Observations on the Flora of Japan.

(Continued from p. 116.)

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Polygonum (Echinocaulon) **breviochreatum** Makino, sp. nov.

Polygonum muricatum Maxim. in litt. non Meisn.

Annual, attaining 6 decim. long. Stem slender, weak, erect from the decumbent or often radicant base, branched at the base; the internodes longer or shorter than the leaves, smooth but retrorsely loosely pilose on the opposite side to the leaves above. Leaves distant, patent, shortly petioled, oblong-lanceolate or lanceolate, acuminate, subsagittato-truncate or subcordate at the base, thinly pilose above, glabrous but loosely antrorsely pilose on the midrib beneath, antrorsely minutely scabro-ciliated on the margin, membranaceous, attaining about 8cm. long, 2cm. broad; lateral veins subnumerous, delicate, erect-patent, arcuate; petiole glabrous, 3–15mm. long; sheath shorter than or equal to the petiole, ciliated, adpressed-hirsute externally. Peduncles terminal or axillary, loosely placed, slender, filiform, patently glanduloso-hispid; bracts subulate, acute, entire, thinly pilose, about 2mm. long. Spike short, laxly often interruptedly few-flowered. Flower very shortly pedicellate, 4mm. long, pale-rose; pedicel usually shorter than the bracteoles; bracteoles elliptical, acutish, scarious on both edges, laxly glanduloso-hispid on the carina above. Perianth 5-cleft; segments elliptical, obtuse. Stamens 7, included; filaments unequal in length. Ovary ovoid; styles 3, very short, scarcely connate at the very base; stigma capitate. Akene enclosed in the perianth, ovoid-globose, with an acute triangular short tip, smooth, shining, fulvo-castaneous, with persistent styles $2\frac{1}{5}$ mm. across.

Hab. Prov. TOSA: Sakawa (*T. Makino*! 1884), Idzuma (*T. Makino*! Oct. 17, 1892); Prov. YAMATO: Nara (*K. Tsuzi*! Oct. 1902).

This differs from *Polygonum muricatum* Meisn., by the narrow leaves and the ovoid-globose akene.

Polygonum (Echinocaulon) **auriculatum** Makino, sp. nov. non Meisn.

Annual, bay-ferruginous when dried. Stem long and slender, decum-

bent and often radicans below, flaccid, ramose, sparsely or sparingly retrorsely strigoso-pilose on the surface; internodes shorter than the leaves. Leaves very shortly petioled, the upper ones nearly sessile, linear-lanceolate, or linear, but oblong-lanceolate in the basal ones, attenuated above and with an obtuse or acutish tip, auriculato-hastate or subcordate at the base, flaccid-membranaceous, 2–11cm. long, $\frac{2}{3}$ –2cm. wide, glabrous, but antrorsely minutely ciliated on the margin, and the midrib very thinly antrorsely pilose above and retrorsely so below beneath; lateral veins not conspicuous, many, patulous; the basal auricles divaricate or subdivaricate, falcately ovato-lanceolate or oblong, usually obtuse, attaining 13mm. in length; petiole subglabrous, attaining 7mm. long; sheath long, attaining $1\frac{3}{4}$ cm. long, glabrous, not ciliated, with a retrorsely piloso-strigose ring at the base. Peduncle lateral, patent, usually longer than the leaves, divaricately 2–3-branched above, sometimes compound and provided with leafy bracts; the branches filiform, thinly glanduloso-hispid, attaining about 6cm. long; bracts vaginate, short, obliquely truncate, glabrous, but often piloso-ciliated or loosely ciliolate. Flowers 2–6-fasciculate, shortly pedicellate, 3mm. long, rose; pedicel longer or shorter than the bracteoles, very laxly glanduloso-pilose above; bracteoles pellucid-membranaceous, connate below, entire, glabrous, longer than the bracts. Perianth 4-cleft; segments oval-elliptical, rounded-obtuse at the apex. Stamens 4–6, included. Ovary ovoid; styles 3, connate excepting the upper portion, nearly as long as the ovary. Akene completely enclosed in the persistent perianth and shorter than them, $1\frac{2}{3}$ mm. across, subtrigonus-globose, minutely beaked with a short base of the styles, minutely ruguloso-reticulated, nigro-castaneous.

