

ALGAL COMMUNITIES OF THE „CĂLĂȚELE PĂDURE” PEAT BOG (ROMANIAN WESTERN MOUNTAINS)

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Abstract: Algal communities of the „Călățele Pădure” peat bog (Romanian Western Mountains). The algal communities of the peat bogs situated in the Romanian Western Mountains (Munții Apuseni) have intensely been investigated mostly during the last 40 years. However, those occurring in the „Călățele Pădure” peat bog, formerly an extremely dry and acid raised peat bog, lacking aquatic habitats, have not yet been searched for algae. Recent excavations of the peat deposit markedly changed the physiognomy of the bog, its whole ecosystem being deeply altered. Therefore, at the present there is a heterogeneity of aquatic habitats exhibiting a mosaic of diversified vegetation cover from genuine oligotrophic inlays to the eutrophic ones. These changes are reflected at the level of algal communities too. The algal flora exhibits a relatively high species diversity consisting of 262 taxa identified based on 10 samples collected in autumn 2002. They belong to the following algal groups: Cyanoprokayota – 16 taxa, Euglenophyta – 38 taxa, Dinophyta – 5 taxa, Cryptophyta – 1 taxon Chrysophyta – 8 taxa, Bacillariophyta – 65 taxa, Xanthophyta – 10 taxa, Chlorophyta – Chlorophyceae – 48 taxa and Chlorophyta – Zygnematophyceae – 71 taxa. It should be mentioned that *Micrasterias americana*, a very rare species in Romania, has not yet been recorded from the Romanian Western Mountains.

Introduction

The Călățele Pădure peat bog (Molhașul de la Călățele), formerly a genuine raised peat bog, belongs to the peat bog complex of the Romanian Western Mountains (Muntii Apuseni), Bălcești – Călățele district (Pop, 1960). It is located as usual for all peat bogs of this group on a mountain plateau (the highest altitude being 900 m. a. s. l.) with several higher peaks, between the village of Bălcești (Commune Beliș) and the Commune of Călățele. According to the description of Pop (1960), this peat bog was a genuine raised peat bog (oligotrophic, ombrogenic bog) having a surface of 12 ha, with a peat layer of 5.6 m in its central part. The peat bog dealt with has also been investigated by Györffy and M. Péterfi (1915, 1918), Ciobanu (1968) and Coldea (1991). The above mentioned authors stated that the Călățele Pădure peat bog was a genuine, convex, raised peat bog with pH ranging between 3.8 and 4.9, and exhibiting true oligotrophic plant cover including *Eriophorum vaginatum*, *Andromeda polifolia*, *Rhynchospora alba*, *Heleocharis carniolica* and several species of *Sphagnum* and *Carex*, some of them rather rare in Romania (*Sphagnum balticum*, *Carex buxbaumii*).

The Călățele Pădure peat bog as known from early descriptions does not exist any more. It has deeply been affected by subsequent human activity, mainly between 1960 and 1970 by the excavation of the upper peat layers (Fig. 1).

After 1990 when the excavation of peat ceased, the natural regeneration process of the bog vegetation could start.

Now one can observe the marked mosaic structure of the plant cover due to the remnant peat layers on one hand and to the great amount of broken stones and sand with blocks introduced during the exploitation and used to build the access roads (Fig. 2). The alteration of the original raised peat bog and its transformation into a bog of concave type was accentuated by other allochthonous materials carried by the inflow waters from the surroundings of the bog.



Fig. 1: Overall view of the Călățele Pădure peat bog. Brown watered bog pool in front view.



Fig. 2: Large shallow pool formed at the periphery of the bog after the excavation of peat. Broken stones and blocks seen at margins.

Therefore, the result was that in a relatively limited area (12 ha) a mosaic structured vegetation has been formed in which oligotrophic inlays alternate with mesotrophic or even eutrophic ones.

The heterogeneity of the substratum readily reflected in the alternation of higher plant cover determined the diversity of the algal communities inhabiting the small and mostly shallow depressions, bog pools, pits and regeneration hollows, formed on the bog surface and filled with water.

