Observations on the Flora of Japan.

(Continued from p. 35.)

By

T. Makino.

Mussaenda shikokiana Makino sp. nov.

Mussaenda parviflora Miq. var. *shikokiana* in sched. herb.

Branchlet subquadrangular-terete, brownish-fulvous, disparsed with adpressed pilose hairs above. Leaves petiolate, oval-elliptical, suddenly short-acuminate, rounded and decurrent to the upper portion of the petiole at the base, entire, membranaceous, very thinly disparsed with pilose hairs and hairs denser on the nerves above, piloso-pubescent on nerves beneath, green above, paler beneath, 10–11 cm. long, 6–7 cm. wide; midrib prominent beneath; veins 7–10 on each side, erect-patent, arcuate upwards, reaching the margin, regularly arranged; petiole 1–2 cm. long, thinly adpressed-pilose. Fruiting cyme about 10 cm. across, divaricately branched, pubescent. Fruits many, globoso-obovoid, 10–11 mm. long, 9–10 mm. across, thinly adpressed-pilose, with a ring remained by the fallen calyx and corolla, nigrescent when dry, pedicellate; pedicel shorter than the fruit. Seeds numerous, minute, oval-elliptical, compressed, yellowish-brown, scrobiculate.

Hab. Prov. Tosa: Shimonokaye in Hata-gōri (*K. Watanabe*! Aug. 24, 1892).

Though I do not yet seen flowers, leaves and seeds differ from those of *Mussaenda parviflora* Miquel.

Plectranthus inflexus Vahl var. **verticillatus** Makino in Bot. Mag., Tokyo, VI. (1892) p. 54.

Leaves 4-verticillate, ovate, crenate; petiole winged by the decurrence of the blade. Flower as in the type.

Hab. Prov. SAGAMI: Tsukui (*Y. Muraoka*! October 1888).

Nodes of the stem are very remote from each other in my specimen.

Scutellaria shikokiana Makino in Bot. Mag., Tokyo, VI. (1892) p. 54.

Scutellaria sp. Makino l. c. III. (1889) p. 4.

Perennial, stoloniferous; stolons long, filiform, hypogaeous, nodes remote from each other and provided with minute scales; roots delicate. Stem erect, 5-28cm. long including the raceme, simple or ramose, gracile, tetragonous, glabrous, green. Leaves opposite, long-petiolate, ovato-deltoid, with an obtuse point at the apex, truncate or truncato-subcordate at base, but sometimes about right-angled in the superior ones, coarsely inciso-dentate with obtuse deltoid teeth, herbaceo-membranaceous, very thinly disparsed with pilose hairs above, glabrous and sometimes purplish beneath, deep green, 1-5cm. long, 1-4cm. broad; veins loose; petiole attaining 3cm. in length, glabrous. Raceme erect, laxly several-many-flowered, 1-6cm. long, bracteate; rachis gracile, tetragonous, very thinly pilose, green; bracts lanceolate or ovato-lanceolate, very shortly petiolate or sessile, longer than pedicels, entire, very thinly pilose, green, inferior ones often leafy and dentate, superior ones gradually decreasing in size, the smallest one slightly exceeding the pedicel. Flower pedicellate, small, 5-10mm. long, white; pedicel shorter than flowers, erect-patent, pilosulate, $1\frac{1}{2}$ -4mm. long, green. Calyx $1\frac{1}{2}$ -2mm. long, campanulate, green, patently and thinly glanduloso-pubescent externally, shallowly bilabiate with entire lobes, in fruit enlarged to 3mm. in length and depressed and close; appendage lato-orbicular, thinly glanduloso-pubescent in front and glanduloso-ciliated, concavo-convex, green, enlarged to 3mm. in width in fruit. Corolla ascending; tube tubular, a little curved at the base, more or less enlarged above, finely glanduloso-puberulent externally and thinly pilose internally; limb bilabiate, much shorter than the tube, the upper lip small, erect, short, emarginato-bilobed, the lower lip much larger and longer, 3-lobed, minutely spotted, lateral lobes erect, smaller and slightly shorter than the upper lip, ovato-deltoid, obtuse, the midlobe nearly pendulose, ample, longer than lateral lobes, again 3-lobulate, lateral lobules subquadrangular-oval, patulous, the midlobe much wider and longer, emarginate. Stamens 4, didynamous, inserted below the middle of the corolla-tube, the longer ones equal to the upper lip in height; filament filiform, softly puberulent below; anther short and broad, minutely dense-ciliated on margins of anther-cells, the upper ones lato-cordate. Style nearly equal to stamens in height, filiform, glabrous, curved under the stigma; stigma sub-bilobed, the upper lobe shorter. Ovary-lobes globoso-obovoid, borne on a thick disk. Nutlets 1 mm. and a little more across, slightly depressed, rounded at the top, muricate all over, black.