Hab. Prov. TOSA: Eno-mura in Hata-gōri (*T. Makino*! Aug. 5, 1889), Ryū-mura (*T. Makino*! Oct. 16, 1892; *S. Yano*! 1892), Asakura (*T. Makino*! Sept. 1892, Oct. 15, 1892), Erasawa (*I. Doi*! Aug. 15, 1890), Iwado (*I. Doi*! Aug. 28, 1890); Prov. IYO: Shōyenzin-mura in Onsen-gōri (*K. Okudaira*! July 1894); Prov. MICAWA: Near Toyohashi (*T. Makino*! Oct. 25, 1893 Oct. 29, 1894), Kameyama in Atsumi-gōri (*T. Makino*! Oct. 27, 1893), Noba in Hadzu-gōri (*G. Nagura*! Sept. 5, 1897); Prov. KADZUSA: Nakahara-mura in Nagara-gōri (*Herb.*! Sc. Coll. Imp. Univ. Tokyo, Sept. 1880); Prov. HYŪGA: Takanabe (*R. Yatabe and J. Matsu-mura*! herb. *ibid.* July 27, 1882); Prov. MINO: Iwato-mura (*Herb.*! *ibid.*); Prov. SUŌ: Ōuchi-mura (*D. Nikai*! herb. *ibid.* July 10, 1892); LOOCHOO: Uizato-magiri in Isl. Okinawa (*Herb.*! *ibid.* May 1887), Isl. Kume-shima (*H. Kuroiwa*!); FORMOSA: Daihoku (*T. Makino*! herb. *ibid.* Nov. 10, 1896).

This species differs from *Polygonum muricatum* Meisn., by its angustate leaves, the lateral peduncle, and the black-castaneous ruguloso-reticulated akene, and the latter has the acutely angled pale smooth shining and usually exserted akene.

***Polygonum* (Echinocaulon) *hastato-sagittatum* Makino sp. nov.**

Annual, attaining 14 decim. in height. Stem slender and long, erect or ascending from decumbent rooting base, erect-patently loosely ramose, smooth or retrorsely muricate, the internodes shorter than the leaves but the superior ones longer than them. Leaves petiolate, lanceolate, acuminate, oblong-lanceolate and acutish in the lower ones, subhastato-sagittate or subhastato-truncate or auriculato-cordate at the base, but the superior ones often obtuse at the base, $1\frac{1}{2}$ –12cm. long, $\frac{1}{3}$ – $3\frac{1}{3}$ cm. wide, glabrous but minutely pilose towards the apex above, very minutely retrorsely or antrorsely scabro-muricate on the margin, scabrous on the midrib beneath, membranaceous; lateral veins numerous, erect-patent, delicate; petiole angustate, attaining $\frac{1}{3}$ – $3\frac{3}{4}$ cm. in length, retrorsely muricate or glabrous; sheath usually longer than the petiole, cylindrical, membranaceous, attaining $3\frac{1}{4}$ cm. long, glabrous, shortly ciliated, with a retrorsely muricated or strigose ring at the base. Panicle loose; branches slender; peduncles angustate or filiform, longer or much so than the spike, glanduloso-hispid above or sometimes throughout. Spike capitate to ellipsoid, 6–13mm. long, densely many-flowered; bracts lato-ovate, glabrous, ciliated, thinly membranaceous. Flowers pedicellate, 3–4 $\frac{1}{2}$ mm. long, rose-coloured; pedicels 2-fasciculate, one exserted and other not, glanduloso-hispid above. Perianth 5-cleft; segments elliptical, rounded at the apex. Stamens included, 7; filament filiform. Ovary narrowly ovoid; styles 3, erect or erect-patent, as long as the ovary, connate at the basal portion; stigma capitate. Akene enclosed in the perianth and shorter than them, ovoid, acute at the apex, acutely triquetrous, nigro-castaneous, smooth, shining $2\frac{1}{2}$ –3mm. long, the face ovate.

Hab. Prov. TOSA: Kōchi (*T. Makino*! Nov. 1891, Oct. 1892), Asakura (*T. Makino*! Sept. 23, 1892), Edagawa (*T. Makino*! Oct. 22, 1892); Prov. SHIMOOSA: Mama (*T. Makino*! Oct. 26, 1890 Oct. 6, 1895); Prov. KADZUSA: Haseya (Herb.! Sc. Coll. Imp. Univ. Tokyo, Sept. 1880); Prov. SHIMOTSUKE: Nikko (Herb.! *ibid.*); HOKKAIDŌ (*L. Boehmer*! herb. *ibid.*); FORMOSA: Daihoku (*T. Makino*! herb. *ibid.* Nov. 12, 1896; *C. Owatari*! herb. *ibid.* Dec. 21, 1897).

This seems to be allied to *Polygonum muricatum* Meisn. and *P. strigosum* R. Br., but it differs from the former, by the narrow leaves and the densely many-flowered capitate spike; from the latter, chiefly by the shining acute-triquetrous akene. It is widely distributed over Japan.

var. β . latifolium Makino.

Polygonum muricatum var. Maxim. in litt.

