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Platy sinic w podsychającej kałuży na drodze — Blue-green algae in temporary puddles on the road

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Frequent rainfalls, in the summer 1960, left shallow puddles standing on the road, sometimes, these puddles stood for nearly ten days after a change in the weather. During rains the water puddles were muddy and after rains they turned bluish-yellow, yellowish-green and opalescence. Of course, with passing carts the water would be stirred up again.

I had the opportunity, at a possession No. 556, in Mszana Dolna, to observe one of the puddles on the road for several days. I was particularly interested in the rapid forming skim of blue-green algae on the water and mud surfaces.

Water sampled on Aug. 2nd., a day after raining, was greenish-yellow with a massive developed colony of *Gonium pectorale* Müll., there were only a few colonies of *Pandorina morum* (Müll.) Bory, and a small number of unidentified cells from the group of *Chrysophyta*. On the second day, *Gonium* was rather scarce, and other Flagellates had completely disappeared. However, the blue-green algae appeared on the surface of the water and on the mud margin of the puddles. On the beginning, this was a very thin skim, mainly formed of *Oscillatoria acutissima* Kuff., and a small group of filaments of *Nodularia Harveyana* (Thwait.) Thur., and *Microcoleus vaginatus* (Vaucher) Gom. On the third day, the blue-green algae were formed in massive plots, which were thicker on the mud margins, and extended to the surface of the water. On Aug. 5th., the puddles were much smaller, the area of the puddles were smaller by one half; small islands began to appear in the middle of the puddles, and the skims of blue-green algae floated to the middle of the puddles and formed characteristic forms that stuck above the water, being nearly the original size of the ones in Fig. 1. Blue-green algae formed into plots that were easy to remove from the bottom and surfaces of the puddles in whole forms.

the puddles then being very shallow. The plots were about 1/2 cm thick. There was a close cover on the surface, the colour being of olive and combined with mud, washing, would easily cause them to fall into small fragments.

The surfaces of the blue-green algae plots were uneven and were formed into small domes, that changed into sharp cones, capped with thin appendices, mostly with small shining sea-green coloured drops on top, inside the drops were small balls of loosely wound filaments, sometimes, they were also branched. These plots of blue-green algae were seen for the following two days, then the puddles went dry and with them the blue-green algae also dried up.

A microscopic analysis of the plots of blue-green algae, showed groupings of the species of the *Microcoleus* genus. They were namely the following species:

Microcoleus vaginatus (V a u c h.) G o m. This species was in large quantity in the plots and formed a system of branched filaments, comprized of many trichomes, that joined together in twisted bundles in the form of a rope (Fig. 3). The filaments were covered with distinct or diffluent colourless sheaths, they formed the main mass along with the following species of blue-green algae.

M. vaginatus is normally growing on wet and partially unclean soil, it was also found on clay paths near the road and also in the neighbouring meadows, from which it had been washed to the puddles during the rain, apparently it had a good condition there for rapid development.

Microcoleus sociatus W. et G. S. West was together with the preceding species. It formed filaments that crept on the surface of the plots of blue-green algae, which was combined with many thin and sharp pointed trichomes, which is normally on wet soil. It could be washed away into the puddles.

Microcoleus subtorulosus (B r é b.) G o m. formed the main mass of cones appearing above the water and surface of the plots of blue-green algae. On the average trichomes were 7 μ wide and were combined into filaments (bundles of trichomes) which were surrounded by diffluent sheaths. This species is found normally on mud in shallow water and on macrophytes.

Microcoleus lacustris (R a b h.) F a r l. This species forms cones mainly with thin appendices on top. The filaments with loose trichomes, sometimes, form on the top of the appendices of spinning filaments, which are woven together with another blue-green algae (Fig. 2).

Another species found:

Lyngbya nigra A g. was always in the plots of blue-green algae, one could especially find it in the cones and appendices on the plots.

Oscillatoria acutissima Kuff. was one of the first species to appear in the puddles, at first, it formed delicate films on the surface of the water. On the next day, it was found among plots of blue-green algae, formed mainly of *Microcoleus*, but not in large numbers.

The species *Nodularia Harveyana* (Thwait.) Thur. was always found, but not in large numbers, among plots of blue-green algae and the mud margin of the puddles.

Cylindrospermum stagnale (Kütz.) Born., the filaments of this species had become a small spinning ball, found only in one sample of a blue-green algae plot. The filaments had few, chiefly undeveloped spores. At the same time, this species was found on neighbouring potatoe fields.

Anabaena sp. (*A. oscillarioides* Bory?). Several filaments similar to *Anabaena* were found in one of the plots of blue-green algae. This species could not be identified, with confidence, for lack of material.

There were no other species of algae found among the plots of blue-green algae. From the animals were found *Nematodes*, single *Rotatoria* and *Thecamoebina*, especially from the genus *Centropyxis*.

From the above list, it can be seen that characteristic communities of blue-green algae developed for several days in the muddy puddles formed on the road, animals were also accompanying them.