Hab. Prov. TOSA: Mt. Yokogura (*T. Makino*! 1885, Aug. 28, 1887, 1889), Nanokawa (*T. Makino*! Nov. 1884), Mt. Kurotaki (*K. Watanabe*! Aug. 10, 1888); Prov. IYO: Nametoko (*Z. Umemura*! July 12, 1894),

Shiroi-no-taki (*Z. Unemura*! Aug. 17, 1897); Prov. MUSASHI: Mt. Takao (*T. Makino*! July 16, 1890), Mt. Bukō (*N. Kayeriyama*! July 29, 1896).

Scutellaria indica Linn. var. **japonica** (Morr. et Decne.) Franch. et Sav. **forma humilis** Makino in Bot. Mag., Tokyo, X. (1896) p. 314.

Dwarf. Stems often caespitose, erect, with short internodes. Leaves long-petiolate, patent, bicolorous, green above, violaceous beneath. Flowers often dense.

Hab. Prov. TOSA: Hōgashō in Aki-gōri (*T. Makino*! June 3, 1892).

Solanum glaucum Dunal in DC. Prodr. XIII. 1 (1852) p. 100; Makino in Bot. Mag., Tokyo XIII. p. 366.

This was at first about fifty years ago introduced to Nagasaki in Kiusiu and therefrom spread over warmer parts of this country.

Callicarpa shikokiana Makino in Bot. Mag., Tokyo, VI. (1892) p. 54.

A small tree; branchlet slender, pulvereo-pubescent with curved short minute hairs, mixed with minute granular glands. Leaves opposite, shortly petiolate, elliptical-lanceolate, caudately long-acuminate, attenuately cuneate towards the base, coarsely dentate with acute deltoid or depressed-deltoid teeth or obtuse ovato-deltoid teeth excepting the upper and lower portions which are entire, 4–13 cm. long, 2–4 cm. broad, membranaceous, thinly disparsed with pubescent hairs and minute granular glands on both surfaces, and hairs denser on the midrib and lateral veins; midrib prominent beneath; lateral veins 5–6 on each side, ascending, reaching the teeth; petiole pubescent, 5–8 mm. long. Cyme supra-axillary, rather densely many-flowered, peduncled, shorter than leaves but much exceeding the petiole, divaricately branched, 2–3½ cm. across; peduncle erect-patent or patent or slightly reflexed, 12–18 mm. long, straight, pubescent and covered with minute granular glands as are branches of the cyme; bracts minute, linear or lato-linear, thinly pubescent externally. Flowers small, 3 mm. across, white, shortly pedicellate, disparsed with minute granular glands. Calyx 1 mm. long, broadly obconico-campanulate, 4-nerved, shallowly 4-toothed, teeth depressed-deltoid, acutish. Corolla exceeding the calyx, shortly campanulate-infundibuliform, 4-lobed, about 2½ mm. long; lobes patent, orbicular, shorter than the tube. Stamens 4, much exserted; filament

filiform, glabrous, 4 mm. long; anther elliptical, 2-auriculate at the base, with granular glands on back. Style filiform, glabrous, scarcely longer than the stamen; stigma shortly obconical and truncate. Ovary minute, included within the calyx, globose, with granular glands. Berry numerous, 2 mm. across, purple. Flowers in July-August.

