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A Contribution to the Knowledge of the Flora of Japan.

(Continued from p. 8.)

By

Tomitarô Makino, Sc. D.

***Orobanche japonensis* MAKINO, nov. sp.**

A leafless root-parasite, erect, attaining about 27cm. in height. Rhizome tumid, with short thick roots, laxly scaly. Stem solitary, simple, laxly scaly, angulate and deep-brown when dried, very thinly pubescent; scales adpressed, subulate, thinly pubescent. Spike about 14-18cm. long, erect, many-flowered; rachis angulate and deep-brown when dried, thinly tomentoso-pubescent with pale hairs. Flower 1-bracteate; bract subulate, long-acuminate, thinly tomentoso-pubescent with pale hairs. Calyx 2, ovate or narrowly ovate, slightly longer or shorter than the bract, bifid with acuminate-subulate lobes, thinly tomentoso-pubescent with pale hairs. Corolla 16-18mm. long, erectpatently turned laterally, purple, very thinly tomentoso-pubescent with white hairs externally; tubes narrow, arcuate, about 3mm. across in the middle portion, more or less enlarged towards the upper; limb gapinly 2-labiate; upper lip short, subemarginate, about 6mm. broad; lobes suberoso-subtruncate; lower lip triparted, patent; lobes ovato-rectangular, subtruncato-subemarginate at the apex, about 4mm. long. Stamens included, reaching under the throat, slightly lower than the style; filament filiform; anther small. Ovary ovato-elliptical, acute at the apex, glabrous, about 6mm. long; style stout-filiform, glabrous, hardly exceeding the throat in height, 10mm. long; stigma dilated. Capsule ovato-elliptical, about 10mm. long, 4mm. across, with very minute and very numerous seeds. Flowers in June.

Nom. Jap. *Yomogi-utsubo* (nov. nom.).

Hab. Prov. SHINANO (M. KITAGAWA!).

A rare species; the host is *Artemisia vulgaris* L. var. *indica* MAXIM. (Jap. *Yomogi*).

Quercus phyllireoides A. GRAY var. **subcrispa** MAKINO, nov. var.

Leaves subbullate between veins, with recurved and subcrispate margins.

Nom. Jap. *Fukure-ubame* (nov. nom.).

Hab. Prov. KII (T. MAKINO!).

An intermediate form between the *typica* and var. *crispa* (SIEB.) MATSUM.

Zingiber Mioga (THUNB.) ROSC. var. **variegatum** MAKINO, nov. var.

Leaves white-variegated, but afterwards the variegation turned into pale-greenish in autumn.

Nom. Jap. *Fuiri-myôga* (nov. nom.).

Hab. JAPAN, cultivated.

Chrysanthemum indicum L. var. **albescens** MAKINO, nov. var.

Ray-flower albescent.

Nom. Jap. *Shirobana-hamakankiku* (nov. nom.).

Hab. Prov. HIGO (T. MAKINO!).

Dryopteris gracilescens (BLUME) O. KUNTZE, Rev. Gen. Pl. II. (1891), p. 821.

Aspidium gracilescens BLUME.

Nephrodium gracilescens HOOK.

Nom. Jap. *Ko-hashigoshida* (M. OGATA and T. MAKINO).

Hab. RYÛKYÛ.

var. **glanduligera** (KUNZE) MAKINO in MAKINO ET NEMOTO, Catal. Jap. Pl. Herb. Nat. Hist. Dep. Tokyo Imp. Mus. (1914), p. 426.

Aspidium glanduligerum KUNZE.

Dryopteris gracilescens subsp. *glanduligera* C. CHR.

Aspidium angustifrons MIQ.

Nom. Jap. *Hashigo-shida*.

Hab. JAPAN.

Dryopteris abbreviatipinna MAKINO ET OGATA, nov. nom.

Dryopteris gracilescens subsp. *glanduligera* var. *abbreviata* KODAMA in MATSUM. Ic. Pl. KOISIK. II. p. 43, tab. 106 (1914).

Nom. Jap. *Hime-hashigoshida*.

Hab. JAPAN, southern.

Athyrium viridifrons (MAKINO) MAKINO in Bot. Mag., Tokyo, XIII. (1899), p. 77.

Asplenium viridifrons MAKINO.

Nom. Jap. *Midori-warabi*.

Hab. Prov. TOSA (T. MAKINO!).

forma Okuboanum (MAKINO) MAKINO, nov. comb.

Athyrium Okuboanum MAKINO in Bot. Mag., Tokyo, XIII. (1899) p. 16, 77.

