

CONTRIBUTIONS TO THE KNOWLEDGE OF PHYTOPLANKTON IN CĂLDĂRUȘANI LAKE

I. CIUGULEA

Căldărușani Lake is placed about 2.5 km north from Greci station, on the București-Urziceni railway.

The lake is about 6 km in length on almost West-East direction. The common width is about 450 m and the maximum one is 1 km. Its area is 2.24 km². Căldărușani Lake is part of junction lakes, specific to eastern zone of Romanian Plain. It was formed at the junction of Ialomița River, having the origin in the mountain zone with Vlășia and Cociovaliștea tributary valleys, both with exclusive route on the plain. The bottom of the lake shows slight concave profile. The most common depth is about 1.5-3 m. The zone with the greatest depths - more than 4 m - is situated on the junction between Vlășia and Cociovaliștea valleys.

The collection stations have been placed in different points, having in view sensible covering of lake surface. The samples consisted of definite amounts of water (1 liter) from each station, periodically collected, in the period 1992-1994.

Table no. 1.

The taxa distribution in Căldărușani Lake

Phyllum	Family	Genus	Species	Variety	%
Cyanophyta	3	11	22	-	14.4
Cryptophyta	1	1	2	-	1.3
Dinophyta	2	2	3	-	2.0
Chrysophyta	2	3	5	-	3.2
Bacillariophyta	7	20	31	6	24.2
Euglenophyta	1	5	16	2	11.8
Chlorophyta	13	29	60	6	43.1
Total	30	72	139	14	100%

There have been identified 153 taxa belonging to a number of seven phylla. The distribution of taxa is shown in Table no. 1 and the list of species is shown in Table no. 2.

Table no. 2.

Căldărușani Lake
= Phytoplankton - species list =

CYANOPHYTA

Chroococcaceae

- Chroococcus minutus* (Kütz.) Naeg.
Ch. turgidus (Kütz.) Naeg.
Coelosphaerium kützingianum Naeg.
Dactylococcopsis irregularis G. M. Smith
Gomphosphaeria lacustris Chod.
Merismopedia glauca (Ehr.) Naeg.
M. minima G. Beck
M. tenuissima Lemm.
Microcystis aeruginosa Kütz.
M. pulverea (Wood) Forti

Nostocaceae

- Anabaena flos - aquae* (Lyngbye) Bréb.
A. variabilis Kütz.
Aphanizomenon flos - aquae (L.) Ralfs

Oscillatoriaceae

- Lyngbya limnetica* Lemm.
Oscillatoria amphibia Ag.
O. chalybea Mertens
O. granulata Gardner
O. limnetica Lemm.
O. princeps Vauch.
O. redeckeii Van Goor.
Romeria elegans Wolosz
Spirulina jenniferi (Hass.) Kütz.

CRYPTOPHYTA

Cryptomonadaceae

- Cryptomonas erosa* Ehr.
C. ovata Ehr.

DINOPHYTA

Peridiniaceae

- Peridinium bipes* Stein
P. cinctum Ehr.

Ceratiaceae

- Ceratium hirundinella* (O. F. Müll.) Schrank

CHRYSOPHYTA

Dinobryonaceae

- D. sociale* Ehr.
D. stipitatum Stein

Synuraceae

- Mallomonas acaroides* Perty
Mallomonas sp.
Synura uvella Ehr.

BACILLARIOPHYTA

Biddulphiaceae

- Attheya zachariasii* J. Brun.

Coscinodiscaceae

- Cyclotella comta* (Ehr.) Kütz.
C. meneghiniana Kütz.
Melosira distans (Ehr.) Kütz.
M. distans (Ehr.) Kütz. var. *lirata* (Ehr.)
Bethge
M. granulata (Ehr.) Ralfs
M. granulata (Ehr.) Ralfs var. *angustissima*
Müll.

