

## ASPECT REGARDING THE HALOPHILOUS VEGETATION FROM THE IERULUI PLAIN

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### Abstract

*Association Camphorosmetum annuae Rapaics ex Soó 1933, is distributed to high salt soils in Ierului Plain. This study aims to analyze the phytocenologic, floristic and economic points of view. Phytocenoses association analysis present a scientific importance, with a total of 11 species, which is a very low biodiversity, some species are rare, vulnerable, endemic and need to be protected. Camphorosma annua represent only secondary and disturbed habitats on more or less degraded saline soils. The vegetation cover on these localities is usually close to Festucion pseudovinae communities.*

**Key words:** association, phytocenoses, floristic study, life form, ecological indexis.

### INTRODUCTION

Ierului Plain is located in the North – West of Romania, on the administrative territory of Satu Mare and Bihor countries, being one of the lowest sections of the Western Plain. In the East and North-East it neighbours Crasnei Plain and in the North-West Careiului Plain, in the West Nirului Plain, in the East the Santăului Plain and the Sălacea – Săcueni Hillocks, but the great morphological and morphometrical resemblance with the neighbouring units makes it difficult its net geographical delimitation.

The altitude level of Ierului Plain varies between 125 m and 159 m in the North and North-East, decreasing to 100 m in the South, according to the flowing direction of Ier. The highest point it reaches is on the Cetății Hill from Otomani (159 m), and the lowest (100 m) on the actual valley at the border with Hungary. The annual average temperature distribution varies between 10,3°C in Săcueni. Analyzing the distribution of the annual average precipitation quantities, we find that they increase with altitude from 580,6 mm registered in Săcueni, to 589,3 mm in Carei.

The *Camphorosmetum annuae* Rapaics ex Soó 1933 association is present only in the two location from the Ierului Plain. Communities of *Camphorosma annua* prefer especially solonetz soils. Presence of the community indicates bare stand depressions with highest salinity where the vegetation cover is sparse and species-poor. Soil surface in the spring time is covered by water and dry up in summer. This character of water regime

leads to the highest soil salinization in soil surface often appear salt crusts. Because sodium salts are found in the limestone, these states do not appear crusts and cracks in the soil. Therefore, these area can be included to the most extreme habitats for vegetation in lowland conditions.

## **MATERIAL AND METHODS**

To realize this study, there were performed a total of 2 local incursions, and about 5 phytocoenologic sampling on natural habitat. Their size varies between 2-10 m<sup>2</sup>.

The process used was phytocoenologic survey method drawn up by Braun-Blanquet.

Along with species recording, abundance and dominance (AD) were subscribed in relevées after Braun-Blanquet scale subsequently developed by Tüxen (1955) and Ellenberg (1974).

The association's synthetic table was structured after the methodology proposed by Braun-Blanquet (1964) and developed by Ellenberg (1974); therefore, in the column header of the table for the association analyzed the following have been entered: the serial number of land surveys, altitude (m.s.m.), surface (m<sup>2</sup>), coverage (%).

The following have been considered in the structure of the phytocoenologic table: illustrating or dominant species, characteristic species of the association, species for the *ré*cognition or differentiation of the sub- alliance, alliance, order, class and environmental significance.

Synthetic phytocoenologic indicex of constancy (K) whose classes are included between I-V values, that expresses the degree of coenotic fidelity compared to phytocoenoses environment of the association has been entered and calculate don the right of the table.

After Braun-Blanquet & Pavillard (1928), the medium abundance and dominance (mAD) shows percentually the average coverage realized in the association's phytocoenoses by the phytoindividuals of each recorded specie.

Differential species allowed us to set limits in the association for the taxons that are hierarchically superior to the alliance, order and class. The association's phytocoenoses are analyzed and characterized physiognomically, coenologically and ecologically.

In this respect particular attention has been given to the analysis of life forms, floristic elements and ecologic indices (UTR) through their graphical representation.

