, stout, connate at the base, recurvo-erect-patent, viridescent-purplish, very shortly spreadingly 2-fid with minute viridescent short-ovate obtuse lobes, hardly longer than or about as long as the ovary.


HAB. Prov. MUSASHI (S. NAITÔ! 1913, 1914); Prov. IWAKI (N. IMAI! 1913).
A rare species, which is allied to *Euphorbia Esula* Linn. and *E. Sieboldiana* Murr. et Decne.

**Ainsliæa Maruo** MAKINO, sp. nov.

Perennial; rhizome short or very short, oblique, not thick, rooting; roots fasciculate, stout-filiform. Stem solitary, erect, short, about 3–3½ cm. long, glabrous, or lanate above, viridescent, often with the usually lanato-pilose scales at the base. Leaves pseudo-verticillate at the top of the stem, few to several in number, long-petiolate, erect-patent or spreading, broadly ovate or subreniform-ovate, cordate and deltoidly shorty projecting at the base, mucronato-acute at the apex, coarsely sinuato-lobate with widely open and obtuso-rounded bottomed sinuses, thinly membranaceous, nearly glabrous and green above, thinly adpressed-lanate and slightly paler beneath, 4–9 cm. long, 3½–9½ cm. broad; lobes deltoid or depressed-deltoid, mucronately acute or obtuse, mucronately repand- or sinuato-paucidentate; veins loose, a few on each side, erect-patent; veinlets often inconspicuous, delicately anastomotic; petiole slender, viridescent, thinly lanate, 3½–8½ cm. long. Peduncle solitary, erect, slender, green, thinly pubescent, about 2 decim. long including the spike, very remotely with about 2–3 minute deltoid-subulate squamiform empty bracts, scaly at the very base; spike about equal to or shorter than the peduncle, erect; rachis slender, green, pubescent; bract minute, each subtending the head, sharply deltoid-subulate. Heads small, several or subnumerous, loosely disposed, solitary or rarely geminate, erect-patent. Involucre oblong; involucral-scales imbricated, deltoid, green, purplish towards the margin above, pubescent towards the top, costate longitudinally.


Hab. Prov. TÔTÔMI, silvan shady place (S. Maruo! August 1913).

**Peucedanum ubadakense** MAKINO, sp. nov.
Cnidium ubadakense Makino in Bot. Mag., Tokyo, XXV. (1911), p. 396 (Miscel).

Perennial, about 1–3½ decim. in height; tap-root thick, perpendicular or obliquely so, elongate gradually attenuated towards the end, often laxly few-ramose. Stem erect, flexuous, terete, usually striate above, viridescent and often tinged with purple, glabrous below but densely hispidulous with spreading short pale hairs, loosely ramose above, or ramose from below the middle or from the base; branches alternate, axillary, erect-patent, simple or hardly ramulose above, remotely with 1–2 sheaths, longer than the leaves. Leaves sub-deltoid in outline, ternately 3–4-deep-parted into the angustate segments (1½–5 cm. long), which are again loosely parted into the narrow sharp-tipped laciniae and sharp tipped teeth, green and minutely short-hispidulous on the midrib and main veins above, paler and nervate beneath; primary segment long-petiolute, deltoid-ovate in outline; 2nd segments usually also petiolute, deltoid-ovate; 3rd segments usually shortly petiolute; 1st 2nd and 3rd petiolules all erect-patent, glabrous; rachis slender, glabrous; common petiole often long (sometimes entirely transforming into a sheath) in the radical and lower leaves and attaining about 16½ cm. long, sheathing at the base; superior leaves gradually smaller, the blade much reduced and depauperate near the umbel; the petiole entirely transforming into an inflated membranaceous sheath; sheath erect-patent or spreading or reflexo-patent, elliptical to oblong or obovato-oblong, obtuse, veined, viridescent and often purpurascent, about 1–5 cm. long, amplexicaul at the base but slightly so in the upper ones. Umbel rather long peduncled, compound, middling-sized; rays about 14–27, erect-patent or spreading, slender, hispidulous with short pale hairs in front, unequal in length; involucrre often none or sometimes very few, angustate, simple or few-laciniate above, spreading or reflexed; umbellula many-flowered, involucellate; involucels several, spreading or reflexed, shorter or longer than the 2nd-rays, angustately linear, simple or often 3-laciniate above, viridescent and sometimes shaded with purple, glabrous; 2nd-rays unequal in length, spreading in the outer
ones, minutely hispidulous in front. Flowers small, white and often tinged with purple, slightly larger in the outer ones, about 2–3 mm. across. Calyx very short, 5-toothed; teeth remote, deltoid or deltoid-subulate, acute, persistent. Petals 5, patent, obcordate with an incurved deltoid-subulate tip, broadly cuneate towards the base, deciduous. Stamens 5, at first inflexed, longer than the petals; filament stout-filiform, incurved-spreading, tapering at the apex; anther oval, subdidymous, bifid at the apex, basifixed, purpurascens, ½–3 mm. long with oblong anther-cells. Ovary oval, obtusely 10-ridged and delicately 10-sulculate longitudinally, glabrous, viridescent, about 1–1½ mm. long. Epigynous disk thick, convex, submarginate, obtusely subangulate on margin, halves semi-orbicular. Styles 2, distinct, erect, slightly divergent, terete, 1 mm. long; stigma thickish, capitata. Cremocarp (immature) with the persistent calyx disk and recurvo-divergent styles at the top, elliptical-oblong, terete and subthickly narrow-alate on both margins, equally and closely depresso-elevato-3-ridged longitudinally on both faces, glabrous, about 3 mm. long; vittæ 6 to a mericarp, each 1 to the dorsal 4 valleculæ and 2 to the commisure.