M. varians Ag.

Fragilariaceae

- Asterionella formosa* Hass.
Ceratoneis arcus (Ehr.) Kütz.
Diatoma elongatum Ag.
D. vulgare Bory
D. vulgare Bory var. *producta* Grun.
Fragilaria crotonensis Kitt.
Synedra acus Ehr.
S. pulchella (Ralfs) Kütz.
S. ulna (Nitzsch.) Ehr.

Achnanthaceae

- Cocconeis placentula* Ehr.
Rhoicosphenia curvata (Kütz.) Grun.

Naviculaceae

- Anomoeoneis sphaerophora* (Kütz.) Pfitz.
Caloneis amphisbaena (Bory) Cl.
Cymbella tumida (Bréb.) V. H.
Gomphonema acuminatum Ehr.
G. olivaceum (Lyngbye) Kütz.
Gyrosigma acuminatum (Kütz.) Rabenh.
G. acuminatum (Kütz.) Rabenh. var. *lacustre*
Meist

G. attenuatum (Kütz.) Rabenh.

- Navicula dicephala* (Ehr.) W. Sm.
N. hungarica Grun. var. *capitata* (Ehr.) Cl.
N. cryptocephala Kütz.

Pinnularia interrupta W. Sm.

Stauroneis phoenicenteron (Nitzsch) Ehr.

Epithemiaceae

- Epithemia turgida* (Ehr.) Kütz.

Nitzschiaceae

- Nitzschia acicularis* W. Sm.

- N. closterium* (Ehr.) W. Sm.
N. longissima (Bréb.) Ralfs f. *reversa* W. Sm.
N. palea (Kütz.) W. Sm.

EUGLENOPHYTA

Euglenaceae

- Euglena acus* Ehr.
E. gracilis Klebs
E. oxyuris Schmarda
E. proxima Dang.
Phacus caudatus Hübn.
Ph. longicauda (Ehr.) Duj.
Ph. longicauda (Ehr.) Duj. var. *torta* Lemm.
Ph. orbicularis Hübn.
Ph. pleuronectes (O.F.M.) Duj.
Ph. pyrum (Ehr.) Stein
Ph. striatus Francé
Lepocinclis ovum (Ehr.) Lemm.
Trachelomonas hispida (Perty) Stein
T. intermedia Dang.
T. lacustris Drez. emend Balech
T. lacustris Drez. emend Balech var. *ovalis* Drez. emend Defl.
T. volvocina Ehr.
Strombomonas gibberosa (Playf.) Defl.

CHLOROPHYTA

Chlamydomonadaceae

- Chlamydomonas debaryana* Gorosch.
Chlamydomonas sp.
Carteria sp.
Pteromonas angulosa Lemm.

Volvocaceae

- Eudorina elegans* Ehr.
Pandorina morum (Müll.) Bory

Chlorellaceae

- Chlorella ellipsoidea* Gern.
C. vulgaris Beyer.

Characiaceae

- Ankyra* sp.

Ankistrodesmaceae

- Ankistrodesmus falcatus* (Corda) Ralfs
A. falcatus (Corda) Ralfs var. *acicularis* (A.Br.) G. S. West

- A. setigerus* (Schroed.) G. S. West

- Selenastrum bibraianum* Reinsch

- S. gracile* Reinsch

Micractiniaceae

- Acanthosphaera zachariasii* Lemm.

- Micractinium pusillum* Fres.

- Polyedriopsis spinulosa* Schmidle

Dictyosphaeriaceae

- Dictyosphaerium ehrenbergianum* Naeg.