## RESULTS AND DISCUSSION

The *Camphorosmetum annuae* Rapaics ex Soó 1933 (Tab. 1) associations have been identified in the following places: Galoşpetreu and Tarcea. It forms halophilic meadows distributed on habitat where the land are wet in the spring, even temporarily flooded, but are drying in summer time and high salty soils.

The characteristic species of the It forms halophilic meadows association are *Camphorosmetum annuae* (52,50), they have a maximum constancy and a high abundance and dominance.

The spectrum of bioforms (Fig. 1), points out the preponderancy of the hemicryptophytes in the association (54,55%), followed by annual euterophytes (27,27%). From the floral elements (Fig. 2) the distinguished species is the eurasian one (63,64%)..

Analyzing the phytocenoses of the association in relation with the humidity (Fig. 3) we find that most of the species have a xeromesophilous characteristic (63,64%), followed by the mesophilous species (18,18%). Considering the temperature, the species from the association are micro-mesotherms (36,36%) and fallowed to moderately thermophilic (36,37%). As for the chemical reaction of the soil in the association there are dominance disputes between the neutro-basophilic species (36.37%) followed by euriionic together the low acid-neutrophyle (27,27%).

In the cariologic spectrum (Fig. 4) there are, diploid (54,55%), polyploid (27,27 %) and diplo-polyplode (18,18%).

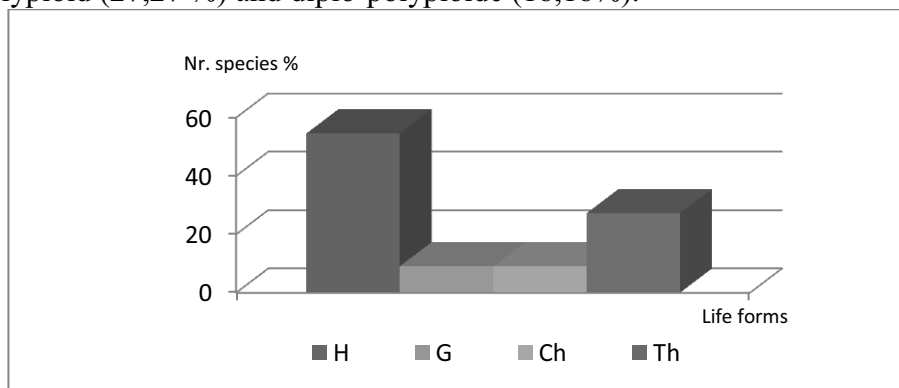


Fig. 1 The life forms of association *Camphorosmetum annuae* in Ierului Plain: H-Hemicryptophytes; G-Geophytes; Ch-Chamaephytes; Th-Euterophytes;

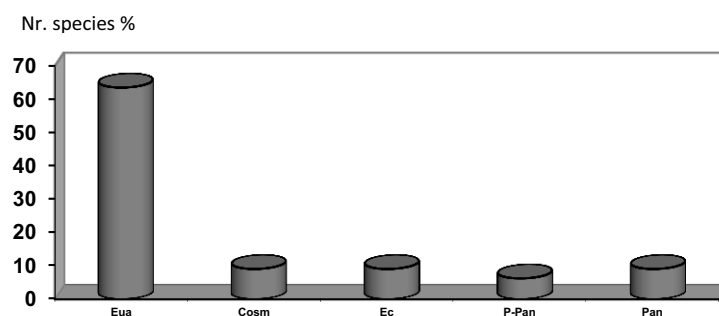


Fig. 2 The spectrum of floristic elements of association *Camphorosmetum annuae* in Ierului Plain: Eua-Eurasian; Cosm-Cosmopolitan; Ec-Ecvtorial; P-Pan-Ponto-Pannonian; Pan-Pannonian

