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Algological notes I–III

By

B. V. SKVORTZOV*

I. On new genera of colourless Flagellata genus *Silvamonas* gen. nov. of the Fam. Polytomellaceae Aragao, Ord. Polyblepharidales, Vovlocineae from São Paulo, Brasil

Description of genus *Silvamonas* gen. nov.

Cells from front view short ovoid, ovoid, long ovoid, bag-shaped, cylindrical or subcylindrical, dorsiventraly more or less depressed with 2-3 longitudinal furrows, 20-30×13-18 micr.; in upper part attenuate and broad rouded, papillate, in lower part broad runded or round-truncate, in section view more or less oblong with 5 or 6 rounded lobes; periplast distinct, thin, hyaline and not metabolic; chloroplast not present; flagalla 4, thin, about cell length; 2 contractile vacuoles near the papille; nucleus round central with a nucleole; eyespot and pyrenoids not seen; round starch grains and oil drops numerous in upper or in posterior part of the cell; asexual reproduction is by longitudinal division. Differs from genus Collodictyon Carter in more or less depressed cells, in more or less rounded ends, not lobate posterior part and lobate in section view. Differs from genus *Kuzminia* SKV. nov. gen. in rounded ends and not so depressed cells.

One species. Type of genera *Silvamonas lobata*. Hab. São Paulo,

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Brasil, Parque do Estado, in mountain forest, among mosses and hepatica collected by Daniel M. WITAL 27.7.65.

Silvamonas lobata sp. nov. Plate I, figs. 1–3.

Cells 20–30×13–18 micr. Other see the description of genera. Hab. São Paulo, Brasil, Parquedo Estadom mountain forest, among mosses and hepatica on bark of large trees, Col. by DANIEL M. VITAL, 27.7.65 and cultivated in the Laboratory.

Cellula fronte visa ovalis vel cylindrica vel bursiculaeformis cum apicibus plusminus rotundatis, 20–30×13–18 micr.; latere visa dorsiventralis plusminus depressa, in sectione 5–6 lobata cum lobis rotundatis; periplasto hyalino, 2–3 longitudinaliter carinata; papillo apice distincta; cytoplasmatae hyalina, granulata sine chromatophoris; granulis amylaceis et guttae olei numerosae; vacuolis contractilis prope apicem; flagella 4, tenuis, fere cellula longiora vel longior; nucleus cum nucleolo centralis magnus; multiplicatione per divisionem longitudinalem. Differt a genere Collodictyon Carter in cellulis modice depressis, apice not trilobatis et in habitatio, a genere *Kuzminia* SKV. gen. nov. in manuscriptum in cellulis in sectione non multo depressis, in sectione lobatis et in parte anteriore no contrictis. Species unica. Typo generis: *Silvamonas lobata*. Hab. São Paulo, Brasil, Parque do Estado, in silvis montanis inter muscis et hepaticis ad trunco arborum, Lg. DANIEL M. WITAL, 27.7.65.

II. The first records of species of *Sphaerella* SOMMERFELT (Spharellaceae, volvocales) from subtropics of Brasil.

Preface

Genus *Sphaerella* SOMMERFELT has biflagellate, soliary cells enclosed by a transparent wall. The periplast of this green flagella lies some distance inward from the wall and is connected with it by numerous delicate strands of cytoplasmatic matter. At present only 2–3 species of this genus are known from Europe and Northern America. In A. PASCHER monograph of Volvocales (1927) species of *Sphaerella* are described under the genus *Haematococcus* AGARDH em. FLOTOW. *Haematococcus droebakensis* WOLLENW. is reported from Norway collected in hollows of

rocky ledges that are temporarely filled with rain water. Another species *H. pluvialis* FLOT. em. WILL. is also found in the same locality but also in artificial reservoirs and in swamps and rivers. According G. M. SMITH the last species is reported from Northern America under the name *Sphaerella lacustris* (GIROD.) WITTR.

Specimens recorded in subtropics of Brasil in São Paulo were collected in late autumn (13. 5. 66) in a permanent swamp among water plant *Mayaca* sp. In rain summer period of the year (December, January, February) this swamp is rich in water, in winter time (June, July, August) contrary dries and covers with different winter plants. The Brasilian species of *Sphaerella* differs from already described by the transparent wall with very short strands of cytoplasm. Here are given the key and the description of 2 species which are proposed as new for science.