In spite of the fact, that most of the peat bog algal communities of the Romanian Western Mountains are well known (Ş. Péterfi, 1939, 1943; L. Ş. Péterfi, 1973; L. Ş. Péterfi and Momeu, 1993/1994, Momeu and L. Ş. Péterfi, 1983, 1989), those occurring in the Călățele Pădure peat bog are very poorly documented. The lack of algological interest was due to the very dry nature of the compact moss layer of its surface which made impossible the development of true aquatic algal communities.

The investigation of the bog became attractive for algologists only after its exploitation ceased and the natural regeneration processes started, the present paper being the first step in this context.

Materials and Methods

During the autumn of 2002, ten small bog pools and peat moss regeneration hollows were sampled for their community structure. There were collected both, “plankton” and benthos samples, although there were no qualitative differences found between the floating and benthic algal assemblages most probably due to the shallow nature of the habitats. Therefore, Table 1 includes in its 10 columns the community structure of the investigated sampling sites. The samples were fixed in 4% formalin, the identification being carried out with a Nikon Eclipse 400 light microscope. The result of the physical and chemical water analyses were performed in the time of sampling, in 4 of the investigated habitats, which exhibited markedly different higher plant coenoses (Table 2). Pool no. 1 is dominated by *Typha* and *Sagittaria*, pool no. 2 is overgrown with *Salix* sp., pool no. 3 is an excavated pit with sand and stones on its bottom and pool no. 4 was a small depression overgrown by sedges and peat mosses.

Results and Discussions

There have been identified 262 algal taxa (Table 1), distributed to the following algal divisions:

Cyanoprokaryota -	16 taxa	(6.11%)
Euglenophyta –	38 taxa	(14.50%)
Dinophyta –	5 taxa	(1.90%)
Cryptophyta –	1 taxon	(0.38%)
Chrysophyta –	8 taxa	(3.06%)
Bacillariophyta –	65 taxa	(25.00%)
Xanthophyta –	10 taxa	(3.75%)
Chlorophyta –		
Chlorophyceae	48 taxa	(18.30%)
Zygnematophyceae	71 taxa	(27.00%)
	Total: 262 taxa	(100.00%)

The Zygnematophyceae exhibits the highest species diversity – 71 taxa (forming 27% of the total algae), followed by the Chlorophyceae – with 48 taxa (18.3%) and Euglenophyta with 38 – taxa (14.5%). The other divisions exhibit much lower diversities. A similar situation was observed in the Poiana Stampei – Pilugani peat bog (L. Ș. Péterfi and Momeu, 1995/1996) which exhibited almost the same distribution pattern among the algal divisions, except euglenoid flagellates which are lacking in the Pilugani peat bog. It is possible that their presence and high diversity in the Călățele Pădure peat bog is due to much stronger human impact.

Table 1: Algal flora of the Călățele Pădure peat bog (Romanian Western Mountains)

ALGAL TAXA	SAMPLING SITES (POOLS, REGENERATION HOLLOWES, PITS)									
	1	2	3	4	5	6	7	8	9	10
CYANOPROKARYOTA										
<i>Anabaena augstumnalis</i>			+	+	+					+
<i>A. solitaria</i>	+	+	+	+	+	+	+			+
<i>A. verrucosa</i>		+	+		+					

