ASPECTS OF VEGETATION FROM ZĂNOAGA AND TĂTARU GORGES (THE BUCEGI MOUNTAINS)

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This paper deals with characterization of two vegetal associations identified on the Zănoaga and Tătaru Gorges, from Ialomița Valley (the Bucegi Mountains): *Asperulo capitatae – Seslerietum rigidae* (Zólyomi 1939) Coldea1991 and *Ligulario sibiricae – Ribetum petraei* nova ass.

Key words: new association, glacial relicts, geoelements.

INTRODUCTION

The eastern limit of Bucegi Massif can be watched on the Prahova Valley, to the west the limit is marked by the Şimon, Bângăleasa and Brătei Valleys, which separate it from the crystalline massif of Leaota, the southern limit part is gradually lost in the hills which accompany the superior course of the Ialomița river, straight on Moroieni and Pietroșița locality.

The investigated area belongs to the western sector of the Bucegi Mountains, whose northern limit is represented by the highest peaks (Guțanu – 2164 m, Grohotișu – 2168 m, Strunga – 1954 m Mountains). From the Șeaua Strunga, the branch is continued towards the south with Tătaru (1966 m), Deleanu (1834 m), Lucăcilă (1872 m), Zănoaga (1786 m), Lespezi (1618 m), Raciul (1733 m), peaks situated between Ialomița and Brătei Valleys. The Zănoaga and Tătaru Gorges are stretched by a single course of water (Ialomița), which springs from the glacial hollow, situated under the Găvanele Peak.

MATERIALS AND METHODS

The analysis of the vegetal associations identified in this teritory was realized according to phytosociological research methods of the Central-European School, from Zürich-Montpellier and adapted to the vegetal characteristics in Romania by Al. Borza. The name of vegetal associations was established according to provisions of the Code of Phytosociological Nomenclature (2). The description of vegetal associations was done on the base of edifying, dominant and differential species, indicting synthetic tables, according to the methodology established by Al. Borza and N. Boşcaiu (4).

RESULTS AND DISCUSSIONS

In spite of floriferous reputation of the abrupts from Zănoaga and Tătaru Gorges, in the Ialomița Basin (Bucegi Mountains) no other more comprehensive contribution concerning the vegetation of this zone has been published. As part of phytosociological studies which were effected in these gorges, we have identified two saxicolous associations: *Asperulo capitatae-Sesleritum rigidae* (Zólyomi 1939) Coldea 1991 and *Ligulario sibiricae-Ribetum petraei* nova ass. Both associations have a relictar character, beside the relevant species in order to determine the syntaxonomic position, numerous Carphatian and Carpathian–Balkan species of a remarkable phytogeographical interest find a shelter.

The *Asperulo capitatae-Seslerietum rigidae* (Zólyomi 1939) Coldea 1991 association (Table 1) established on the ground of the basionym, specified by Zólyomi, has a large spreading on the calcareous abrupts from South-Eastern Carpathians. Analogous groupings were described from the Bucegi Mountains by Al. Beldie (3).

Table 1

Asperulo capitatae – Seslerietum rigidae (Zóly. 1939) Coldea 1991

			Survey	1	2	3	4	5	6	
			Altitude (m×10)	130	150	130	130	150	150	
			Exposure	E	V	NE	NE	V	V	
			Inclination(degree)	90	70	80	70	90	90	
			Area (m^2)	25	25	16	16	25	25	
			Coverage (%)	85	70	85	95	55	65	
F.b.	**E.f.**	**2n**								**K**
			Char. ass.							
H	Carp-Balc	D	*Sesleria rigida*	3	3	3	4	1	1	V
H	Carp-Balc	D	*Asperula capitata*	1	1	-	-	-	-	II
			Seslerion rigidae							
H	Carp(end)	P	*Dianthus spiculifolius*	+	+	+	+	+	+	V
Ch	Carp-Balc	-	*Saxifraga luteo-viridis*	+	-	+	-	+	+	IV
Ch	Carp(end)	P	*Thymus comosus*	+	1	1	2	-	-	IV
H	E(mont)	P	*Valeriana montana*	-	-	+	-	+	+	III
H	Med	D	*Primula verris* ssp. *columnae-*	+	-	+	-	-		II
H	Alp-E	D	*Bupleurum falcatum*	+	-	-	-	-	-	II
H	Cp	D	*Parnassia palustris*	-	-	-	+	+	-	II

