

**Phycological Section of the Slovak Botanical Society,  
Slovak Academy of Sciences, Bratislava**

**BIOLOGY AND TAXONOMY  
OF GREEN ALGAE V**

**International Symposium**

**Congress Center of the Slovak Academy of Sciences  
Smolenice-Castle, Slovakia,  
June 25-29, 2007**

**Programme & Abstracts**

**Edited by**

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**2007**

**Bratislava**

## Macroscopic algae growth on the Azov sea seaboard solonchak soils

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An algal surface growth on the solonchak, solodized soils, or solonetzes can be so abundant that it is mentioned as their typical feature (Keller, 1926, 1940; Elenkin, 1936; Larin, 1953). Five algae groupings which formed macroscopic algae growth belonging to three growth types (biofilm-like, crust-like, felt-like) were found during the expeditionary investigations of the Azov sea seaboard solonchak soils.

### The Crust-like Growth Type

1 – *Lyngbya aestuarii* (Ment.) Lambert – found in spits, shores of Azov sea estuaries, in lowlands, flooded and drained parts of microrelief without higher plants. It can develop gray-brown, thick skin, easily separated from the ground, 0,2 – 0,8 cm thick. *Lyngbya aestuarii* (Ment.) Lambert was repeatedly found in salted and hypersalted waterbodies and salted soils. In hypersalted waterbodies this algae is main benthic species making macroscopic growth.

2 – *Chlorogloea sarcinoides* (Elenk.) Troitzk. – *Pseudoholopedia* sp. – *Chroococcus cohaerens* (Brébisson) Nägeli – found on the seashore, in bay-bars, river deltas, periodically flooded areas. Algae grouping develops sponge-like, mellow, light-brown crust.

### The Biofilm-like Growth Type

3 – *Leptolyngbya frigida* (Fritsch) Komárek et Anagnostidis, *Leptolyngbya fragilis* (Gomont) Anagnostidis et Komárek, *Schizothrix coriacea* (Kützing) Gomont, *Anabaena contorta* Bachmann, *Phormidium paulsenianum* B.Peters, *Lyngbya semiplena* (G. Ag.) J. Ag., *Microcoleus chthonoplastes* (Fl. Dan.) Thur. – are found on the seashore plain territory, not flooded on the raised microrelief areas; soil is dark-brown and sandy. Higher plants are represented by *Salicornietum prostratae* Soo 1927 association. The grouping develops black-blue-green colored biofilms, 0,1 – 0,4 cm thick, fragile after drying.

4 – *Nodularia harveyana f. harveyana* (Thwaites) Thuret, *Nodularia spumigena f. spumigena* Mertens 1822, *Nostoc linckia f. linckia* (Roth.) Born. Et Flah – the grouping is formed on the seashore, estuaries and gulfs banks, on the raised not flooded microrelief areas. The soil is dark-chestnut-sandy. Higher plants are represented by *Salicornietum prostratae* Soo 1927 and *Petrosimonia opositifoliae* – *Salicornietum* Korzh. Et Kljukin 1990 associations. The grouping develops black-blue-green colored mat biofilms with gleam on the soil surface.

### The Felt-like Growth Type

5 – *Dilabifilum* sp. – found on the seashore, in rivers' deltas, on the raised not flooded microrelief areas, on the curtains of *Halocnemum strobilaceum* (Pall.) Bieb. in the Suaedo salsae – *Halocnemum* V. Golub et Chorbadze 1987 associations. Algae develop felt-like dark-green groupings on the soil surface.

The species composition of soil surface macroscopical blooming is mainly developed by 14 species of blue green algae from Chroococcales, Oscillatoriales, Nostocales orders and belongs to two growth types – biofilm-like and crust-like. Only *Dilabifilum* sp. from Chlorophyta belongs to a specific felt-like growth type, which does not correspond to any of Komaromy classification's 1976 growth types due to its morphometrical criteria.