<i>Aphanothece chlatrata</i>								+			
<i>Chroococcus minutus</i>	+	+	+	+					+	+	+
<i>C. turgidus</i>	+	+							+		+
<i>Cyanothece aeruginosa</i>							+	+	+	+	+
<i>Cylindrospermum catenatum</i>				+							
<i>C. minutissima</i>	+							+			
<i>Oscillatoria amoena</i>			+	+							
<i>O. bornetii</i>			+								
<i>O. deflexoides</i>	+	+				+					
<i>O. geminata</i>			+								
<i>O. planctonica</i>	+					+					
<i>O. splendida</i>	+				+	+					
<i>O. terebriformis</i>	+										
EUGLENOPHYTA											
<i>Calycimonas physaloides</i>					+		+	+	+	+	
<i>Distigma proteus</i>	+										+
<i>Euglena acus</i>				+							
<i>E. mutabilis</i>			+			+	+	+	+	+	+
<i>E. oblonga</i>											+
<i>E. oxyuris</i>				+	+						+
<i>E. polymorpha</i>	+				+						
<i>E. texta</i>	+					+					+
<i>E. tripteris</i>			+	+		+					+
<i>E. variabilis</i>											+
<i>Lepocinclis ovum</i>	+					+					+
<i>Menoidium pellucidum</i>											+
<i>Peranema macromatrix</i>	+				+						+
<i>Petalomonas mediocanellata</i>					+						
<i>P. polytaphraena</i>					+		+	+			
<i>Phacus acuminatus</i>	+	+									
<i>P. aenigmatica</i>			+	+		+					
<i>P. curvicauda</i>						+		+			
<i>P. granum</i>			+								
<i>P. inflexus</i>						+					
<i>P. longicauda</i>	+	+			+						
<i>P. meson</i>				+							
<i>P. mirabilis</i>			+			+					
<i>P. orbicularis</i>			+	+	+	+					
<i>P. polytrophos</i>	+					+					
<i>P. pyrum</i>						+					
<i>P. suecicus</i>			+								
<i>P. tortus</i>	+										
<i>Trachelomonas caudata</i>						+					
<i>T. cylindrica</i>	+	+				+					
<i>T. dubia</i>						+					
<i>T. hispida</i>	+	+	+	+	+						
<i>T. intermedia</i>				+	+						
<i>T. oblonga</i>	+	+	+	+	+			+			
<i>T. varians</i>						+					
<i>T. verrucosa</i>						+					
<i>T. volvocina</i>	+	+	+	+	+			+			+

<i>N. rhynchocephala</i>					+					
<i>N. subtilissima</i>		+		+	+	+	+	+	+	
<i>Neidium affine</i>	+	+			+					
<i>N. bisulcatum</i>	+	+			+					
<i>Nitzschia amphibia</i>	+									
<i>N. frustulum</i>		+			+					
<i>N. gracilis</i>		+			+					
<i>N. hantzschiana</i>	+	+			+					
<i>N. linearis</i>	+	+	+		+					
<i>N. palea</i>										+
<i>N. paleacea</i>	+									
<i>Pinnularia acrosphaeria</i>	+									
<i>P. appendiculata</i>	+									
<i>P. biceps</i>		+		+	+					
<i>P. borealis</i>				+	+					+
<i>P. braunii</i>	+	+			+					
<i>P. brébissonii</i>	+	+			+			+	+	+
<i>P. gibba</i>	+	+			+					
<i>P. hilseana</i>						+	+			
<i>P. intermedia</i>		+			+					
<i>P. interrupta</i>	+	+		+	+					+
<i>P. major</i>	+									
<i>P. mesogongyla</i>	+									
<i>P. mesolepta</i>	+	+		+	+					
<i>P. microstauron</i>		+			+	+	+	+		+
<i>P. nobilis</i>		+			+					
<i>P. rupestris</i>		+			+				+	
<i>P. subcapitata</i>		+		+	+					+
<i>P. sudetica</i>		+			+	+	+			
<i>P. viridis</i>		+		+	+			+		
<i>Stauroneis anceps</i>	+	+			+					
<i>S. phoenicenteron</i>	+	+			+					
<i>Synedra ulna</i>			+							
<i>Tabellaria fenestrata</i>				+						
<i>T. flocculosa</i>	+									
XANTHOPHYTA										
<i>Characiopsis ovalis</i>			+							
<i>C. sphagnicola</i>			+							
<i>Chytridiochloris acus</i>	+									
<i>Ophiocytium capitatum</i>				+						
<i>O. cochleare</i>	+			+	+					
<i>O. gracilipes</i>		+	+							
<i>O. lagerheimii</i>	+	+	+							
<i>O. majus</i>	+	+	+	+	+					
<i>O. parvulum</i>	+			+	+		+			
<i>Pseudostaurastrum hastatum</i>			+							
CHLOROPHYTA- CHLOROPHYCEAE										
<i>Ankistrodesmus fusiformis</i>	+	+	+	+			+			
<i>A. gracilis</i>		+								
<i>Asterococcus splendidum</i>							+			

