

Desmidiaceae novae Japonicae (I)

By

Minoru HIRANO

Botanical Institute, University of Kyoto

(Received on Sep. 30, 1947)

The present paper is a part of my study on Japanese Desmids during the past ten years. The materials, on which the present descriptions are based, were collected by myself from various parts of Japan. The study has been carried out under the guidance of Prof. Siro Kitamura, Kyoto University. I wish to express my sincere gratitude to him.

Pleurotaenium tridentulum (Wolle) West var. *breve* Hirano, var. nov. Var. minor et brevior, circiter 10—12 plus longa quam lata, semicellulae apicem versus leviter attenuatae, angulis basalibus rotundatis non inflatis, marginibus lateralibus rectis, spinis minutissimis, membrana punctata. Long. 118—137 μ ; lat. 11.2—12.6 μ . Hab. Ozegahara moor, prov. Kozuke. (Fig.2.)

Euastrum ozense Hirano, sp. nov. Cellulae mediocres, circiter 2½ plus longae quam latae, profunde constrictae, sinu angusto-lineari extremo ampliato; semicellulae elongatae-subpyramidatae vel subtriangulares, trilobae, angulis inter lobos rectangularibus et rotundatis, lobis polaribus elongato-cuneatis, lateralibus levissime divergentibus, apicibus convexis cum angulis rotundatis et incisura mediana profunda et angusto-linea extrema subampliata, lobis lateralibus bilobulatis, lobulis superioribus mamillatis et leviter subdivergentibus, lobulis inferioribus cum angulis basalibus rotundatis, lateribus in medio late retusis vel concavis; cum tumore parvo intra lobulos laterales et in centro semicellularum cum prominente scrobiculo magno singulo; a latere visae angusto-subovatae, lobis polaribus truncato-subpyramidatis, parte basis semicellulae rectangulari cum marginibus retusis; a vertice visae ellipticae, lobis polaribus subrectangularibus. Long. 125—137 μ , lat. 48—50 μ , lat. isth. 19—20 μ , crass. 40 μ . Hab. Konuma and Ozegahara moor, prov. Kozuke. This species is one of the elongated forms of the genus. Its elongated polar lobe, retuse and convergent margin

of the lateral lobes, and mamillated upper lateral angles, are characteristic. (Fig. 3.)

Cosmarium pseudoquinarium Hirano, sp. nov. Cellulae parvae, circiter $1\frac{1}{4}$ plus longae quam latae, profunde constrictae, sinu angustolineari extremo subampliato; semicellulae late pyramidatae vel subsemicirculares, angulis basalibus rotundatis, angulis apicalibus late rotundatis, apicibus truncatis et rectis vel leviter convexis, intra apicem granulis magnis quaternis in linea horizontali ordinatis, marginibus lateralibus convexis et 5—6 granulis minoribus ordinatis; in centro seriebus binis horizontalibus granulorum minorum, 5—6 in serie utraque; a latere visae subsphaericae, apicibus leviter truncatis, in centro granulis minoribus in seriebus binis verticalibus et granulis paucis a basi ad apicem usque praeditae, granulis majoribus singulis utrobique prope apices; a vertice visae ellipticae, intra marginem subconvexae, serie granulorum 6 ordinatae, granulis in centro majoribus et intra polum minoribus, in apicis centro glabrae. Long. 25.2—28 μ , lat. 19.6—22.4 μ , lat. isth. 6.5—7 μ . Hab. Kokenuma, prov. Ugo; Ozegaharamoor, prov. Kozuke; Mizoroga-ike, prov. Yamashiro. This species is distinguished from *C. quinarium* by the small form, and by the transverse series of small granules in the face of semicell, instead of large central granules. (Fig. 6.)

Cosmarium depressum (Näg.) Lund. var. *japonicum* Hirano, var. nov. Var. minor quam forma typica; semicellulae parum rhomboido-ellipticae vel depresso-subellipticae; a vertice visae rhomboido-ellipticae, membrana delicatissime punctata. Long. 21—28 μ , lat. 21—25.2 μ , lat. isth. 4.3—8.4 μ , crass. 14 μ . Hab. mt. Hakkoda, prov. Mutsu; Naga-numa, prov. Rikuzen; Hirumo-numa, prov. Ugo; Kamikochi, prov. Shinano; Shinohara-ike, prov. Ohmi; mizoroga-ike, prov. Yamashiro. This variety is the intermediate form between forma typica and f. minuta Heimerl. Bruno Schröder's form (Forsch. Ber. Biol. Stat. Plön 6. p. 34. pl. 1. f. 9. 1898) is the same as my variety. (Fig. 5.)

Cosmarium pseudoexiguum Racib. var. *retusum* Hirano, var. nov. Semicellulae trapezoido-subquadratae, marginibus lateralibus fere rectis et leviter convergentibus versus apicem sed prope apicem oblique truncatis et retusis, apicibus truncatis et retusis in medio, angulis apicalibus leviter rotundatis. Long. 22.4 μ , lat. 12.6 μ , lat. isth. 3.4 μ . Hab. Takaraga-ike, prov. Yamashiro. (Fig. 1.)

Cosmarium laeve Rabenh. var. *reniforme* Hirano, var. nov. Semicellulae subreniformi-hexagonales, marginibus omnibus leviter convexis, angulis apicalibus late rotundatis, apicibus retusis. Long. 18.2 μ , lat.

11.2 μ , lat. isth. 2.8 μ . Hab. Inago in Kitamaki-mura, prov. Shinano ; Mizoroga-ike, prov. Yamashiro. (Fig. 11.)

