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THE ASSOCIATION *CARICI ELONGATAE - ALNETUM* IN THE "CSALÁNOS"MARSH OF THE NIRULUI PLAIN

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ABSTRACT
The latest scientific flora research emphasized that the vegetation specific to The Nirului Plain consists in series of primary and secondary species. Some phytocenosis of semi-fixed sandhills, marshes and forests (which once totalized large areas) are fragmentarily occupying only limited areas today. Under these circumstances, a notable aspect is the appearance of numerous specific vegetal associations, as a consequence of the relief', microclimatic' and pedologic' local agents. Those particular plants are missing in what concerns the geomorphologic limitrophe unities' vegetation, unities belonging to The Nirului Plain. Regarding the analyzed territory, its climatic conditions and the humidity degree are creating favorable backgrounds in order to forests' installation. The shrubs' vegetation is represented by bunches of alders trees, which are conserving series of archaic species in the marshes of The Nirului Plain.

KEY WORDS: vegetal associations, local agents, humidity degree, alders, archaic species.

INTRODUCTION

The Nirului Plain has a total surface of 27.000 hectares, occupying the Western extremity of Satu Mare and Bihor counties. Geomorphologic unity, The Nirului Plain is framed by high plains from the Western depressions of the country. A particularity for this relief belonging to The Nirului Plain is the presences of sand hills ranges, with a general orientation NNE-SSV, alternating with lower areas of inter-sandhills which are, here and there, in a local process of sinking into marsh.

The Nirului Plain's territory is characterized by a centrifugal and inconsistent hydrographic net. The flowing waters of the sand hills are gravitating towards the basin of the former Ecedea Meadow, towards the sands from Hungary and The Ierului Passage. Among those swamps, the vastest are at Sanislau (Vermeş, about 80 hectares), Ciumeşti (in many stations: Răchitişul Lung, Reca, Săpătura Dracului or Ördögásás), Urziceni (Grădina Cailor), Foieni, Scărişoara Nouă and Curtuiuşeni (The „Csalános" Marsh, near Pinet). In what concerns the environment conditions and agents, the swampy areas of inter-sandhills are different from the sunny slopes in the neighborhoods. As a consequence, very heterogonous primary vegetation has been developed in this region. During times, this specific vegetation had been seriously modified, as a result to the antropic activities. In the past, the swamps localized in the inter-sandhills were connected one to each other by courses of provisional or permanent waters. Its' feeding with oxygen became possible in the spring, humbling by that the eutrophisation process. Simultaneously, series of plants which grow on large surfaces: *Phragmites australis*, *Schoenoplectus lacustris, Glyceria maxima* have contributed to waters' ecological purification. Nowadays, this process is continuously disturbed by sewers, drains, pollutions. Regarding the area of sand hills, the water pollution is pointed as being at a lower degree comparing to the limitrophe stations, because of its scanty number of pollutions sources. In this particular region, the presence of carnivorous plants *Utricularia vulgaris* and *Aldrovanda vesiculosa* is explained by the reduced content of nitrogen in the waters of The Nirului Plain. Hence, regarding the heating degree, there is a significant temperature difference between the sand hills' slopes and the neighboring swampy areas consisting in 10 ºC . In the excessively humid stations, the turbidity is pronounced and the stagnated waters are cold. Consequently, the soils' humidity degree and the climatic agents in The Nirului Plain are creating favorable premises in order to the forests' settlement. The clump of bushes' vegetation is represented also by bunches of alders. For the time being, there are also fragmentary samples at Curtuiuşeni - The „Csalános" Marsh (a inter-sandhill dune with relict elements.)

MATERIAL AND METHODS

The floristic element has been identified and sampled as a consequence to the latest scientific shifting and successive researches on the fieldwork. Its analysis accomplished by means of choosing some targeting sample areas, divided into sections of specific vegetal layers, according to their homogenous physiognomy and similar ecological conditions and agents. The total surface of the sampled areas is about 20-25 m². The outcome of the scientific researches achieved data which were inscribed in the phytocenological data sheet. In the case of unknown sample species, we harvested them in order to identify and name them in the laboratory, through a specific catalogue for determining species or varieties (*Flora Mică şi Ilustrată a României*, Vasile Ciocârlan; *Flora Europaea; Flora R.P.R./R.S.R.*).