<i>A. superbus</i>	+	+	+	+	+	+	+	+	+	+
<i>Botryococcus braunii</i>	+		+							
<i>Carteria abiscoensis</i>		+			+					
<i>C. sphagnicola</i>					+					
<i>Cephalomonas granulata</i>					+					
<i>Chlamydomonas ambigua</i>										+
<i>C. augustae</i>	+									
<i>C. macropyrenoidosa</i>										+
<i>C. pseudotarda</i>					+					
<i>Chlorangiella subarctica</i>			+							
<i>Chlorogonium elongatum</i>	+									
<i>Closteriopsis acicularis</i>			+							
<i>Coelastrum microporum</i>	+			+						
<i>Desmatractum bipyramidatum</i>				+						
<i>Dictyosphaerium pulchelum</i>	+						+			
<i>Enallax alpinus</i>			+							
<i>Fusola viridis</i>			+							
<i>Eremosphaera viridis</i>	+		+	+						
<i>Gonium pectorale</i>	+		+	+						
<i>Keratococcus bicaudatus</i>	+	+								
<i>Microspora floccosa</i>	+							+		+
<i>M. pachyderma</i>						+	+	+		+
<i>M. willeana</i>						+	+	+		+
<i>Microthamnion kuetzingianum</i>										+
<i>Monoraphidium arcuatum</i>				+						
<i>M. contortum</i>			+							
<i>M. indicum</i>	+									
<i>M. komarkovae</i>	+	+								
<i>Nephrocytium agardhianum</i>	+			+						
<i>Palmodictyon viridae</i>				+						
<i>Pandorina morum</i>	+		+	+	+		+			
<i>Pediastrum boryanum</i>										+
<i>P. tetras</i>	+			+			+			
<i>Podohedra bicaudata</i>				+						
<i>Scenedesmus acuminatus</i>	+									
<i>S. acutiformis</i>	+		+	+						
<i>S. acutus</i>	+	+		+	+		+			
<i>S. disciformis</i>	+			+	+					
<i>S. dispar</i>	+				+					
<i>S. lefevrei</i>					+					
<i>S. ovalternus</i>					+					
<i>Sorastrum spinulosum</i>			+	+						
<i>Sphaerocystis schroeteri</i>	+		+							
<i>Trochiscia aciculifera</i>										+
<i>Willea irregularis</i>	+			+						
CHLOROPHYTA – ZYGNEMATOPHYCEAE										
<i>Arthrodesmus incus</i>			+							
<i>Bambusina brébissonii</i>	+			+		+	+	+	+	
<i>Closterium acerosum</i>	+			+	+					
<i>C. acutum</i>			+							

<i>C. costatum</i>		+								
<i>C. delpontei</i>			+	+		+	+		+	
<i>Closterium diana</i>	+	+	+	+	+					
<i>C. didymotocum</i>					+					
<i>C. gracile</i>	+	+	+	+	+		+		+	
<i>C. intermedium</i>							+			
<i>C. jenneri</i>	+	+		+	+		+			
<i>C. juncidum</i>	+	+								
<i>C. kuetzingii</i>							+			
<i>C. leibleinii</i>		+								
<i>C. lineatum</i>	+	+	+	+			+			
<i>C. lunula</i>		+								
<i>C. moniliferum</i>	+					+				
<i>C. navicula</i>					+					
<i>C. ralfsii</i>									+	
<i>C. striolatum</i>	+	+	+	+			+			
<i>C. venus</i>	+	+	+	+	+	+	+			
<i>Cosmarium botrytis</i>			+		+					
<i>C. caelatum</i>	+									
<i>C. connatum</i>		+								
<i>C. difficile</i>				+	+					
<i>C. formosulum</i>		+								
<i>C. hornavanense</i>		+								
<i>C. humile</i>							+			
<i>C. impressulum</i>					+					
<i>C. leave</i>		+	+							
<i>C. orthostichum</i>				+						
<i>C. polygonatum</i>		+								
<i>C. portianum</i>			+	+						
<i>C. punctulatum</i>		+		+						
<i>C. quadratum</i>					+					
<i>C. regnelii</i>					+					
<i>C. sexcostatum</i>		+								
<i>C. tinctum</i>		+								
<i>Cylindrocystis brébissonii</i>	+			+	+	+		+		+
<i>Euastrum ansatum</i>	+	+		+			+		+	+
<i>E. bidentatum</i>	+	+		+		+	+			
<i>E. denticulatum</i>			+							
<i>E. insulare</i>		+								
<i>E. montanum</i>					+					
<i>E. oblongum</i>	+	+		+		+	+		+	
<i>Gonatozygon brébissonii</i>	+				+					
<i>Hyalotheca mucosa</i>	+	+		+			+		+	
<i>Micrasterias americana</i>		+			+					
<i>M. papilifera</i>							+			
<i>Mougeotia parvula</i>	+	+	+	+		+	+		+	+
<i>Netrium digitus</i>	+	+	+		+	+	+		+	+
<i>Penium spirostriolatum</i>	+	+					+			
<i>Staurastrum alternans</i>	+							+		+
<i>S. brachiatum</i>				+						
<i>S. capitatum</i>								+		