Hab. Prov. BUNGO: Mr. Uba-dake, summit (T. MAKINO! August 24, 1911).


Cymer long-peduncled, di- or sometimes tri-chotomous with the erect-patent 1st branches, shorter than the leaves, subnumerous-flowered; bracts minute, fulvous; peduncle about 3–5½ cm. long in flower. Flower small, about 7 mm. in diameter, flavo-viridescent, pedicellate; pedicel about 3–5 mm. long, nearly glabrous, terete, thick and depressed-obconical at the top. Calyx obsolete, obscurely 4-angulato-dentiform. Petals 4, patent, recurved, thickish, broadly ovate, angulate-tipped apex (the tip about right-angle) at the apex, entire, glabrous and slightly concave internally, pulvereo-puberulent dorsally, subcuculiform
internally and rounded-projecting externally below the apex, nearly 3 mm. long, 2 mm. broad, deciduous; veins immersed, subflabellate. Stamens 4, shorter than the petals, deciduous; filament subulate; anther ovato-rounded, yellow. Disk thick, depressed, flat on the face, 4-rounded-lobed on margin, glabrous, about 2 mm. across. Style erect, nearly 1 mm. long, terete, thickish, with a truncato-obtuse subcapitate stigma. Ovary immersed in the disk, 2-celled; ovules 2 in each cell, erect, obovate, smooth.


This species very closely approaches to Cissus corniculata Planch. (= Vitis corniculata Benth.), from which it differs in the petals and style.