This report was made in Cryptogamical Section of Botrnical Institute, São Paulo, Brasil.

Key of species

1. Papille pesent, protoplast rugose. 1. *Sphaerella papillata*
2. Papille not present protoplast smooth and not rugose. 2. *Spaerella saupaulensis*

Description of species

1) *Sphaerella papillata* sp. nov. Plate 1, fig. 4.

Cell ellipsoid with rounded ends encoled in a transparent wall. The cell is connected with the periplast by numerous thin delicate strands all round the cell. Papille distinct on anterior part of transparent wall. Green protoplast of the cell more or less rugose. Chromatophore green, parietal and lobate with a contractile vacuole in anterior part. A large lateral pyrenoid, eyespot and nucleus not seen. Flagella 2, about 1.2–1.3 of the cell length. Hab. São Paulo, Brasil, Parque do Estado, in a permanent swamp among *Mayaca* sp. with numerous species of *Chlamydomons* EHR. small species of *Trachelomonas* EHR. Collected by B. SKVORTZOV, 13. 5. 66.

Cellula ellipsoidea cum membrana hyalina retracrum et ad apicem affixam, 18–22×7–8 micr.; protoplasto rugosa et setacea, setis cnm mem-

brana hyalina affixam; papilla distincta ad emebranam apicem intructa; chromatophor parietalis et lobatis; vacuola contractilis apice, pyrenoide laterale parte medianae; stigma et nucleus non vidi; flagella 2, fere 1.2–1.3 cellula longiora. Hab. São Paulo, Brasil, Parque de Estado, in stagno temporalis inter *Mayaca* sp. cum *Chlamydomonas* EHR. et *Trachelomonas* EHR. numerosis, lg. B. SKVORTZOV, 13.5.66.

2) *Sphareella saupaulensis* sp. nov. Plate 1, fig. 5.

Cell ovoid or short ellipsoid with rounded ends and magins 12×7 micr.; outer transparant wall colourless is connected with protoplast by numerous delicate strands. No palille on the top of colourless wall. Green protoplast smooth and not rugose. Chromatophore green and granulate. Pyrenoid large and central, sphaerical. Contractile vacuole in anterior side, nucleus between contractile vacuole and the pyrenoid. Flagella 2, about the cell length. Hab. With *Sphaerella papillata* sp. nov. in swamp water.

Cellula late ellipsoidea cum membrana hyalina retractum et ad apicem affixam, 12×7 micr.; protoplasto hyalino et non rogosa, setacea; setis cum membranam hylina affixam; palillo nullo; vacuola contractilis apice; pyrenoido magno et centralis; nucleus inter vacuola et pyrenoide; flagella 2, fere cellula longiora. A *Sphaerella papillata* sp. nov. latior, periplasto hyalino non rugosa, papillo nullo, pyrenoido centralis differt. Hab. cum *Sphaerella papillata* sp. nov. in aqua stagnalis.

III. On species of *Chlamydomonas* EHR. (Chlamydomonadaceae, Volvocales) from Durban, Matal, South Africa.

Preface

The author visiting the Botanical Garden in Durban in September 6, 62 have collected several samples of freshwater algae and S*alvania* sp. grown in pond and these materials was growing for flagellata only in 1966 in Cryptogamical Laboratory of Botanical Institute in São Paulo, Brasil. Cultures from Durban were rich in green and coloured flagellata. For identification of Durban *Chlamydomonas* STZEGOLEVA of 1959, the key of 6 species of *Chlamydomonas* are given.

Key of species

1. Cells oblong or subcylindrical.
   a. Anterior part broad rounded, posterior more or less attenuate and also arounded; pyrenoid central and oblong . . . . . 1. *Ch. meyeri*
   b. Both ends rounded, pyrenoid central and round . . . . . 2. *Ch. durbanica*
2. Cells ovoid or short ellipsoid.
   a. Pyrenoid present one or numerous.
   x. Pyrenoid one.
      v. Pyenoid posterior round . . . . 3. *Ch. burchalli*
      vv. Pyrenid posterior ovoid or broad lanceolate . . . . . 4. *Ch. hemessyi*
   x. Pyenoids nnmerous . . . . . 5. *Ch. cholnokii*
   b. Pyrenoid not present . . . . . 6. *Ch. salviniae*

Description of species

1. *Chlamydomonas meyeri* sp. nov. Plate 1, fig. 11.