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RESULTS AND DISCUSSIONS

The outcome of the scientific researches illustrates that the association *Carici elongatae – Alnetum* Koch (Basionim: *Thelypteridi – Alnetum* Klika 1940), identified in the marshes of Csalános from Curtiuşeni has its characteristic species: *Alnus glutinosa and Thelypteris palustris* (Fig. 1). It has been analyzed basing on 5 relevé sampling methods. (Table no. 1)

Fig. 1- The association *Carici elongatae – Alnetum Koch* –
The „Csalános" Marsh at *Curtuiuşeni*

Table number 1
As. Carici elongatae-Alnetum Koch 1926 **(**Basionim: **Thelyperidi – Alnetum** Klika 1940)

Bioform.	Flor. element.	U.	T.	R.	Car.	The relevé's number	1	2	3	4	5	6	ADm.	K
						Analyzed surface(m^2)	32	30	30	25	30	24		
						The dispersion (%)	80	80	75	90	70	75		
						Inclination (grade)	V	S	N-V	S	S-V	S		
						CHAR. ASS.								
PhM	Eua	5	3	3	P	Alnus glutinosa	4	4	4-5	3-4	4	4	66,66	V
G-Hh	Cp	4	3	0	P	Thelypteris palustris	1	+	1	+	-	1-2	3,03	IV
						ALNETEA GLUTINOSAE								
Phm	Eua	5	3	3	P	Salix cinerea	1	+	+	-	+	+	0,31	III
H	Eua(M)	4	0	3	D,P	Eupatorium cannabinum	1-2	+	+	+	+	+	2,58	III
Ch (Phn)	Eua(M)	4,5	3	4	P	Solanum dulcamara	+	+	+	-	+	+	0,08	III
H	Cp	4	3,5	0	P	Dryopteris carthusiana	-	-	-	-	+	+	0,03	II
						ALNO-PADION								
H	Eua	3,5	3	4	D	Humulus lupulus	+	+	-	-	-	-	0,03	I
H-G	Cosm	3	3	4	D,P	Urtica dioica	+	+	+	-	-	+	0,06	III
						MOLINIO-JUNCETEA								
H	Eua	4	3	0	D	Angelica sylvestris	+	-	+	+	+	-	0,06	III
H	Eua	3	3	4	P	Sonchus arvensis ssp. uliginosus	-	+	-	-	-	-	0,01	I
H	Ec	4	3,5	0	D	Cirsium rivulare	-	+	-	-	-	+	0,03	I
H	E	4	3	0	P	Symphytum officinale	-	-	+	+	-	-	0,03	I
						PHRAGMITETEA								
H	Eua	4	3	4	D	Calystegia sepium	+	-	+	+	-	+	0,06	III
H(G)	Eua(M)	4,5	3	0	P	Mentha longifolia	+	+	-	-	-	-	0,03	I
H-Hh	Eua	5	3	0	P	Mentha aquatica	+	+	-	-	+	-	0,05	II
G-Hh	Cp	5	2	0	P	Equisetum palustre	+	+	+	-	+	-	0,06	III
Hh	Cosm	5	4	0	P	Phragmites australis	+	+	-	+	-	+	0,06	III

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Hh	Eua	5	3	0	D	Lycopus europaeus	+	+	-	-	+	+	0,06	III
Hh	Eua	6	0	0	D	Alisma plantago-aquatica	+	+	-	+	-	+	0,06	III
H-Hh	Cosm	4	3	0	P	Lythrum salicaria	-	-	+	+	-	-	0,03	I
H(G)	E	4	3	4	P	Rumex hydrolapathum	-	-	-	-	-	+	0,01	I
Hh	Eua	6	3	0	D	Oenanthe aquatica	-	-	-	-	-	+	0,01	I
						MAGNOCARICION								
H	Eua(M)	5	4	4	P	Carex riparia	+	-	+	+	-	-	0,05	II
Hh	Eua	6	3	0	P	Carex elata	+	+	+	+	+	1	0,33	IV
H	Cp	5	3	0	D,P	Galium palustre	+	+	-	+	+	+	0,08	III
Hh	Eua(M)	6	3	4	P	Carex acutiformis	-	-	-	-	-	+	0,01	I
						LEMNO-POTAMETEA								
Hh	Cosm	6	0	0	D,P	Lemna minor	-	-	-	-	-	+	0,01	I
Hh	Cosm	6	0	4	D,P	Lemna trisulca	-	-	-	-	-	+	0,01	I
						QUERCO-FAGETEA								
Phn	Eua(M)	4,5	3	4	D	Rubus caesius	-	-	-	+	+	-	0,03	I
						POPULETALIA								
H	Eua	3,5	3	4	D	Cucubalus bacifer	-	-	+	-	-	-	0,01	I
						PRUNETALIA								
Phm	Eua	4	3	3	D,P	Frangula alnus	-	-	-	-	+	+	0,03	I
						ALLIARION								
H	Adv	3	0	0	P	Phytolaca americana	-	-	-	-	+	+	0,03	I
						VARIAESYNTAXA								
H-Hh	Eua	4	3	3	P	Epilobium hirsutum	+	+	-	-	-	+	0,05	II
G-Hh	Eua	5,5	0	0	D,P	Iris pseudacorus	-	-	+	+	-	+	0,05	II
H-Ch	Cp	3	3	4	D	Artemisia vulgaris	-	-	-	-	+	-	0,01	I
TH	Eua(M)	3	3	3	P	Arctium lappa	-	-	-	-	+	+	0,03	I

The spectrum regarding the bioform: Hh – 22,85%; H –40%; G –17,14%; TH –2,85%; PhM –2,85%; Phm –5,71%; Phn – 2,85%.