Oocystaceae

- Chodatella longiseta* Lemm.
C. subsalsa Lemm.
Kirchneriella lunaris (Kirchn.) Moebius
K. obesa (West) Schmidle
Lagerheimia genevensis Chod.
Oocystis lacustris Chod.
O. solitaria Wittr.
Tetraëdron caudatum (Corda) Hansg.
T. caudatum (Corda) Hansg. var. *incisum* Lagerh.
T. hastatum (Rabenh.) Hansg.
T. minimum (A.Br.) Hansg.
T. muticum (A.Br.) Hansg.
T. regulare Kütz.
T. trigonum (Naeg.) Hansg.
Treubaria planctonica (G.M. Smith) Korch
Hydrodictyaceae
Pediastrum boryanum (Turp.) Menegh.
P. duplex Meyen
P. duplex Meyen var. *clathratum* A.Br.
P. duplex Meyen var. *reticulatum* Lagerh.
P. tetras (Ehr.) Ralfs
P. tetras (Ehr.) Ralfs var. *tetraodon* (Corda) Rabenh.

Coelastraceae

- Coelastrum microporum* Naeg.
C. proboscideum Bohlin

Scenedesmaceae

- Actinastrum hantzschii* Lagerh.
Crucigenia rectangularis (A.Br.) Gay
C. tetrapedia (Kirchn.) W. et G.S. West
Scenedesmus acuminatus (Lagerh.) Chod.
S. bicaudatus (Hansg.) Chod.
S. bijugatus (Turp.) Kütz.
S. denticulatus Lagerh.
S. obliquus (Turp.) Kütz.
S. opoliensis Richter
S. opoliensis Richter var. *carinatus* Lemm.
S. quadricauda (Turp.) Bréb.
S. protuberans Fritsch et Rich
S. serratus (Corda) Bohl.
S. spinosus Chod.
S. arcuatus Lemm.

Scenedesmus sp.

- Tetrastrum multisetum* (Schmidle) Chod.
T. staurogeniaeforme (Schroed.) Lemm.

Desmidiaceae

- Closterium acerosum* (Schrank) Ehr.
Cl. acutum (Lyngbye) Bréb.
Cosmarium botrytis (Bory) Menegh.
C. reniforme (Ralfs) Arch.
Staurastrum gracile Ralfs
S. paradoxum Meyen

Zygnemataceae

- Spirogyra* sp.

One can be ascertained that green algae are dominant in qualitative aspect representing 43.1%. We emphasize the fact that 53 out of 66 systematic units belong to **Chlorococcales**. The representatives of this order have a high frequency within the framework of the internal aquatic ecosystems, being remarkable for an intense photosynthetic activity and an important role in ecosystem oxygenation. The only species founded in all samples have been **Scenedesmus quadricauda** (Turp.) Bréb. The mentioned genus being the best represented with 11 taxa. In this aspect it is followed by **Tetraëdron** with seven taxa and **Pediastrum** with six.

Concerning the systematic diversity, diatoms occupies the second place. **Cyclotella meneghiniana** Kütz. was the most frequent species, after **S. quadricauda**.

The blue-green algae were prevailing represented by colonial and filamentous forms (**Microcystis**, **Oscillatoria**).

Euglenophyta had a higher frequency in the feeding and evacuation stations, and much more lower in the others. The genera **Euglena**, **Phacus** and **Trachelomonas** were prevailing.

The other phylla, **Cryptophyta**, **Dinophyta** and **Chrysophyta** have been scarcely represented in qualitative aspect, with two, three and five taxa respectively.

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CONTRIBUȚII LA CUNOAȘTEREA FITOPLANCTONULUI DIN LACUL CĂLDĂRUȘANI

Rezumat

Fitoplanctonul din lacul Căldărușani a fost analizat din punct de vedere calitativ (diversitate taxonomică). Au fost prezentate distribuția taxonilor pe încregături, familii, genuri, specii și varietăți și lista de specii.

Au fost identificați 153 de taxoni din șapte încregături. Încr. Chlorophyta este cel mai bine reprezentată cu 66 de unități sistematice - majoritatea clorococcale - constituind 43,1%. Urmează diatomeele cu 37 taxoni, cianofitele cu 22 și euglenofitele cu 18. Crizofitele, dinofitele și criptofitele sunt slab reprezentate fiind prezente cu cinci, trei și respectiv doi taxoni.