Aspidium Okuboanum MAKINO.

Dryopteris Okuboana KOIDZUMI.

Nom. Jap. *Ô-himewarabi*.
Hab. JAPAN.

***Crataegus rikuchuenensis* (MAKINO) MAKINO, nov. comb.**

Sorbus rikuchuenensis MAKINO in Journ. Jap. Bot. VI. No. 4 (1929), p. 7.

Hab. RIKUCHŪ, wild.

Possibly a new genus, then I expect to give the name of *Crataegosorbus* for it.

***Cytharea speciosa* (SCHLECHT.) MAKINO, nov. comb.**

Calypso speciosa SCHLECHT. Orchid. Sino-Jap. Prodr. p. 228.

Calypso bulbosa var. *speciosa* MAKINO.

Calypso bulbosa var. *japonica* MAKINO.

Nom. Jap. *Hotei-ran*, *Tsurifune-ran*.

Hab. JAPAN.

***Krushea streptopoides* (LEDEB.) KEARNEY.**

Smilacina streptopoides LEDEB. Fl. Ross. IV. p. 128.

Streptopus streptopoides NERS. ET MACB.

Nom. Jap. *Hime-takeshimaran* (nov. nom.).

Hab. Prov. SHIMOTSUKE: Nikkô (T. MAKINO!).

***Hydrangea macrophylla* (THUNB.) DC. subsp. *serrata* (THUNB.) MAKINO, nov. comb.**

var. *Thunbergii* (SIEB.) MAKINO, nov. comb.

Leaves are especially very sweet in taste when dried.

subvar. a. *typica* MAKINO.

Hydrangea Thunbergii SIEB. Syn. Hydr. in Act. Leop. XIV. 2, p. 690; SIEB. ET ZUCC. Fl. Jap. I. p. 114, tab. 60.

Hydrangea opuloides var. *Thunbergii* MAKINO.

Petals of the sterile-flowers rounded at the apex, therefore its flowers assume an orbicular form on the whole.

Nom. Jap. *Amacha* (*ama*=sweet + *cha*=tea).

Hab. JAPAN, cultivated.

subvar. b. *Oamacha* MAKINO.

Stems stouter and leaves larger than in *a. typica*. Sepals of the sterile flowers obtuse but not rounded at the apex.

Nom. Jap. *Ô-amacha* (nov. nom.).

Hab. JAPAN, cultivated.

var. *amoena* MAKINO, nov. var.

A deciduous shrub, tufted-stemmed. Stem terete, rufous. Floriferous-branches of this year slender, terete, light green, thinly dispersed with purple minute rounded to oblong spots, thinly covered with minute adpressed light glivous hairs, glabrate below; internodes rather slender; sterile-branches short, usually stouter, terete, glabrous or minutely puberulent, light green,

thinly dispersed with spots like in the floriferous-branches. Leaves opposite, petiolate, oval to elliptical, acuminate at the apex, obtuse to acute at the base, depressed-deltoidly serrato-dentate on margins with a mucronate point, thickly membranaceous, green, not shining, slightly rugose (by the impression of nerves) and minute-puberulous on the midrib and veins on the upper surface, light green and reticulated with elevated nerves (the midrib, veins, main veinlets thinly pubescent) beneath; petiole nearly terete, rounded in back, puberulous and very shallowly canaliculated in front, light green and usually purple towards the front. Flower-ball depressed-globose, with dense and very numerous sterile flowers; flowers 1-3½ cm. in diameter. Sepals 4, patent, unequal-sized, the inner one smaller and the outer one largest, rhombicly rounded-oval to elliptical, entire, rounded-obtuse at the apex, obtuse to acute at the base, sessile, beautifully blue, but pale green and turned downwards after anthesis; pedicels minutely puberulous.

Nom. Jap. *Hime-adzisiai* (nov. nom.).

Hab. Prov. SHINANO, cultivated (T. MAKINO!); Prov. RIKUCHŪ, cultivated (T. MAKINO!).

var. albo-globosa MAKINO, nov. var.

A small deciduous shrub; branches slender, terete. Leaves oval to elliptical, acuminate, serrato-dentate, dull green. Flower-ball not large, depressed-globose, with dense and many pale sterile flowers.

Nom. Jap. *Shiro-adzisiai* (nov. nom.).

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

Sasa cernua MAKINO, nov. sp.