<i>S. dilatatum</i>	+	+	+	+						+
<i>S. forficulatum</i>							+			
<i>S. furcigerum</i>									+	
<i>S. gracile</i>										+
<i>S. inconspicuum</i>	+							+		+
<i>S. inflexum</i>				+						
<i>S. lunatum</i>	+			+						
<i>S. muricatum</i>					+					+
<i>S. oriculare</i>	+	+		+		+	+			
<i>S. punctulatum</i>		+						+		+
<i>S. sexcostatum</i> var. <i>productum</i>										+
<i>S. subavicula</i>	+								+	+
<i>Staurodesmus convergens</i>						+	+			
<i>S. dickiei</i>			+	+		+				
<i>S. mucronatus</i>				+						
<i>Teilingia granulata</i>				+						

The marked heterogeneity of the substratum in the Călățele Pădure peat bog gives to its aquatic habitats a diversity of physical and chemical characteristics as shown in table 2.

Table 2: Physical and chemical parameters of 4 aquatic habitats

PARAMETERS		Sampling sites (pools)*			
		1	2	3	4
Water temperature °C		10	10.5	11.3	12
pH		7.05	6.0	5.97	4.93
Conductivity $\mu\text{s.cm}^{-1}$		105.9	54.3	34.7	30.5
Salinity mg.l^{-1}		56.1	30.4	19.0	17.1
Oxygen	mg.l^{-1}	6.35	6.87	3.09	2.90
	%	76.9	75.3	34.7	32.8

*Pool no. 1 = site no. 1 in table 1, pool no. 2 = site no. 2 in table 1, pool no. 3 = site no. 4 in table 1, pool no. 4 = site 9 in table 1. Further explanations see in the text.

The heterogeneity of aquatic environment induces the diversity of algal communities reflected in the large number of identified taxa (262) and major taxonomic groups (9). Table 1 made evident the sensible differences among the investigated algal communities due to their preferences towards the trophic level, saprobity and pH of the water. The greatest number of species (118) exhibited the first habitat, having the highest conductivity, salinity and pH values (Table 1, column 1 and Table 2, column 1). The lowest diversity (25) was observed in habitat no. 9. (Table 1, column 9) which exhibited the lowest conductivity, salinity and pH (Table 2, column 4). In accordance, the eutrophic elements, mostly Chlorophyceae (25 taxa) dominate the first algal community mentioned above (Table 1, column 1). They are usually largely distributed like *Pandorina morum*, *Gonium pectorale*, *Sphaerocystis schroeteri*, the *Monoraphidium*, *Scenedesmus* and *Pediastrum* species. There are also present in this community some blue-greens (various species of *Oscillatoria* and *Cylindrospermum*), euglenoid flagellates (species of *Euglena*, *Phacus*, *Lepocinclis* and *Trachelomonas*), as well as diatoms (*Caloneis silicula*, *Cymbella sinuata*, several taxa of *Navicula* and *Nitzschia*), xanthophytes (*Ophiocytium*) and even eutrophic desmids (*Closterium acerosum*, *C. juncidum*, *C. moniliforme*).

Some of the taxa occurring in the above mentioned community, namely *Oscillatoria splendida*, *O. terebriformis*, *Euglena polymorpha*, *Hantzschia amphioxys*, *Chlorogonium elongatum*, *Gonium pectorale* and *Closterium acerosum* indicate rather high organic loading (Sladeček, 1973). They are indicators for α -mesosaprobic level. By the contrary, the community occurring in habitat no. 9 (Table 1, column 9) has many oligo- and oligo-mesotrophic elements, some of them being sphagnophilous diatoms (*Cymbella gracilis*, *Frustulia rhomboids* var. *saxonica*, *Navicula subtilissima*), desmids (*Bambusina brébissonii*, *Euastrum ansatum*, *E. oblongum*, *Closterium ralfsii*, *Netrium digitus*, *Staurastrum subavicula*), chrysophytes (*Rhipidodendron huxleyi*), blue-greens (*Cyanothece aeruginosa*) or greens (*Asterococcus superbus*). One should note in this community the almost total absence of green algae and of euglenoid flagellates.