STRESZCZENIE

W błotnistej kałuży powstałej po deszczu na drodze polnej w Mszanie Dolnej rozwinęło się w ciągu kilku dni charakterystyczne zbiorowisko glonów. Po przejściowym pojawieniu się dwóch gatunków z rodziny *Volvocaceae*: *Gonium pectorale* Müll. i *Pandorina morum* (Müll.) Bory, kałuże opanowały sinice. Utworzyły one na powierzchni mułu i wody płyty barwy oliwkowej i niebieskozielonej. Na powierzchni płatów rozwinęły się wkrótce charakterystyczne twory kopulaste: stożkowate, zakończone niekiedy cienkim wyrostkiem (fig. 1, 2). Zespół sinic składał się z gatunków występujących zwyczajnie na wilgotnej glebie lub też w płytkich, zabagnionych zbiornikach wodnych. Tworzyły go następujące gatunki: *Microcoleus vaginatus* (Vaucher) Gom., *M. sociatus* W. et G. S. West, *M. subtorulosus* Bréb.) Gom., *M. lacustris* (Rabh.) Parl., *Lyngbya nigra* Ag., *Oscillatoria acutissima* Kuff., *Nodularia Harveyana* (Thwait.) Thur., *Cylindrospermum stagnale* (Kütz.) Born. et Flah., *Anabaena* sp.

Wśród sinic spotykano nicienie (*Nematodes*), nieliczne wrotki (*Rotatoria*) oraz korzenionózki opancerzone (*Thecamoebina*) głównie z rodzaju *Centropyxis*.

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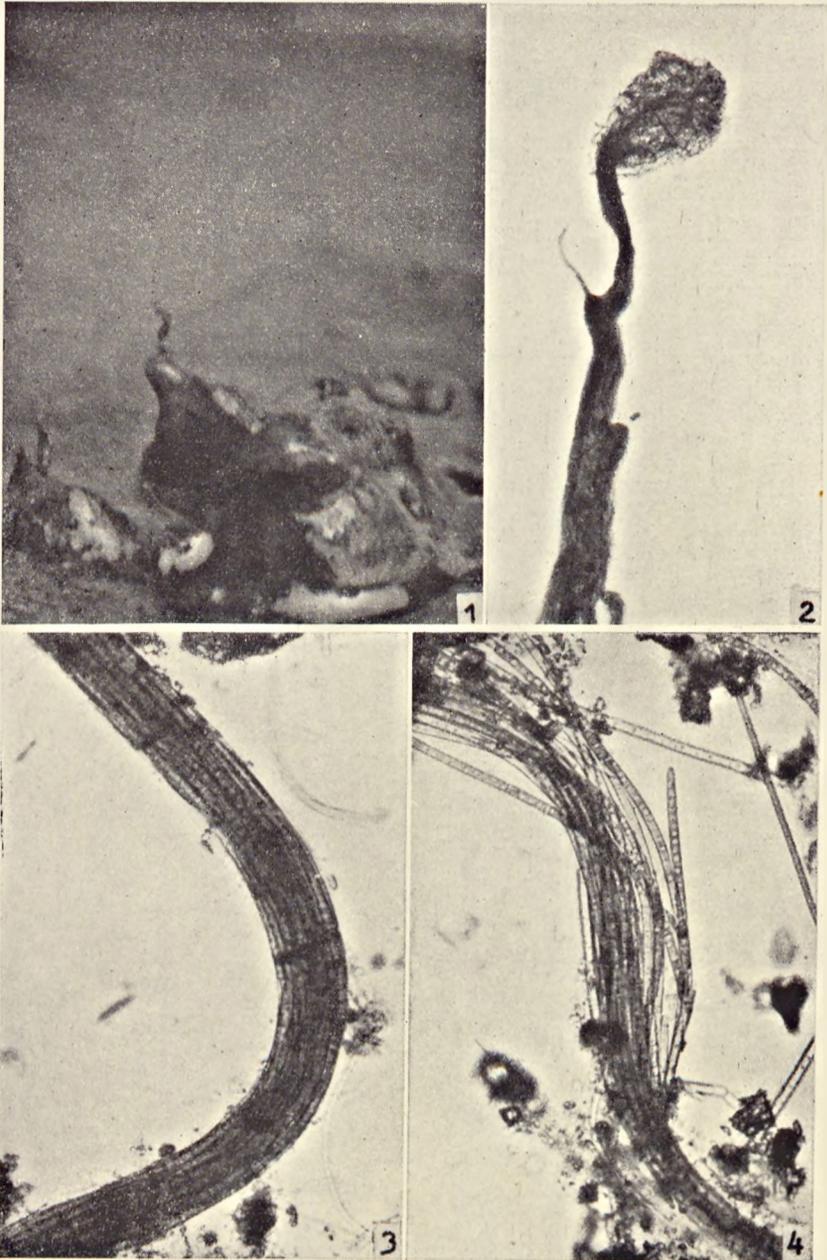


Fig. 1. Plots of blue-green algae with cone-shaped domes and with appendices on top.

Fig. 2. On the appendices on top the domes one can see a loose spinning ball of filament

Fig. 3. *Microleus vaginatus*. The filaments are formed of twisted trichomes.

Fig. 4. Fragments of loose filaments.