Hab. Prov. TOSA: Iburi (*T. Makino*! Oct. 25, 1885), Mt. Imano in Hata-gōri (*T. Makino*! Aug. 7, 1889).

Rhododendron (*Azaleastrum*) **ellipticum** Maxim. in Mém. Biol. XII. p. 742 (1888); Forbes et Hemsl. in Journ. Linn. Soc. XXVI. p. 22; Tashiro in Bot. Mag., Tokyo, III. (1889) p. 201; Bretschn. Hist. Eur. Bot. Disc. Chin. p. 620, in nota.

A small tree, attaining about 4-8 m. in height and about 1 decim. in diameter of the trunk (after Y. Tashiro), 2-3- or sometimes 4-5-chotomously ramose, glabrous; branchlet terete, usually pale-fulvous or pale-brownish. Leaves persistent during three years, coriaceous, falsely 4-7-verticillate towards the top of branchlets and at nodes, patent, petiolate, oblong-elliptical or narrowly oblong, suddenly mucronato-acute at the apex, cuneato-acute at the base, entire, sub-shining, nearly concolorous, 5-12 cm. long, $1\frac{1}{2}$ - $4\frac{1}{2}$ cm. broad, with impressed nerves above; veins patulous, loose, inconspicuous; petiole 1-2 cm. long; leaf-buds conico-linear, 2-6-aggregate at the top of branchlets, about $1\frac{1}{3}$ cm. long, imbricately perulate. Flowers 1-2 at the top of branchlets, long-pedicellate, large, about 6 cm. in diameter, pale-rose; pedicel 2-2 $\frac{1}{2}$ cm. long; perulæ imbricate, chartaceo-membranaceous, the internal ones much larger, pale-pubescent-tomentose above internally, the lower ones ample and spatulato-obovate, involute, the upper ones longer and angustato-linear, often exceeding the pedicel. Calyx depressed-cupuliform, the margin more or less uneven. Corolla rotato-infundibuliform, dotted at the superior side within below; the tube rather short; segments obovato-oblong, longer than the tube. Stamens 10, included, unequal in length; filament filiform, paleaceo-tomentose below excepting the very base; anther elliptical. Style longer than stamens, slender, arcuate upwards, obconical towards the stigma; stigma truncate, 5-lobed; ovary linear-cylindrical, glabrous, 5-locular, about 11 mm. long. Capsule narrowly cylindrical, 5-sulcate, about 3 cm. long. Flowers in April-May.

Hab. YAEYAMA ARCHIP. (*Y. Tashiro*! herb. Sc. Coll. Imp. Univ. Tokyo, April 1886, flower), Ōkawa-mura in Isl. Ishikaki (*Setsumaburō Tanaka*! herb. ibid. June 1891, fruit); Prov. MUSASHI: Tokyo, Bot. Gard.

Koishikawa, cult. under the name of *Seishi-ikwa* (*T. Makino*! Feb. 1904).
Distrib. Southern China.

Rhododendron (*Azalea*) **Weyrichii** Maxim. *Rhod. As. Orient.* p. 26, tab. 2, figg. 1-6; *Franch. et Sav. Enum. Pl. Jap. I.* p. 288; *Forbes et Hemsl. in Journ. Linn. Soc. XXVI.* p. 32; *Bretschn. Hist. Eur. Bot. Disc. Chin.* p. 619.

Azalea Weyrichii O. Kuntze *Rev. Gen. Pl. II.* p. 387.

Rhododendron Farreræ a. *Weyrichii* Diels in *Engler's Bot. Jahrb.* XXIX. p. 513.

Rhododendron shikokianum Makino in *Bot. Mag., Tokyo, VI.* (1892) p. 53.