A community with almost the same species composition and structure is that inhabiting site no. 8 (Table 1, column 8). There are present only 27 taxa, several being oligotrophic or oligo-mesotrophic elements.

As concerning the other communities investigated, they are of intermediary character. The number of species ranges between 47 (site no. 7) and 98 (site no. 2). The diatoms and desmids are dominant in these, many of them being mesotrophic or meso-eutrophic. They are usually rather large forms and belong to the genera *Eunotia*, *Pinnularia*, *Closterium*, *Euastrum*, *Micrasterias* and *Staurastrum*. Other mesotrophic elements occurring in these habitats are *Eremosphaera viridis*, *Petalomonas polytaphraena* and several *Anabaena* species. The presence of some *Eunotia* and *Pinnularia* species of oligotrophic character might be due to the acidic peat deposits at the bottom or they are just fossil frustules that have been washed into the water from the surrounding ancient oligotrophic peat layers.

Many of the species living in the Călățele Pădure peat bog are cosmopolitan with large ecological tolerance in the same time. Such species are *Chroococcus minutus*, *C. turgidus* (blue-greens), *Phacus orbicularis*, *Trachelomonas volvocina* (euglenoid flagellates), *Peridinium umbonatum* (dinophyte), *Achnanthes minutissima*, *Gomphonema parvulum*, *Neidium affine*, *N. bisulcatum*, *Stauroneis anceps*, *S. phoenicenteron* (diatoms), *Botryococcus braunii* and *Monoraphidium contortum* (greens).

There are also present in the bog several species alien to peat bogs, which have been washed into the bog from the surrounding areas strongly affected by human impact. Such species are *Fragilaria intermedia*, *F. virescens*, *Melosira granulata*, *Synedra ulna* etc.

Some of the species of the investigated peat bog communities are of phytogeographic interest. Some of them like *Anomoeoneis seriens* var. *brachysira*, *Eunotia septentrionalis*, *E. microcephala*, *Pinnularia acrosphaera*, *Euastrum montanum*, *E. bidentatum*, *Cosmarium hornavanense*, *Penium spirostriolatum* are considered montane or nordic-alpine elements. The most outstanding one is *Micrasterias americana* (Fig. 3), very rare indeed in Romania. The present finding is its first record in Romanian Western Mountains and the fourth one in Romania. It has formerly been found in the Poiana Stampei peat bog (L. Ş. Péterfi and Momeu, 1976), Apa Roşie peat bog (Momeu and L. Ş. Péterfi, 1993) and the Bazinul Lotrului peat bog (Momeu and L. Ş. Péterfi, 1993/1994).

The fate of the formerly genuine raised peat bog Călățele Pădure herein dealt with is not a singular event, the peat bogs are endangered not only in Romania but elsewhere in Europe too, because their peat deposits might be used in many ways for different purposes. In the same way had been destroyed the Poiana Stampei – Pilugani peat bog from the Dornelor Basin. In Poland, Tomaszewicz (1988) mentioned that the mesotrophic peat bogs of the Mazowsze lowland which are under peat working exhibit mosaic structure due to the intensive excavations of their peat layers.