Usually shorter, attaining 11 decim. in length. Stem ascending and diffuse from the decumbent radicans base, loosely ramose. Leaves ovate to elliptical, or elliptical-oblong, abruptly short-acuminate, truncate or subcordate at the base, very minutely antrorsely scabro-ciliated on the margin, $1\frac{1}{2}$ –7cm. long, $\frac{4}{5}$ – $3\frac{1}{2}$ cm. broad, the lower ones often reflexed; petiole 2–18mm. long. Panicle loose; peduncle filiform, longer than the spike. Spike capitate to ellipsoid, 5–13mm. long, densely many-flowered; bracts ovato-subulate, glabrous or thinly glanduloso-hispid, ciliated, membranaceous. Flowers pedicellate, $2\frac{1}{2}$ –3mm. long, rose-purple above and pale or pale-viridescent below; pedicels 2-fasciculate, one shortly exerted and other not, slightly glanduloso-hispid above. Perianth 5-cleft; segments elliptical or elliptico-oval, rounded-obtuse at the apex. Stamens 7–9. Ovary ovoid; styles shorter than the ovary, connate half below or at the basal portion. Akene enclosed in the perianth, ovoid, acute, acutely triquetrous, umber, smooth, shining, $2\frac{1}{2}$ mm. long, the face ovate.

Hab. Prov. TOSA: Sakawa (*T. Makino*! 1884), Arioka in Hata-gōri (*T. Makino*! Nov. 4, 1885), Koishiki near Kōchi (*S. Yano*! Sept. 1888), Godaisan (*T. Makino*! Sept. 29, 1892), Kambara (*T. Makino*! Oct. 17, 1892), Edagawa (*T. Makino*! Oct. 22, 1892); Prov. SAGAMI: Hakone (*T. Makino*! Sept. 24, 1886); Prov. MUSASHI: Near Ōmiya-hachiman (*R. Yatabe and J. Matsumura*! herb. Sc. Coll. Imp. Univ. Tokyo, Oct. 5, 1879), Kawasaki (*T. Makino*!); Prov. SŪŌ: Ōuchi-mura (*D. Nikai*! herb. ibid. Oct 4, 1891); Prov. TSUSHIMA: Kuta (*K. Hirata*! Oct. 17, 1902).

Closely allied to *Polygonum muricatum* Meisn., but my plant has the spike capitate and densely many-flowered, and the akene entirely wrapped in the perianth.

Platanthera (Bifoliæ) **Takedai** Makino, sp. nov.

About 17–22cm. in height, glabrous. Tuber perpendicular, radiciform, thicker towards the base and elongate towards the end; roots few; turio

one, sessile. Stem erect, angulate, with 2 membranaceous cataphylls at the base. Leaves 2, remotely placed; the lower one normal, placed in the middle of the whole plant, ovato-oblong to narrowly oblong, obtuse, amplexicaul and not sheathing at the base, $3\frac{1}{2}$ –7cm. long, $1\frac{2}{3}$ –2cm. or more wide, with 3 main nerves; the upper one bract-like, ovato-linear to linear-lanceolate, acuminate, sessile, green. Raceme 3–6cm. long loosely 8–10-flowered; rachis angulate, green; bracts subulato-linear, acuminate, green, the inferior ones longer than the flowers and the superior ones shorter than them. Flower viridescent, inodorous, about 9mm. in vertical diameter. Outer perianth: the upper one erect, lato-ovate, obtuse, 4mm. long, 3mm. broad, 3–2-nerved; lateral ones turned downwards, lato-linear, obtuse, longer than the upper one, 5mm. long, 2-nerved. Inner perianth erect, nearly as long as the outer-upper perianth, obliquely narrow-deltoid-ovate, acute, pale-viridescent, 1-nerved. Labellum simple, pendulous slightly longer than the outer-lateral perianth, deltoid-linear, gradually attenuated above, obtuse at the end, thickish, green, 6mm. long; calcar extremely short, small, shortly conical, green, 1mm. long. Gynostemium broad, deeply emarginate at the apex; anther-cells obliquely and distantly placed, pale; gland small, discoid, yellow; pollinia clavate, stipitate, pale; rostellum very short, broad. Ovary cylindrico-oblong, about 6mm. long.

Hab. SHIMOTSUKE: Mt. Nyohō in Nikkō (*H. Takeda*! July 20, 1902, July 1903).

This is closely allied to *Platanthera ophrydioides* Fr. Schm., but the alcar is very different; or a variety of it?

Sedum hakonense Makino in Bot. Mag., Tokyo, XV. (1901) p. 35.

Add. Stems nigro-purpurascens. Leaves semiterete, green, very minutely nigro-purpurascens-punctate in the lower ones, 1-sulcate in centre on the upper surface. Sepals greenish. Petals yellow internally, viridescent externally, not white! Stamens yellow; anther yellow-purpurascens. Ovary viridescent-yellow. Flowers July.

I have a living specimen before me, by the kindness of Viscount Y. Matsudaira, who collected it on Mt. Amagi in the province of Idzu, where it was found growing on the large trees.

(*To be continued.*).