A shrub, attaining about 3m. or more in height, many-branched. Branchlets often verticillate, ferrugineo-rufous. Branchlets of floriferous branchlets bear usually 3 (!) or rarely 2 leaves at the top; the binate one is due to the imperfection of the inner leaf, and the 3-nate one is the normal state; branchlets of sterile branches bear 3 leaves at the top. Flower-bud terminal, rather large, about 19 mm. long, 9 mm. across, conico-ovoid; peruke imbricate, ferrugineous, oval-ovate to elliptical, rounded or rounded-obtuse with a cuspidato-mucronate point, fulvo-villoso-tomentose on margin. Corolla red. Leaves rhombo-oval, or rhombo-ovate, mucronato-acute, very thinly dispersed with pale-fulvous villose hairs above, thinly villosopubescent beneath, attaining about 8 cm. long, 7 cm. broad in fruit; petiole 6-11 mm. long. Capsule conico-cylindrical, adpressed-villosopubescent, about 17 mm. long.

Hab. Prov. Tosa in Shikoku: Sakawa (*T. Makino*!), Kōchi (*T. Makino*!), Kamibun (*T. Makino*!); Prov. Higo: Mt. Some-dake in Isl. Amakusa (*M. Murakami*!).

This species is common in the province of Tosa, where it flowers abundantly after *Rh. rhombicum* Miq.; it grows on hills and low mountains.

Ranunculus (*Hecatonis*) **Kawakamii** Makino sp. nov.

Ranunculus Cymbalariae herb. Sc. Coll. Imp. Univ. Tokyo, non Pursh.

Ranunculus sp. Kawakami in *Bot. Mag., Tokyo, XI.* p. 56; Makino l. c. XIII. p. 321.

Perennial, glabrous, flagelliferous, 4-12 cm. in height; runners few, repent, long, filiform, radicant, with remote nodes; roots fasciculato-fibrous. Leaves radical, few-13-tufted, erect, long-petiolate, ovate-elliptical, elliptical, elliptical-oblong, or oblong, obtuse or obtuse-subtruncate at the base, coarsely

3- rarely 5-dentate with depressed and obtuse teeth (the middle tooth larger), entire on lateral margins, 7-16 mm. long, 5-10 mm. broad, flaccid-herbaceous, membranaceous when dried; main nerves 3; petiole slender, much longer than the blade, $1\frac{1}{2}$ - $7\frac{1}{2}$ cm. long, narrowly vaginate at the base. Scape aphyllous, erect, slender, exceeding the leaves, simple or with one branch above the middle; bract situated in the middle portion of scapes or at the base of the branch, small, subulate or linear, shortly vaginate at the base. Flower about 8mm. across, terminal, yellow. Sepals 5, patent, not reflexed, elliptical or ovato-elliptical, obtuse or rounded-obtuse, concave, thin, glabrous, deciduous, usually 3-nerved, viridescent, about 3 mm. long. Petals 5, patent, longer than the sepal, oblong, manifestly cuneately unguiculate, rounded at the apex, $3\frac{1}{2}$ -4mm. long, nerves trichotomously divided at the point of the nectary; nectary situated between the limb and claw, minute, the scale short and truncate, both lateral margins connected to the petal. Stamens numerous, equal to sepals in length; filament linear-filiform; anther short and depressed-ovate. Ovaries numerous forming a globose head, compressed, oblong-sublunate, straight at the inner edge, acute at the apex and minutely beaked into a short straight or slightly curved style, nearly 1mm. long including the style. Follicles numerous, aggregated into a globose head ($4\frac{1}{2}$ mm. across), small, compressed, obliquely cuneato-obovate, about $1\frac{3}{4}$ mm. long, viridescent, longitudinally several-ribbed, minutely beaked with the straight style, the inner edge nearly straight; gynophore obovoid-globose, very thinly hairy, 1mm. and more in length.