Cells elongate, subcylindrical, anterior part truncate et rotundate, posterior more or less attenuate and rounded, 15×6 micr.; papille and eyespot not present; chromatophore discoid; pyrenoid oblong central; contractile vacuole anterior; flagella about 1.5 of the cell length; nucleus in middle part of the cell. Named in honour of Dr. M. A. MEYER, botanist of University of Natal, Durban.

Cellula elongatota vel subcylindrica, parte anteriore truncato-rotundata, marginibus versus apice modice attenuatis et rotundatis, 16×6 micr.; rostrum nullum; membrana hyalina, distincta; chromatophoro discoidea et numerosa; pyrenoida 1, fere centraralis et elongatis; vavuola comtractilis 1 cellulae parte anteriore flagella 1.5 cellulae longiora; stigma nullo; nucleus centralis. Dedico hanc speciem in honorem Dr. M. A. MEYER, botanico, Universitade Natal, Durban. Hab. Durban, Horto Botanico, in lacu inter *Salviniae*, lg. B. SKVORTZOV.

2. *Chlamydomonas durbanica* sp. nov. Plate 1, fig. 9.

Cells long ellipsoid or subcylindrical with both rounded ends, 9×4

micr.; contractile vacuole anterior; eyespot and palille not represent; nucleus not seen; flagella about 1.5 of the cell length; pyrenoid central and round; chromatophore parietal and green.

Cellula elongato-elliptica vel subcylindrica cum apicibus modice attenuatis et rotundatis, 9×4 micr.; chloroplast parietalis cum pyrenoide orbicularis et centralis; rostrum et stigma nullum; vacuola contractilis parte anteriore; nucleus non vidi; flagella fere 1.5 cellula longius.

Hab. Durban, Horto Botanico, in lacu inter *Salviniae* sp. lg. B. SKNORTZOV, 6.9.62.

3. *Chlamydomonas burchallii* sp. nov. Plate 1, fig. 6.

Cells broad ellipsoid with broad rounded ends, 15×8 micr.; papille and eyespot not present; chromatophore parietal with a large round pyrenoid in posterior part of the cell and granulate in the middle part; flagella about 1.5 time of the cell length; nucleus in the middle part of the cell. Differs from *Chlamydomonas reinhardi* DANGEARD (PASCHER, 1927, 201–202, Fig. 140) in cells without eyespot.

Cellula late elliptica cum apicibus abruptis et lateribus rotundatis, 15×8 micr.; rostrum nullum; membrana hyalina, distincta; chloroplast parietalis dilute vididis in parte mediana granulatis; pyrenoide orbicularis et posteriore; vacuola contractilis distincta apice; flagella fere 1.5 cellulae longiora; stigma nullo; nucleus centralis. Dedico in honorem J. BURCHALL, botanico, Durban, Natal.

Hab. Durban, Horto Botanico, in lacu inter *Salviniae* sp., lg. B. SKVORTZOV, 6.9.62.

4. *Chlamydomonas hennessyi* sp. nov. Plate 1, fig. 7.

Cells broad ellipsoid with both rounded ends, 11–15×5–10 micr.; papille and eyespot not seen; chromatophores parietal and green; contractile vacuole anterior; flagella about 1.5 of the cell length; nucleus in middle part of the cell; pyrenoid posterior broad ellipsoid. Named in honour of Mrs. E. F. HENNESSY, Botan. Department, University College Durban, Natal.

Cellula late ellipticis cum apicibus late rotundatis, 11–15×5–10 micr.; rostrum et stigma nullum; membrana hyalina; chloroplast parietalis et viridis; vacuola contractilis apice; flagella fere 1.5 cellula longiora;

nucleus central; pyredoide late ellipsoidoa parte poteriore. Dedico in honorem Mrs. E. F. HENNESSY, Universitadi Durban.

Hab. Durban Horto Botanico, in cau inter *Salviniae* sp., lg. B. SKVORTZOV, 6.9.62.

5. *Chlamydomonas cholnokii* sp. nov. Plate 1, fig. 8.

Cells broad ellipsoid with broad ends, 14×11 micr.; periplast thick and yellowish; chromatophore green, thick with numerous round pyrenoids; contractile vacuole anterior; papille and nucleus not seen; cells covered with a gelatine coat. Named in honour of B. J. CHOLNOKY, algologist, Grahamstown, S. Africa.