Culm attaining about 1½m. high and 1cm. across, ascending below and erect above, little to sub-numerously ramose, terete, fistulose, thick-walled, smooth, glabrous; node slightly prominent, very minutely puberulous then glabrate; internodes white-bloomy under the nodes; branches one to a node, erect, ramulose; branchlets one to a node. Leaves biennial, palmately arranged towards the top of branchlet, attenuatedly acuminate with a very sharp point at the apex, obtuse or acute at the base, shortly petiolate, minutely spinulose on margins, chartaceo-coriaceous or coriaceous, green and glabrous above, subglaucous and slightly pubescent below beneath, 20-23cm. long, 2½-6½cm. wide; midrib very slender, prominent and thinly pubescent below beneath; veins 8-11 on each side; venules finely tessellate with square and transverse-rectangular areolæ, petiole 7-13mm. long, compressed, subcuneate, subcarinate and glabrous dorsally, minute-puberulous below in front; ligule short, coriaceous, truncate-rounded and minutely ciliated on margin, puberulous dorsally, 2-3mm. long; sheath closely encircled, glabrous, finely striate; shoulder-fimbriæ none. Peduncles issuing from the culm above and below, elongate, usually more or less exceeding the top in height, sheathing, glabrous but pubescent under the panicle. Panicle terminal, not large, often more or less cernuous, ovate or rounded in outline, rather loosely branched, 7-12cm. long; rachis and branches pubescent with pale and patulous hairs; branches short,

one- to few-spiculose. Spiculæ pedicellate, broadly linear, complanate, several-flowered, purple, provided with small ovate or broad-ovate short-acuminate 1-2 glumes at the base; rachilla flexuous, pubescent. Flowers closely disposed, broadly lanceolate, shortly acuminate, about 8-10mm. long. Flowering-glume thickly membranaceous, ovate, pubescent towards the margins externally, 3-5-nerved on each side. Palea hardly shorter than the flowering-glume, 2-carinate dorsally, shortly bifid at the apex, pubescent. Lodicules 3. Stamens 6; filament filiform; anther linear, 5mm. long. Ovary ovate; style 3-branched; branches plumose.

Nom. Jap. *Okuyama-zasa* (nov. nom.).

Hab. Prov. SHIMOTSUKE: Nikkô (T. MAKINO!).

This species is rather widely distributed in the central and northern Japan.

Sasa Nakaii MAKINO, nov. sp.

A small bamboo, attaining about 1½m. in height. Culm ascending at the base and erect above, loosely few-ramose, slender, terete, fistulose, glabrous, about 2-4½mm. in diameter; node prominent, glabrous; internodes white-bloomy under the nodes. Leaves biennial, palmately arranged towards the top of branchlets, oblong-lanceolate or oblong, acuminate with a very sharp point at the apex. rounded-obtuse or acute at the base, shortly petiolate, finely spinulose on margins, chartaceous, green and glabrous above, paler and softly very sparingly or thinly pubescent beneath, about 11-25cm. long, 18-60mm. wide, zonately decayed on both margins in winter; midrib prominent beneath; veins 7-12 on each side; veinlets finely tessellate with square rectangular and transverse-rectangular areolæ; petiole compressed, subcuneate, glabrous and subcarinate dorsally, minutely puberulous at the base in front, 4-10mm. long; ligule short, coriaceous, truncato-rounded and minutely ciliated on margin, minutely puberulent dorsally, 1½-3mm. long; sheath closely encircled, glabrous, finely striate, ciliated on margin; shoulder-fimbriæ setiform, radiate, mostly deciduous. Peduncle issuing from the lower portion of the culm, ascending below and erect above, much exerted upon the leaves, slender, glabrous, sheathing (the sheath glabrous, finely striate, each with a minute subulate microphyll at the apex), with glabrous nodes. Panicle terminal, erect, not large and about 7-13cm. long, loosely branched; rachis slender, thinly pubescent; branches effuse, gracile, 1-3-spiculiferous, thinly pubescent. Spiculæ pedicelled, linear, complanate, about 5-7-flowered, rather laxly disposed, usually viridescent, sometimes more or less purpurascens, with 1 small ovate and ciliated glume at the base; rachilla flexuous, puberulous. Flower lanceolate, 7-9mm. long. Flowering-glume ovate, acute, firmly thin, ciliated on the upper margins, 4-5-nerved on each side. Palea scarcely longer or shorter than the flowering-glume, 2-carinate dorsally, shortly bifid at the apex, puberulous above. Lodicules 3, deltoid-ovate, membranaceous, nervate, ciliated on margin. Stamens 6; filament filiform; anther linear, 5mm. long. Ovary ovate; style 3-branched; branches long and plumose.