Hab. Prov. UGO; Fuku-ura (*T. Kawakami!* 1897), Mt. Chōkai (*T. Kawakami!* 1897); Prov. RIKUZEN: Takata-machi in Kesen-gōri (*G. Toba!* Sept. 15, 1903); Prov. KADZUSA; Motosuka (*Y. Wakana!* July 28, 1902); Prov. IWAKI: Niida (*K. Okada!* herb. Sc. Coll. Imp. Univ. Tokyo, June 21, 1901).

This grows on muddy situation near sea in Northern Japan and found at first by Mr. Takiya Kawakami, who kindly sent me the specimens and figures for examination. In form it very closely resembles *Ranunculus plantaginifolius* Murr. (= *R. sulsuginosus* DC. non Pall.), but it is smaller and leaves are quite glabrous and thinner; in the form of leaves it differs apparently also from *R. Cymbalariae* Pursh (= *R. sulsuginosus* Pall.), which is not yet found in Japan. Runner sometimes issuing from the axil of the bract on the scape.

Eranthis pinnatifida Maxim. in Mém. Biol. IX. p. 605, in nota,

tab. IX. figg. 3-8 (1876); Franch. et Sav. Enum. Pl. Jap. II. p. 269; Huth in Engler's Bot. Jahrb. XVI. p. 299.

? *Eranthis Keiskei* Franch. et Sav. l. c. p. 269; Huth l. c. p. 297.

? *Helleboroides albiflorum* Huth.

A small perennial herb, about 8-10 cm. high in flower, but attaining about 18 cm. in height in fruit. Corm globose, solid, brown externally, attaining 2 cm. in diameter, provided with delicate fibrous roots below, and with scapes and radical leaves above. Leaves all radical, green, often slightly purpurascens on margin and paler on veins as are the involucre bracts in flower, 1-6 to a rhizome, shorter than the scape, long-petiolate, glabrous, flaccid, deeply 3-parted, orbiculato-reniform and somewhat 5-angulate in outline, attaining about 7 cm. in length and in width in fruit, but smaller in flowering time; each lobe pectinately pinnati-parted into lato-linear acutish segments; the midlobe ovate and cuneate at the base; lateral lobes again deeply 2-parted, sometimes sub-3-parted, very broadly cuneate at the base. Scapes 1-6 to a rhizome, erect or ascending, slender, glabrous, flaccid; involucre bracts 2, opposite, sessile, patent, foliaceous, glabrous, deeply 3-parted, the midlobe simple and lato-linear or paucilaciniate, the lateral lobes paucilaciniate at the base or laciniato-pinnate into oblong-linear segments. Flower solitary, pedicellate, erect or nearly so, white, about 16-17 mm. across; pedicel puberulent, shorter or longer than the flower. Sepals 5, petaloid, nearly patent, membranaceous, veined, elliptical-ovate, uneven-margined, deciduous, 10-12 mm. long, 7 mm. broad. Petals 5-8, nectariform, much shorter than sepals, 4 mm. long, stipitate, furcate into erect-patent spatulate lobes resembling the form of Y signature, white but yellow at the upper end, secreting honey juice from the cavity in the axil, deciduous. Stamens 10-20, erect-patent, shorter than sepals, slightly unequal in length, 6-7 mm. long; filaments filiform, glabrous; anther oval-ovate, rounded-obtuse at the apex, purpurascens, 2-celled, introrse, with white pollen, the anther-wall darkish-cerulescent after bursting. Ovaries 2-5, erect, very shortly stipitate, angustato-oblong, compressed, greenish, nearly glabrous, about 5 mm. long including the style, 6-8-ovuled; ovules globoso-obovoid: style terminal, erect, shorter than the ovary, compressed, broad; stigma terminal, narrowly lunate along the apical margin of the style. Follicles 2-5, shortly stipitate, patent, oblong, compressed, about 10 mm. long, 5 mm. broad, beaked with a persistent small style; carpel thinly coriaceous, glabrous, veins obliquely transverse. Seed globose, yellowish-brown, echinulato-scaberulose, about 4 mm. across. Flowers in March-April.