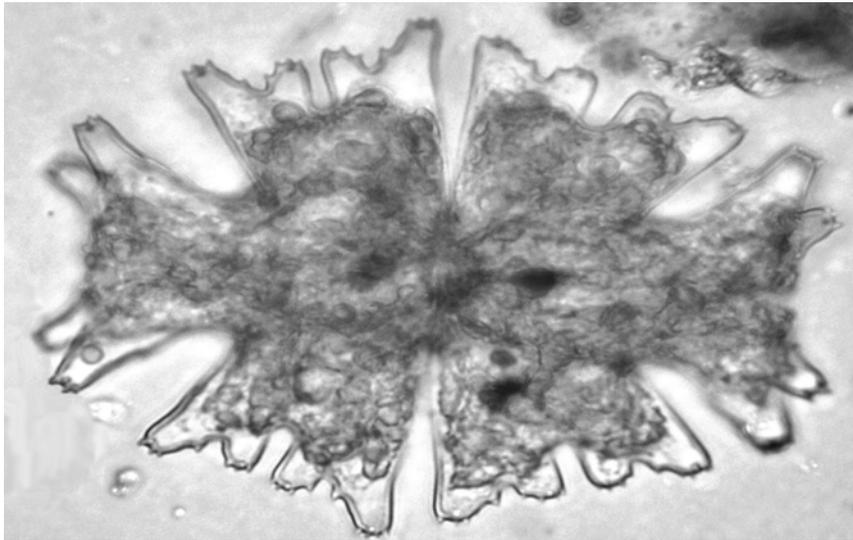


Fig. 3: *Micrasterias americana* Ehrenberg ex Ralfs

Conclusions

The Călățele Pădure peat bog is in a natural regeneration process after the peat working had been ceased, showing a highly mosaic structure of the plant cover and algal communities.

The physical and chemical conditions of the aquatic habitats, due to the peat layers at the bottom left and the allochthonous sand and blocks introduced during peat working, induced outstanding diversity at the level of algal communities (262 taxa).

The human impact markedly disturbed the original raised peat bog ecosystem. Therefore, beside the oligotrophic and oligo-mesotrophic elements there are many mesotrophic and even eutrophic forms.

Most species are oligosaprobic or β -mesosaprobic indicating clear water conditions, but a reduced number of α -mesosaprobic ones are also present, denoting pollution stress.

The present finding suggests the necessity of further investigations and algal monitoring in order to establish the evolutionary tendency of the bog.

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COMUNITĂȚI ALGALE DIN MLAȘTINA DE TURBĂ DE LA CĂLĂȚELE PĂDURE (MUNȚII APUSENI)

(Rezumat)

Molhașul de la Călățele, situat în dreptul satului Călățele Pădure (20 km nord de Huedin), face parte din seria de tinoave și mlaștini de trecere din bazinul superior al Someșului Cald – Giurcuța de Jos, grupa Bălcești – Călățele. Mlaștina, odinioară un tinov autentic, a fost supusă în anii '60 – '70, unui puternic impact antropic datorită exploatării masive a turbei sale oligotrofe. După încetarea lucrărilor de extragere, șanțurile și gropile rămase s-au umplut cu apă meteorică și apă freatică, oferind cu timpul condiții prielnice pentru instalarea unor biocenoze diversificate.

Lucrarea de față prezintă rezultatele cercetărilor, începute în toamna anului 2002, asupra comunităților algale ce habitează biotopurile acvatice ale mlaștinii invadate în prezent de o vegetație acvatică și palustră mozaicată. Apa acestora, de culoare galben-brună datorită substratului turbos, este puternic influențată de prezența materialului alohton (balast, nisip) care a fost utilizat la construcția drumurilor de acces și a platformelor pentru utilaje.

Comunitățile algale reflectă la rândul lor același caracter mozaicat, evidențiat în primul rând printr-o diversitate specifică accentuată a algoflorei. Astfel, au fost identificate 262 taxoni aparținând la Cyanoprokaryota – 16, Euglenophyta – 38, Dinophyta – 5, Cryptophyta – 1, Chrysophyta – 8, Xanthophyta – 10, Bacillariophyta – 65, Chlorophyta – Chlorophyceae – 48 și Chlorophyta – Zygnematophyceae – 71.

Analizând speciile din punct de vedere ecologic, se constată dominarea elementelor caracteristice sfagnetelor mezotrofe, bunăoară desmidiacee, respectiv diatomee. Ele sunt urmate de formele preferențial eutrofe, reprezentate în special de cloroficee și de flagelate euglenoide.

Merită subliniată însă, prezența elementelor acidobionte, oligo-mezotrofe cum sunt *Cyanothece aeruginosa*, *Calycimonas physaloides*, *Frustulia rhomboides* var. *saxonica* și *Navicula subtilissima*. Se semnalează pentru prima dată în Munții Apuseni prezența unei specii rare în flora României – *Micrasterias americana*, cunoscută până în prezent doar din trei stațiuni: tinovul Poiana Stampei – Pilugani (Carpații Orientali), complexul mlaștininos de la Apa Roșie (Carpații de Curbură) și sfagnetul de trecere de pe cursul superior al Lotrului (Carpații Meridionali).