Nom. Jap. *Shirane-zasa* (nov. nom.).

Hab. Prov. SHIMOTSUKE: Nikkô (T. MAKINO!).

I have named this new species in honour of Dr. TAKENOSHIN NAKAI, Professor of Botany in the Faculty of Science, Imperial University of Tokyo,

***Sasa membranacea* MAKINO ET UCHIDA, nov. sp.**

A small bamboo, attaining about 1m. in height. Culm slender, erect or ascending at the base, simple or scantily ramose at the lower portion, terete, fistulose, thinly retrorsely pubescent, 2½-4mm. in diameter; node prominent, very minutely puberulous and then often glabrate; internodes white-bloomy under the nodes. Leaves palmately or pinnato-palmately arranged towards the top of main culm or branches, oblong, broadly oblong or ovato-oblong, abruptly acuminate with a very sharp tip at the apex, rounded at the base but obtuse or acute in the apical ones, finely spinuloso-ciliated on margins, chartaceo-membranaceous, green and glabrous above, paler and thinly pubescent with pale hairs beneath, 13-24½cm. long, 2½-6¾cm. broad; midrib prominent beneath; veins 7-11 on each side; veinlets finely tessellate with square and transverse-rectangular areolæ; petiole short, 3-5mm. long, compressed, subcuneate, subcarinate and slightly pubescent dorsally, minutely puberulent at the base in front; ligule very short, 1-3mm. long, coriaceous, truncate and minute-ciliated on margin, minutely puberulent dorsally; sheath closely encircled, coriaceous, finely striate, pubescent with retrorse short hairs and sometimes moreover pilose with antrorse-patulous long hairs; shoulder-fimbriæ setiform, radiate, deciduous.

Nom. Jap. *Usuba-zasa* (nov. nom.).

Hab. Prov. RIKUCHÛ (T. MAKINO! 1928.).

***Sasa yahikoensis* MAKINO, nov. sp.**

Rhizome hypogæous, creeping, terete, with short internodes and many nodes, rooting. Culm erect or ascending, attaining about 1m. high, often flexuous, terete, fistulous, pubescent with short hairs, attaining about 4mm. in diameter, loosely ramose; nodes slightly prominent, minutely puberulous; internodes white-bloomy under the nodes; branches one to a node, erect-patent. Leaves biennial, palmately or pinnato-palmately arranged towards the top of branches and branchlets, shortly petiolate, oblong, rather abruptly acuminate with a very sharp point at the apex, rounded but obtuse or acute at the apical ones at the base, minutely spinulose on margins, chartaceous, green and glabrous above, subglaucous and thinly pubescent with white hairs beneath, about 12-26½cm. long, 2½-5½cm. broad; midrib prominent beneath; veins 6-10 on each side; veinlets finely tessellate with square and transverse-square areolæ; petiole 2-12mm. long, compressed, subcuneate, thin-pubescent and subcarinate dorsally, puberulous in front; ligule very short, coriaceous, truncate or rounded-truncate and minutely ciliated on margin, minute-puberulous dorsally, ½-1½mm. long; sheath closely encircled, finely striate, minutely puberulous, patently ciliated; shoulder-fimbriæ setiform, deciduous.

Nom. Jap. *Yahiko-zasa* (nov. nom.).

Hab. Prov. ECHIGO: Yahiko (T. MAKINO! 1928.).

SASAELLA MAKINO, nov. gen.

Rhizome hypogaeous, creeping, sympodial. Culm erect, ramose; branches and branchlets one to a node; main-sheaths remaining for about three years. Leaves lanceolate; shoulder-fimbriae setiform. Peduncles issuing from the stem throughout. Panicle terminal, not large, racemously ramose. Spiculae linear, complanate, distichously and alternately several- or subnumerous-flowered. Flowers tapering; glumes 2; flowering-glume 1; 2-carinate palea 1. Lodicules 3. Stamens 6, sometimes fewer. Ovary 1; style 3-branched, plumose.

Sasaella ramosa (*Sasa ramosa* MAK.), **hannoensis** (*Sasa hannoensis* MAK.), **Hisauchii** (*Sasa Hisauchii* MAK.), **hidaensis** (*Sasa hidaensis* MAK.),? **tanzawana** (*Sasa tanzawana* MAK.), **Okadana** (*Sasa Okadana* MAK.), **Suwekoana** (*Sasa Suwekoana* MAK.), **matsushimensis** (*Sasa matsushimensis* MAK.), **agrestis** (*Sasa agrestis* MAK.), **Komiyamana** (*Sasa Komiyamana* MAK.) MAKINO, nov. comb.