Hab. Prov. MUSASHI: Chichibu (*R. Yatabe* and *J. Matsumura*! herb. Sc. Coll. Imp. Univ. Tokyo, April 24, 1878), Kawachi in Chichibu (*T. Makino*! April 2, 1895), Yokose in Chichibu (*T. Makino*! April 1895), Mt. Tsumasaka-tōge (*T. Makino*! April 1895; *B. Hayata*! herb. *ibid.* April 1903).

Clematis (Cheiropsis) **tosaensis** Makino in Bot. Mag., Tokyo, VI. (1892) p. 50, et XI (1897) p. 332.

Stem and leaves as in *C. japonica* Thunb. Pedicel shorter than leaves, 1-2 cm. long, hirsute-pubescent, ebracteate. Flower nutant, 2- nearly 3 cm. long, ochroleucous. Sepals campanulate, hirsute-pubescent externally and hairs slightly denser towards the margin, spathulato-oblong, rounded-obtuse, thin, crispate and membranaceous on margins, glabrous internally; main nerves 3, with loosely anastomosing veinlets above. Stamens one-half as long as the sepal, filament linear, pilosulate; anther narrower and much shorter than the filament. Pistil shorter than stamens, about 9-20; ovule slightly villose dorsally; style densely villose. Achene narrowly ovate, attenuated above, glabrous, about 6 mm. long; tail 2 cm. long, villose.

Hab. Prov. TOSA: Mt. Torigata (*T. Makino*! May 22, 1889), Mt. Kuishi in Tadzikawa-mura (*T. Makino*! May 6, 1893); Prov. YAMASHIRO: Mt. Hiei (*C. Takemura*! May 12, 1901); Prov. ISE: Mt. Asama (*Z. Umemura*! May 7, 1893), Ōishi-mura (*Z. Umemura*! April 28, 1895); Prov. RIKUZEN: Kaga (*Kamezirō Yendō*! June 10, 1900); Prov. SHINANO (*K. Tanaka*! 1900); Prov. SURUGA: Mt. Fuzi (*S. Matsuda*! July 1891).

Clematis (Cheiropsis) **japonica** Thunb. **var. brevipedicellata** Makino var. nov.

Pedicel 2-4 cm. long, ebracteate, villosulate. Flower as in the type, but pale-greenish. Sepals thickish, obtuse, pubescent but lanato-tomentose on margins externally, pubescent internally.

Hab. Prov. SHIMOTSUKE: Nikkō (*T. Makino*! June 9, 1901).

In the type of *C. japonica* Thunb., pedicels are elongate and equal to or longer than the leaves, bracteate above the middle, with the purple and tubuloso-campanulate flower.

Gynura japonica (Thunb.) Makino.

Senecio japonicus Thunb. Fl. Jap. (1784) p. 315; Willd. Sp. Pl. III. (1800) p. 1978; Pers. Syn. Pl. II. p. 433; Ait. Hort. Kew. ed. 2, V. p. 38; Spreng. Syst. Veg. III. p. 565.

Kleinia japonica Less. in Linnaea VI. (1831) p. 134, et Syn. Gen. Compos. (1832) p. 196.

Porophyllum japonicum DC. Prodr. V. (1836) p. 650; Sieb. et Zucc. Fl. Jap. I. p. 161, tab. 84, et in Abhandl. Akad. Muench. IV. 3, p. 185; A. Gray Bot. Jap. p. 395.

Gynura pinnatifida DC. Prodr. VI. p. 301; Miq. Prol. Fl. Jap. p. 111; Franch. et Sav. Enum. Pl. Jap. I. p. 245; Forbes et Hemsl. in Journ. Linn. Soc. XXIII. p. 448; Diels in Engler's Bot. Jahrb. XXIX. p. 619.

Cacalia pinnatifida Lour. Fl. Cochinch. p. 593 (ed. Willd).

? *Gynura Zollingeriana* Schultz-Bip. in Zoll. Syst. Verz. Ind. Archip. p. 126, nomen.