H	Carp(end)	-	*Achillea schurii*	-	-	-	-	+	+	II
H	E(cont)	P	*Aconitum anthora*	-	+	-	+	-	-	II
			Seslerietalia							
Th	E(Alp.)	P	*Euphrasia salisburgensis*	+	+	1	+	-	-	IV
H	Alp-Carp-Balc	D	*Ranunculus oreophilus*	+	+	+	-	-	+	IV
H	End(Carp-Rom)	D	*Scabiosa lucida*	+	-	-	+	+	+	IV
H	E(arct.alp)	P	*Potentilla crantzii*	+	+	+	-	+	-	IV
Ch-H	Alp-E	D	*Helianthemum nummularium*	1	+	-	1	-	-	III
Ch	Alp-Carp	D	*Helianthemum alpestre*	-	+	+	-	-	-	II
H	E(alp.)	P	*Carex sempervirens*	2	-	-	+	-	-	II
H	Cp(arct.alp)	P	*Polygonum viviparum*	+	-	-	+	-	-	II
H	Alp-Sudet-Carp	D	*Festuca versicolor*	+	-	2	-	-	-	II
			Seslerio – Festucion pallentis							
Th	Med	D	*Cnidium silaifolium*	+	-	-	+	-	-	II
H	Eua(cont)	D	*Anthemis tinctoria*	-	+	-	+	-	-	II
H	Ec-Balc	D	*Melica ciliata*	-	+	-	-	-	-	I
			Potentilletalia caulescentis et Asplenietea							
H	Cm	P	*Cystopteris fragilis*	+	+	-	+	+	+	V
H	Cp	P	*Poa nemoralis*	1	2	1	+	+	+	V
H	Carp(end)	D	*Campanula carpatica*	-	+	-	-	1	+	III
H	Cp	P	*Asplenium viride*	-	-	+	-	+	+	III
Th	E	P	*Cardaminopsis arenosa*	+	-	-	+	-	-	II
H	Cm	P	*Asplenium trichomanes*	+	-	-	-	-	-	I
H	Cp	P	*Asplenium ruta-muraria*	-	-	-	-	-	+	I
H	Ec(mont)	D	*Valeriana tripteris*	-	-	-	+	-	-	I
H	Carp(end)	D	*Silene nutans* ssp. *dubia*	-	-	-	-	-	+	I
			Geranion sanguinei							
H	Med	P	*Galium lucidum*	+	+	2	+	-	-	IV
H	E	P	*Digitalis grandiflora*	-	+	-	+	-	-	II

H	E(med)	D	*Trifolium alpestre*	-	-	-	1	-	-	I
H	E(mont)	D	*Laserpitium latifolium*	-	-	-	+	-	-	I
H	Eua(med)	P	*Campanula rapunculoides*	+	-	-	-	-	-	I
			Festucetalia et Festuco-Brometea							
H	Eua	P	*Pimpinella saxifraga*	+	+	+	+	-	-	IV
H	Eua(cont)	D	*Campanula sibirica*	+	-	-	-	-	-	I
			Varia							
H	Ec(mont)	D	*Cirsium erisithales*	+	+	+	+	+	-	V
Ch	E(alp.)	D	*Silene pusilla*	-	-	+	+	+	+	IV
H	Ec(mont)	P	*Astrantia major*	+	+	+	-	-	-	III
MPh	Balc-Carp	D	*Salix silesiaca*	-	+	-	+	-	+	III
nPh	Arct(alp.)	D	*Clematis alpina*	-	-	-	-	+	+	II
H	Eua	D	*Angelica sylvestris*	+	+	-	-	-	-	II
MPh	E	D	*Picea abies*	-	-	-	-	+	+	II
TH	Carp-Balc	P	*Campanula* *ssp. *abietina*	+	-	-	-	-	+	II
Ch	Carp(end)	-	*Saxifraga demissa*	-	-	-	-	1	+	II
H	E	P	*Valeriana sambucifolia*	-	+	-	+	-	-	II
H	Eua(mont)	D	*Cortusa matthioli*	-	-	-	-	2	3	II
H	Cp	D	*Viola biflora*	-	-	+	-	+	-	II
G	Alp-Carp-B	P	*Doronicum columnae*	-	-	-	-	-	1	I
H	Pont-Med	D	*Scrophularia scopolii*	-	+	-	-	-	-	I
Th	Cp	D	*Erigeron acer*	-	-	+	-	-	-	I
G	Cp	P	*Gymnocarpium robertianum*	-	-	-	-	+	-	I
G	Cp	P	*Coeloglossum viride*	-	-	-	-	+	-	I
H	Ec(mont)	D	*Chaerophyllum hirsutum*	-	-	-	-	-	+	I
H	Carp-Balc	P	*Soldanella** ssp. *major*	-	-	-	-	-	+	I

Ch-nPh	Cp	D	*Vaccinium vitis-idaea*	+	-	-	-	-	-	I
Ch	Ec(mont)	P	*Saxifraga cuneifolia*	-	-	-	-	-	+	I
H	Cp	D	*Solidago** ssp. *minuta*	-	-	-	+	-	-	I
H	E	D	*Mycelis muralis*	-	-	+	-	-	-	I
H	Eua(med)	D	*Campanula persicifolia*	-	-	-	+	-	-	I
nPh	Eua	D	*Daphne mezereum*	-	-	-	+	-	-	I
H	E	D	*Luzula luzuloides*	+	-	-	-	-	-	I
H	Eua(bor)	P	*Ligularia sibirica*	-	-	-	-	1	-	I
H	Eua(mont)	P	*Delphinium** ssp. *elatum*	-	+	-	-	-	-	I
H	Carp-Balc	-	*Aconitum toxicum*	-	-	-	-	-	+	I
H	Ec(mont)	D	*Veronica urticifolia*	-	-	-	-	+	-	I
H	Carp(end)	D	*Leucanthemum waldsteinii*	-	-	-	-	-	+	I
H	Ec(mont)	P	*Achillea distans*	-	-	-	-	+	-	I
H	Cp	P	*Pinguicula vulgaris*	-	-	-	-	-	+	I