The spectrum regarding the floristic elements: Eua – 42,85%; Eua(M) – 20%; E – 5,71%; Ec – 2,85%; Cp – 11,42%; Cosm – 11,42%; Adv. – 2,85%.

The relevé's date and place: 1-6 ; 3 VIII 2009 – Curtuiuşeni, The Marsh „Csalános".

The floristic inventory of the phytocenosis in this association is totalizing a number of 36 species of cornophytes.

The characteristic species Cl.-sei *Alnetea glutinosae* form the skeleton of the association. The facies are constituted by the species *Carex elata*, respectively, *Eupatorium cannabinum (*in the places rich in organic substances). In what concerns the spectrum of the bioform, (fig. 2) it is ensued that the micryphtophites reach a large percentage (40%), being followed by helohidatophite (22, 85%). The floristic spectrum is dominated by Eurasian (42, 85 %). (Fig. 3)

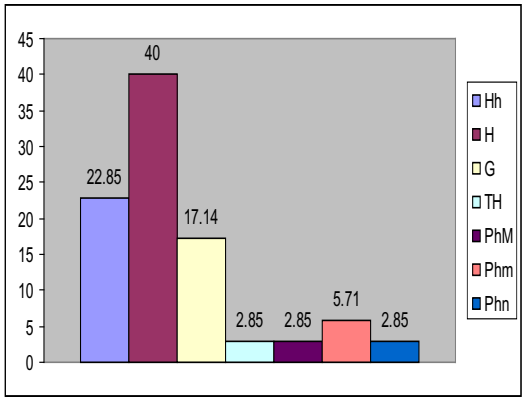

Fig.2- The spectrum regarding the bioform as. ***Carici elongatae- Alnetum*** Kock 1926

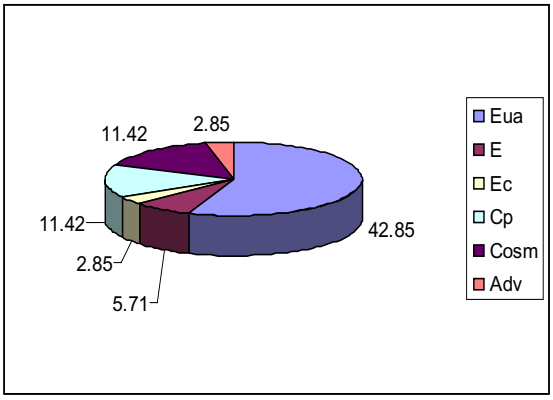

Fig. 3 – The spectrum regarding the floristic element**s** as. ***Carici elongatae- Alnetum*** Kock 1926

From the total number of plants in the association, 52, 77% are poliploids, 22, 77% are diploid and 19, 44% diplo poliploids (Fig. 4).

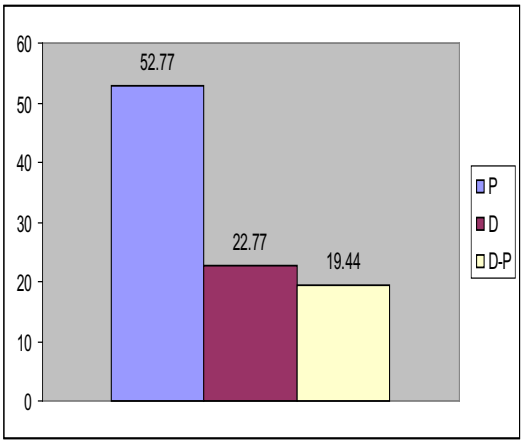

Fig. 4 – The cariologic spectrum for as. ***Carici elongatae- Alnetum*** Kock 1926

CONCLUSIONS

The alders presented in The „Csalános" Marsh are forming on depression areas, places where water stagnates for a long time, also, having a reduced content of O_2. The black alder is well adapted to these conditions; its aeration is carrying on through their possessed numerous lenticels. The roots are in symbiosis with the fungus *Actinomyces alni*, which may connect the free nitrogen enriching, thus the soil being enriched, in what regards this chemical element. A characteristic of the marsh Csalános is the presence of the islet of mush thicket or reed bushes, fact that constitutes a specific biocenosis. This vegetation's appearance associates species of aquatic plants with species of earthly plants. The floating vegetation spread in the waters localized all around the hillocks is in a continuous process of growth. Also, it seems that there might be a great multiplication of mezophiles all around the small headlands. This well pointed out evolution is passing through different successive specific stages, as a consequence to a slow sealing off among the hillocks.

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