Nom. Jap. *Sanshichi*.

Hab. Japan, cultivated.

Ligularia tussilaginea (Burm.) Makino.

Arnica tussilaginea Burm. Fl. Ind. (1768) p. 182; Spreng. Syst. Veg. III. p. 568.

Senecio tussilaginea O. Kuntze Rev. Gen. Pl. I. p. 364.

Tussilago japonica Linn. Syst. Veg. II. p. 629, et Mant. Pl. I. (1767) p. 113; Richt. Cod. n. 6264; Houtt. Nat. Hist. XXVIII. (1779) p. 634, tab. 68, fig. 2; Thunb. Fl. Jap. (1784) p. 313; Banks Icon. Kaempf. tab. 27, 28; Willd. Sp. Pl. III. (1800) p. 1968; Poir. Encycl. Mth. VIII. p. 152; Pers. Syn. Pl. II. (1807) p. 455; Sieb. Syn. Pl. Oecon. Jap. in Verb. Batav. Gen., XII. (1830) p. 59.

Senecio japonicus Less. Syn. Gen. Compos. p. 392.

Senecio Kaempferi DC. Prodr. VI. (1837) p. 363; Maxim. in Ml. Biol. VIII. p. 14; Franch. et Sav. Enum. Pl. Jap. I. p. 247; Forbes et Hemsl. in Journ. Linn. Soc. XXVI. p. 425; Henry List Pl. Formos. p. 55.

Ligularia Kaempferi Sieb. et Zucc. Fl. Jap. I. (1835) p. 77, tab. 35, et in Abhandl. Akad. Muench. IV. 3, p. 188; Miq. Prol. Fl. Jap. p. 112; Bot. Mag. tab. 5302 (*var. aureomaculata*); Bretschn. Hist. Eur. Bot. Disc. Chin. p. 44; Diels in Engler's Bot. Jahrb. XXIX. p. 622.

Faxfugium Kaempferi Benth. Fl. Hongk. p. 191.

Ligularia gigantea Sieb. et Zucc. Fl. Jap. I. p. 79, tab. 36, et in Abhandl. Akad. Muench. IV. 3, p. 188.

Farfugium grande Lindl. in Gardn. Chron. (1857) p. 4, et (1860) p. 170.

Tussilago cucullata Sieb. herb. ex Miq. Prol. Fl. Jap. p. 112.

Senecio Sieboldii Schultz-Bip. in Zoll. Syst. Verz. Ind. Archip. p. 126.

Senecio Farfugium C. Koch 'Wochenschrift für Gärtnerei (1858) I. p. 209.'

Tswa Kæmpf. Amœn. Exot. (1712) p. 827.

Nom. Jap. *Tsuwa-buki*.

Hab. Japan, grows near sea, and also cultivated.

Myroxylon japonicum (Thunb.) Makino.

Apactis japonica Thunb. Fl. Jap. (1784) p. 191; Willd. Sp. Pl. II. (1799) p. 845; Pers. Syn. Pl. II. (1807) p. 2; Spreng. Syst. Veg. II. (1825) p. 460.

Hisingera japonica Sieb. et Zucc. in Abhandl. Akad. Muench. IV. 2 (1846), p. 168.

Xylosma japonicum A. Gray Bot. Jap. in Mem. Am. Acad. N. Ser. VI. (1856) p. 381; Hance in Journ. Bot. (1870) p. 275, et (1878) p. 8.

Hisingera racemosa Sieb. et Zucc. Fl. Jap. I. (1835) p. 169, tab. 88, et p. 189, tab. 100 III. figg. 1-14.

Xylosma racemosa Miq. Ann. Mus. Bot. Lugd.-Batav. II. (1865-66) p. 155, et Prol. Fl. Jap. (1866-67) p. 87; Franch. et Sav. Enum. Pl. Jap. I. p. 43; K. Ito et H. Kaku Fig. et Descr. Pl. Koishik. Bot. Gard. II. tab. 11; Maxim. in Engler's Bot. Jahrb. VI. p. 58; Forbes et Hemsl. in Journ. Linn. Soc. XXIII. p. 57; Maxim. Pl. Chin Potan. p. 63; Palib. Consp. Fl. Kor. I. p. 36.