**Arundinaria communis** Makino, sp. nov.

Rhizome horizontally repent, hypogaeous. Culm attaining about 27 decim. high and 1½ cm. across, erect, straight, ramose above, terete, fistulose, glabrous, smooth, finely substriate, the old ones free from theaths; internodes attaining about 27 cm. long, round with white bloom under the nodes; nodes somewhat prominent; culm-sheath shorter than the internodes, ovato-oblong, coriaceous, glabrous on surface, densely tomentoso-pilose with spreading pale or pale-amber hairs (hairs at length often deciduous) at the base, finely striate and often more or less tessellate above, patently ciliated on margin, firmbriate at the mouth; microphyll subulato-lanceolate, acuminate, obtuse or acutish at the base. Branches at first 1 or 3 to a node, but in age often fasciculated; branchlets slender, 1 or 3 to a node; branches and branchlets erect-patent, with the marcescent old sheaths (the blades already fallen off) below, with white bloom under the nodes; nodes slightly prominent. Leaves bright green or deep green, lanceolate, about 4–13 and palmately and pinnately arranged towards the top of branchlets, oblong-lanceolate, or narrowly lanceolate, attenuatedly acuminate with a very sharp tip at the apex, obtuse acutish
rounded-obtuse or truncato-rounded and shortly decurrent to the short petiole at the base, armed with erect-patent translucent sharp-pointed unequal-sized minute spinules on both margins, and sometimes fimbriato-ciliated on the basal margin, membranaceo-chartaceous, glabrous on both surfaces, nearly concolourous but hardly paler on half side beneath, about 8–28 cm. long, 8–36 mm. broad, the lower leaves often gradually diminished in size and then reduced into the microphylls; midrib slender, paler, prominent beneath; veins 4–8 on each side, delicate, prominent beneath; veinlets delicately or conspicuously tessellate with rectangular areolae on both surfaces; petiole about 3–10 mm. long, compressed, glabrous dorsally, densely puberulent towards the centre and broadly grooved in front, glabrous and smooth or sometimes fimbriato-ciliated above on margin; sheath long and slender, encircling the branchlets, longer than the internodes in the superior ones but the shorter the lower, long-fimbriate with pale flexuous deciduous erect or subspreanding setae at the mouth, tomentoso-pilose with pale-amber-coloured spreading hairs at the base, finely striate and more or less tessellate above, patently ciliated with pale hairs on margin, coriaceo-chartaceous, glabrous; ligule very short and transverse, truncate, coriaceous, glabrous internally, puberulent dorsally, about 1 mm. long. Spikelets linear or angustately lanceolate, acuminate, few-several-flowered; rachilla flexuous, densely and adpressedly hirtellous with pale hairs. Glumes 2, acuminate, ciliated; the lower one subulato-lanceolate; the inner one ovato-lanceolate. Flower lanceolate, sharply acuminate, about 17 mm. long. Flowering glume longitudinally nervate, viridescant, scarious towards the margin, ciliated, thinly puberulent.


Hab. JAPAN, western (T. MAKINO!).

A species allied to Arundinaria variegata (Sieb.) Makino var. viridis Makino.

Shrub or small tree, sempervirent. Flower 3–3½ cm. long, 3–4 cm. across. Corolla broadly infundibuliform and sub-bilabiate, purplish-rosy, deep-purple-maculate on the face; lobes rounded at the apex, but retuse in the posterior one, the upper 3 oval-elliptical, the lower (anterior) 2 broadly oblong. Ovary densely tomentoso-setose with adpressed gilvo-sericeous hairs. Flowers in April.


New to Kiusiu.

**Malus spontanea** MAKINO, nom. nov.

**Pyrus spontanea** MAKINO in Sched. Herb.

**Malus floribunda** var. spontanea MAKINO in Bot. Mag., Tokyo, XXIV. (1910), p. 67 (Miscel.).

A small deciduous tree, densely branched; branchlets divaricate. Leaves alternate or fasciculate, usually long petiolate, obovato-elliptical or elliptical, acute at the apex, cuneato-acute towards the base, incumbent-serrulate, coriaceous, impressed-venuled above, conspicuously venuled beneath. Flowers abundant, about 2–5-umbellate, pedicellate, 2½–3½ cm. across, white and more or less shaded with rose, rose-purple in bud; pedicels gracile, about 2 cm. long. Calyx-segments 5, deltoid-ovate, depressed-white-tomentose within, glabrous externally; tube infundibuliform, smooth. Petals 5, patent, oval-oblanceolate, elliptical, or ovato-elliptical. Stamens 20, exserted. Styles 5, exceeding the filaments. Pome small, pyriformly sphaerical, smooth, glabrous, 8–9 mm. across. Flowers in May.


Hab. Prov. HYUGA in Kiusiu: Mt. Kirishima (Y. NAKANO!; B. FUKASAWA !; T. MAKINO !; Z. TASHIRO!).

A very rare wild species; probably this is the botanical origin of **Malus floribunda** Sieb.

(To be continued.)