Cellula late ellipticis cum apicibus late rotundatis, 14×11 micr.; membrana distincta et fulva; chloroplast parietalis cum pyrenoidis numerosis; vacuola contractilis apice; papillo vel stigmate nullum; nucleus non vidi; cellulae in muco hyalino positis. Dedicavi hanc spcies honorem Dom. B. J. CHOLNOKY, algologo, Grahamstown, C. P. Africa australis.

Hab. Durban, Horto Botanico, in lacu inter *Salviniae* sp. lg. B. SKVORTZOV, 6.9.62.

6. *Chlamdomonas selviniae* sp. nov. Plate 1, fig. 10.

Cells ellipsoid with both rounded ends, 11–12×5–7 micr.; papille and eyespot not present; contractile vacuole large; chromatophore parietal, granulate without pyrenoids, nucleus almost central.

Cellula elliptica cum apicibus rotundatis, parte posteriore truncato-rotundata, 11–12×5–7 micr.; rostrum et stigma nullum; chloroplast parietalis, vididis et granulatus sine pyrenoide; contractile vacuole magna parte apice; flagella non vidi; nucleus subsphaericis centralis.

Hab. Durban, Horte Botanico, in lacu inter *Salviniae* sp., lg. B. SKVORTZOV, 6.9.62.

摘　　要

I. 南米ブラジル，サンパウロの山林中の大木の樹皮上に生育する蘚苔類に介生する緑藻 Polytomellaceae に含められる新属 *Silvamonas* (無色鞭毛藻) の属の記載と種を図示した。

II. 同じく南米ブラジル，サンパウロの植物園にある沼地から採取した緑藻 Sphaerellaceae の *Sphaerella* 属の2新種を記載した。これらは多くの *Chlamydomonas* と共に見出された。

III. 南阿 Durban で採集した緑藻 Chlamydomonadaceae の *Chlamydomonas* 属の6新種について記載した。種への検索表と各種の記載，図をつけてある。(野田光蔵)

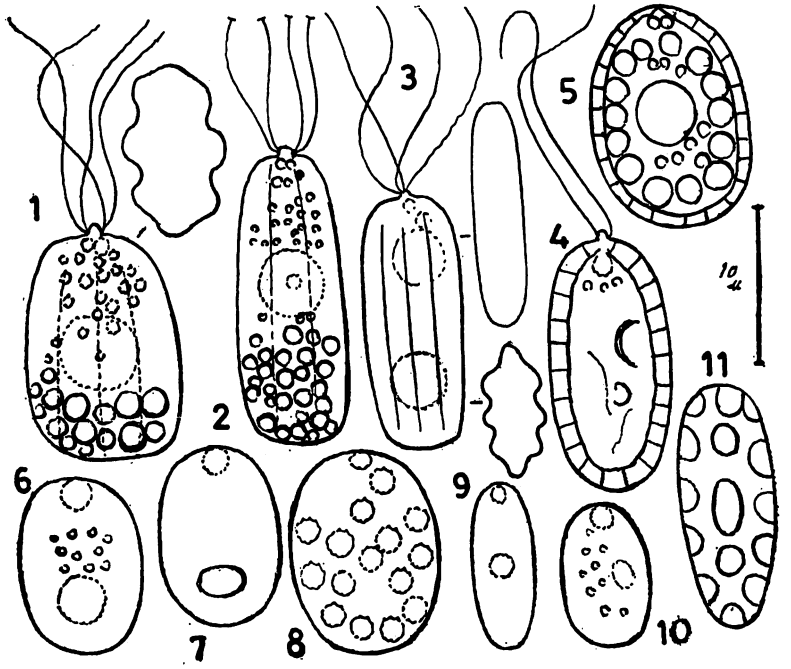

Plate I

1–3. *Silvamonas lobata* 4. *Sphaerella papillata* 5. *Sphaerella saupaulensis* 6. *Chlamydomonas burchallii* 7. *Chlamydomonas hemessyi* 8. *Chlamydomonas cholnokii* 9. *Chlamydomonas durbanica* 10. *Chlamydomonas selviniae*

ネレオアマノリ (新称) について

福 原 英 司*

ま え が き

Porphyra nereocystis はアメリカのカリフォルニヤからカナダをへてア

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