Cosmarium pseudocellatum Hirano, sp. nov. Cellulae, minutae, sub-circulares, circiter tam longae quam latae, profunde constrictae, sinu aperto lineari, extremo rotundato, isthmo leviter elongato; semicellulae subsemicirculares vel transverse semiellipticae, angulis basalibus rotundatis; a latere visae circulares; membrana glabra. Long. 9.5 μ , lat. 9.6 μ , lat. isth. 1.7 μ . Hab. Ko-ike, prov. Yamashiro. This species is very small, and is one of the very minute forms of the genus. The outline of the semicell is similar to that of the *C. ocellatum* Eichl. & Gutw. But this has no ocella. (Fig. 4.)

Arthrodesmus triangulares Lagerh. var. *acuminatum* Hirano, var. nov. Semicellulae levissime elongatae, sinu extremo acuminato. Long. 8 μ , lat. sine spin. 6 μ , cum spin. 16 μ ; lat. isth. 1.5 μ . Hab. Sawano-ike, prov. Yamashiro. (Fig. 12.)

Arthrodesmus triangulares Lagerh. var. *minor* Hirano, var. nov. Var. minor quam forma typica, isthmo cellularum leviter tortuoso, elongato et cylindrico. Long. 4.5 μ , lat. sine spin. 4 μ , cum spin. 12 μ ; lat. isth. 1 μ . Hab. Sawano-ike, prov. Yamashiro. (Fig. 13.)

Arthrodesmus quiriferus W. & G. S. West var. *brevispinis* Okada f. *minor* Hirano, forma nov. Forma minor, spinis mediocriter longis. Long. sine spin. 10.7 μ , cum spin. 19.3 μ ; lat. sine spin. 7.7 μ , cum spin. 18 μ ; lat. isth. 3.4 μ . Hab. Ko-ike, prov. Yamashiro.

Staurastrum polymorphum Bréb. var. *Grönbladii* Hirano, var. nov. St. polymorphum Bréb. forma Grönblad in Act. Soc. Faun. Flor. Fenn. 47. p. 73. pl. 3. f. 81 — 83. 1920. St. *Heimerlicianum* Lütkem. forma Taylor in Pap. Mich. Acad. Sci. Art & Lett. 20. p. 192. pl. 37. f. 3. 1934. Semicellulae minores, subtriangulares, processibus longis horizontaliter vel leviter subdivergentibus minutissime nodulosis. A vertice visae triangulares, lateribus leviter concavis, et in centra marginum spinis binis longis verticalibus prominentibus; apex glabra. Long. cum proc. 17 μ ; lat. cum proc. 31 μ ; lat. isth. 8 μ . Hab. Ayamedaira, prov. Kozuke; Kurosawa-ike on mt. Myoko, prov. Echigo; Kumonotaira, prov. Ettchu. (Fig. 8.)

Staurastrum senarium (Ehrenb.) Ralfs var. *incurvum* Hirano, var. nov. Var. processibus distincte incurvatis, apicibus processuum trispinatis, sinu aperto et elliptico; a vertice visae 4 — 6 angulorum, processibus leviter longis, apicibus truncatis et trispinatis, cetera ut in var. japonica. Long. 21 μ , lat. cum proc. 31 μ , lat. isth. 10 μ . Hab. Kokenuma, prov. Ugo; Ozegahara moor, prov. Kozuke. (Fig. 10.)

Staurastrum senarium (Ehrenb.) Ralfs var. *japonicum* Hirano, var. nov. Semicellulae in vertice visae trigonae cum processibus 6 superioribus majoribus versus centrum et processibus 6 inferioribus minoribus versus apicem. Long. cum proc. 34μ , sine proc. 24μ ; lat. cum proc. 31μ ; lat. isth. 8.4μ . Hab. Ohyachi in Hachimantai, prov. Rikuchu; Ozegahara moor, prov. Kozuke. (Fig. 9.)

Staurastrum senarium (Ehrenb.) Ralfs var. *simplex* Hirano, var. nov. Var. minor quam in forma typica, processibus inferioribus reductis in spinas longas. Long. cum proc. 41μ , sine proc. 23μ ; lat. cum proc. 43μ ; lat. isth. 7μ . Hab. Ozegahara moor, prov. Kozuke. (Fig. 7.)

Staurastrum megacanthum Lund. var. *minus* Hirano, var. nov. Semicellulae parvae, circiter dimidiores quam in forma typica. Long. sine spin. 23.7μ ; lat. sine spin. 23.7μ ; lat. isth. 6.5μ ; spin. 13.8μ . Hab. Mizoroga-ike, prov. Yamashiro. (Fig. 14.)

Explanation of Figs. 1—14.

- Fig. 1. *Cosmarium pseudoexiguum* Racib. var. *retusum* Hirano
 2. *Pleurotaenium tridentulum* (Wolle) West var. *breve* Hirano
 3. *Euastrum ozense* Hirano
 4. *Cosmarium pseudocellatum* Hirano
 5. *C. depressum* (Näg.) Lund. var. *japonicum* Hirano
 6. *C. pseudoquinarium* Hirano
 7. *Staurastrum senarium* (Ehrenb.) Ralfs var. *simplex* Hirano 7a. fronte et vertice visa, 7b. basi visa
 8. *St. polymorphum* Bréb. var. *Grönbladii* Hirano
 9. *St. senarium* (Ehrenb.) Ralfs var. *japonicum* Hirano
 10. *St. senarium* (Ehrenb.) Ralfs var. *incurvum* Hirano
 11. *Cosmarium laeve* Rabenh. var. *reniforme* Hirano
 12. *Arthrodesmus triangulares* Lagerh. var. *acuminatum* Hirano
 13. *A. triangulares* Lagerh. var. *minor* Hirano
 14. *Staurastrum megacanthum* Lund. var. *minus* Hirano

M. HIRANO: Desmidiaceae novae Japonicae (I)