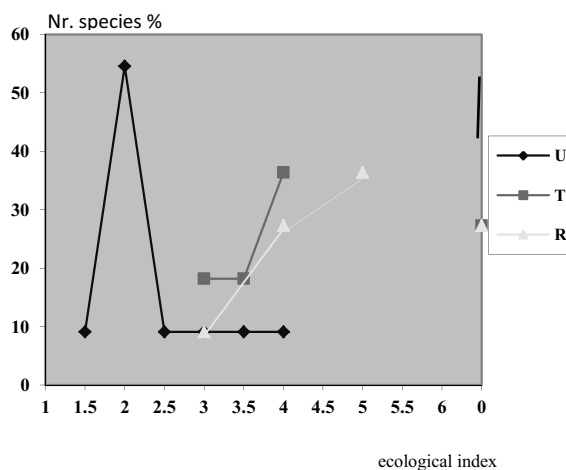


Fig. 3 The diagram of ecologic indices of association *Camphorosmetum annuae* in Ierului Plain where: U-humidity, T-temperature, R-the chemical reaction of the soil

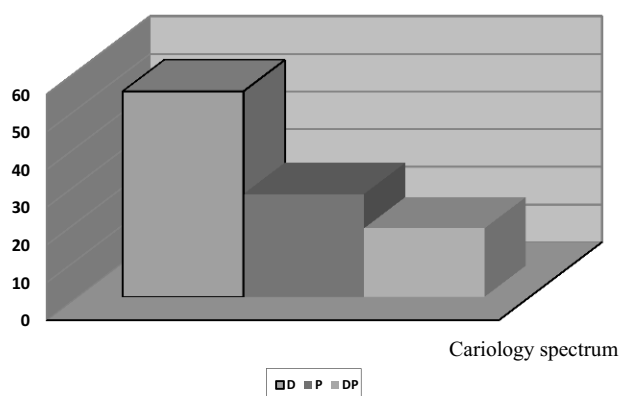


Fig. 4 Cariology spectrum of association *Camphorosmetum annuae* in Ierului Plain: D-Diploid, P-Poliploid, DP-Diplo-poliploid

Table 1

*Camphorosmetum annuae* Rapaics ex Soó 1933

Bio.	E. f.	U.	T.	R.	2 n	Nr. Land Surveys	1	2	3	4	5	K	ADm
						Altitude ( m.s.m.)	101	101	101	105	105		
						Surface ( m <sup>2</sup> )	4	8	2	10	8		
						Coverage ( %)	60	65	70	65	70		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Th	P-Pan	2	4	5	D	As. Camphorosma annua	3	4	4	3	4	V	52,50
<b>Puccinellion, Puccinellietalia, Puccinellio-Salicornietea</b>													
H	Pan	3.5	0	5	P	Puccinellia limosa	+	+	+	+	+	V	0,50
H	Eua(M)	4	0	5	D	Plantago maritima	.	+	+	1	+	IV	1,30
H	Eua(C)	2	3	5	D	Achillea setacea	+	.	+	+	+	IV	0,40
Th(TH)	Eua	2	0	4	D	Scorzonera laciniata	+	.	+	.	.	II	0,20
Ch(H)	Eua	2.5	4	0	D	Artemisia santonicum	.	+	.	.	.	I	0,10
<b>Festuco-Brometea</b>													
G(H)	Cosm	2	3.5	0	D,P	Cynodon dactylon	+	+	+	+	+	V	0,50
H	Eua(C)	1.5	4	4	P	Festuca rupicola	+	+	.	.	+	III	0,30
H	Ec	2	3	3	P	Achillea collina	+	.	+	.	.	II	0,20
<b>Variae syntaxa</b>													
H	Eua(C)	2	4	4	D,P	Festuca pseudovina	+	+	+	+	+	V	0,50
Th	Eua(M)	3	3.5	0	D	Matricharia recutita	+	.	.	.	.	I	0,10

Localitatea: 1-3. Loc. Tarcea (07.08.2010); 4-5. Loc. Galoşpetreu (07.08.2010);

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