Myroxylon racemosum O. Kuntze Rev. Gen. Pl. I. (1891) p. 44.

Flacourtia chinensis Clos in Ann. Sc. Nat. 4 ser. VIII. (1857) p. 219; Walp. Ann. VII. p. 228; Bretschn. Hist. Eur. Bot. Disc. Chin. p. 434.

Son no Ige Thunb. Fl. Jap., Pl. Obsc. p. 355.

Nom. Jap. *Kusudoige*.

Hab. Southern Japan.

Cyperus (Choristachys, Compressi) **japonicus** Makino sp. nov.

? *Cyperus amuricus* Maxim. var. *japonica* Miq. Prol. Fl. Jap. p. 73.

Annual, attaining about 56 cm. in heigh, glabrous. Roots fibrous, densely fasciculate, purpurascens. Leaves basal, 3-4, shorter than or equal to the culm, linear, gramineous, long-acuminate, carinato-plane, flaccid,

green, scabrous on the upper margin, 3–7 mm. broad, long-sheathing at the base. Culm erect, about 2–5-cæspitose, slender, trigonous with glabrous edges, smooth, green. Umbel with 4–9 rays, loose, 4–16 cm. across; rays erect-patent, unequal in length, the interior one sessile; peduncles slender, strict, compressed, the longest one about 11 cm. long, basal sheath 4–13 mm. long, truncate; involucre 3–4, long, leafy, the outer ones much exceeding the rays, the longest one about 26 cm. Spikes often 2 to 6 or solitary to a ray, many-spiculose, 1–2 cm. across, lateral ones sessile and patently radiate and shorter than the terminal one; rachis slender, angulate, glabrous; bracts few, setaceo-subulate or setaceo-linear, usually shorter than the spike. Spiculæ subcapitato-racemosely and rather densely disposed, erect-patent or patulose, linear, 5–15 mm. long, 2 mm. broad, compressed, subclavate and distichously 8–23-flowered, yellowish-auranticous; rachilla compressed, distinctly narrow-winged, glabrous. Glume $1\frac{3}{4}$ mm. long, erect-patent, orbicular, rounded and cuspidate at the apex (the cuspidate point erect and not long), entire, carinato-navicular, glabrous, with 5-nerves towards the centre, often reddish-ferruginous near and between the nerves, viridescent at the back, membranaceous and aurantico-yellowish on sides. Stamens 2, slightly exserted; filament filiform; anther oblong, $\frac{1}{3}$ mm. long. Style minute, very short; arms 3, delicate, filiform, longer than the style. Caryopsis slightly shorter than the glume, $1\frac{1}{4}$ mm. long, oblong, slightly narrowed below, trigonous, dark-brown, very minutely scabro-punctate, obtuse and minutely beaked with the remaining style at the apex.

Hab. Japan, widely distributed and common.

Intermediate species among *Cyperus Iria* Linn. and *C. amuricus* Maxim, closely approaching the latter one.

***Bulbostylis capillaris* Kunth var. *capitata* (Miq.) Makino** in Bot. Mag., Tokyo, IX. (1895) p. 390.

Isolopis capillaris β . *capitata* Miq. Prol. Fl. Jap. p. 75; Franch. et Sav. Enum. Pl. Jap. II. p. 116.

Hab. Prov. TOSA: Sakawa (*T. Makino*! 1884, Sept. 21, 1887), Iburi (*T. Makino*! Oct. 25, 1885), Saga (*T. Makino*! Oct. 22, 1885), Near Yokobatake (*T. Makino*! Aug. 1885), Kawaguchi (*K. Watanabe*! Oct. 1891); Prov. ŌMI: Near Uyeno-mura (*T. Makino*! Nov. 1893).

(To be continued).