Sasaella Sasakiana MAKINO ET UCHIDA, nov. sp.

Culm erect, or ascending at the base, attaining about 3m. or more in height and about 1cm. in diameter, ramose above, terete, fistulose, smooth, glabrous; node slightly prominent, very minutely puberulous with short hairs and then often glabrate; internodes white-bloomy under the nodes; branches one to a node, erect-patent, loosely or densely ramulous; main sheath coriaceous, glabrous. Leaves palmately or pinnato-palmately arranged towards the top of the branchlets, lanceolate, shortly petiolate, rounded but obtuse or acute in the apical ones at the base, acuminate with a very sharp point at the apex, minutely spinulous on margins, chartaceous, green and glabrous but sometimes slightly pubescent on each side at the basal portion of the midrib above, paler and glabrous beneath, about 5-34cm long, 1-5cm. wide; midrib prominent beneath; veins 4-9 on each side; veinlets finely tessellate with square and rectangular areolae; petiole $1\frac{1}{2}$ -11mm. long, compressed, subcuneate, glabrous and subcarinate dorsally, minutely puberulous and often purple in the sun in front; ligule very short, coriaceous, 1-2mm. long truncate and minutely ciliated on margin, minutely puberulous dorsally; sheath closely encircled, viridescent or purple in the sun, coriaceous, finely striate, ciliated or obscurely ciliated on margin; shoulder-fimbriae setiform, deciduous.

Nom. Jap. *Tôge-dake* (nov. nom.).

Hab. Prov. RIKUCHÛ: Tôge in Oyama-mura, planted (T. MAKINO! 1928.).

A beautiful bamboo; the sprout edible. We have named it in memory of Mr. SASAKI in the village of Tôge.

Sasaella iwatekensis MAKINO ET UCHIDA, nov. sp.

Sasa iwatekensis MAKINO ET UCHIDA, MSS.

Stem erect, attaining about $1\frac{1}{2}$ m. in height, terete, fistulous, puberulous with deciduous retrorse hairs and then glabrate, laxly ramose; node slightly prominent, minutely dense-puberulous; internodes white-bloomy under the nodes. Leaves palmately disposed towards the top of branchlets, chartaceous, lanceolate,

narrow-lanceolate or oblong-lanceolate, very sharply acuminate at the apex, rounded or obtuse at the base but acute in the apical ones, minutely spinulose on margins, 10-28cm. long, 18-48mm. wide, green and glabrous but thinly pubescent towards the base above, paler and thinly pubescent; midrib slender, prominent beneath; veins 6-10 on each side; veinlets finely tessellate with square and rectangular areolæ; petiole short, compressed, subcuneate, subcarinate and glabrous dorsally, minutely puberulous in front, $1\frac{1}{2}$ -13mm. long; ligule very short, coriaceous, truncate and minutely ciliated on margin, minutely puberulous in back, $1-1\frac{1}{2}$ mm. long; sheath closely encircled, finely striate, densely puberulent above, patulously ciliated on margin; shoulder-fimbriæ setiform, flabellate or radiate, mostly deciduous.

Nom. Jap. *Yabu-zasa* (nov. nom.).

Hab. RIKUCHŪ (T. MAKINO! 1923.).

YADAKEYA MAKINO, nov. gen.

Rhizome hypogæous, creeping, sympodial. Stem erect, ramose; branches and branchlets one to a node; main sheath remaining late till decay. Leaves lanceolate; shoulder-fimbriæ none, but very rarely incompletely developed. Peduncles issuing from the stem all over. Panicle not large, ramose. Spiculæ pedicellate, distichously and alternately several- or subnumerous-flowered. Flowers acuminate or acute; glumes 2; flowering-glume 1; 2-carinate palea 1. Lodicules 3. Stamens 4-5. Ovary 1; style 3-branched, plumose.

Yadakeya japonica (SIEB. ET ZUCC.) MAKINO, nov. comb.

Arundinaria japonica SIEB. ET ZUCC.

Sasa japonica MAKINO.

Pseudosasa japonica MAKINO.

Nom. Jap. *Ya-dake*.

Hab. JAPAN, wild and cultivated, common.

Yadakeya Owatarii (MAKINO) MAKINO, nov. comb.

Arundinaria Owatarii MAKINO.

Sasa Owatarii MAKINO.

Pseudosasa Owatarii MAKINO.

Nom. Jap. *Yakushima-dake*.

Hab. Prov. ŌSUMI: Yaku-shima.

(To be continued.)