Species only in a survey: Melica ciliata (2): H, Ec-Balc, D; *Asplenium trichomanes* (1): H, Cm, P; *Valeriana tripteris* (4): H, Ec(mont), D; *Silene nutans* ssp. *dubia* (6): H, Carp(end), D; *Trifolium alpestre* (4): H, E(med), D; *Laserpitium latifolium* (4): H, E(mont), D, *Campanula rapunculoides*(1): H, Eua(med), P; *Campanula sibirica* (1): H, Eua(cont), D; *Doronicum columnae* (6): G, Alp-Carp-Balc, P; *Scrophularia scopolii* (2): H, Pont-Med, D; *Erigeron acer* (3): Th, Cp, D; *Gymnocarpium robertianum* (5): G, Cp, P; *Coeloglossum viride* (5): G, Cp, P; *Chaerophyllum hirsutum* (6): H, Ec(mont), D; *Soldanella hungarica* ssp. *major* (6): H, Carp-Balc, P; *Vaccinium vitis-idaea* (1): Ch-nPh, Cp, D; *Saxifraga cuneifolia* (6): Ch, Ec(mont), P; *Solidago virgaurea* ssp. *minuta*(4): H, Cp, D; *Mycelis muralis* (3): H, E, D; *Campanula persicifolia* (4): H, Eua(med),D;*Daphne mezereum* (4): nPh, Eua, D; *Luzula luzuloides* (1): H, E, D; *Ligularia sibirica* (5): H, Eua(bor), P; *Delphinium elatum* ssp. *elatum* (2): H, Eua(mont), P; *Aconitum toxicum* (6): H, Carp-Balc; *Veronica urticifolia* (5): H, Ec(mont), D; *Leucanthemum waldsteinii* (6): H, Carp(end), D; *Achillea distans* (5): H, Ec(mont), P; *Pinguicula vulgaris* (6): H, Cp, P.

Place and date of the survey: 1,3,4 – Cheile Zănoagei (9.09.2004); 2,5,6 – Cheile Tătarului (10.09.2004).

This association groups rupicolous phytocoenosis, edified by heliophilous and endemic-conservative species, with xerophilic character (*Dianthus spiculifolius, Achillea schurii, Thymus comosus*). Coenosis with various degree of fixing populate the calcareous rocks, from the various exposures. The floriferous structure of the studied coenosis is dominated by *Sesleria rigida, Galium lucidum, Campanula carpatica*, but the principal recognition species is *Asperula capitata*. Beside the recognition species of the *Seslerion rigidae* alliance and *Seslerietalia albicantis* order appear rupicolous species of the *Asplenietea* class (*Valeriana tripteris, Silene nutans* ssp. *dubia, Doronicum carpaticum, Cystopteris fragilis, Campanula carpatica, Poa nemoralis*).

The basic fund of floriferous elements in the phytocoenosis of this association is formed by European (19.44%), Central-European (11.11%) and Eurasian (13.88) species (Fig. 1). The Carpathian-Balkan and Carpathian-Endemic species are also well represented and totalize 19.44%, such as: *Saxifraga luteo-viridis, Dianthus spiculifolius, Achillea schurii, Saxifraga demissa, Thymus comosus, Soldanella hungarica* ssp. *major, Asperula capitata, Sesleria rigida*); besides of these sporadic disseminations of *Ligularia sibirica* appear.

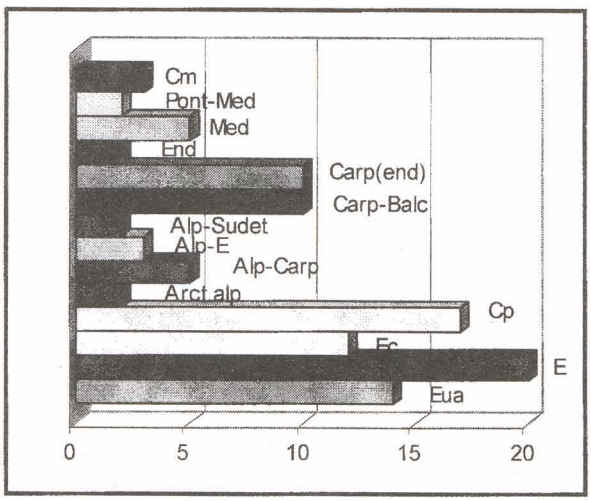

Fig. 1 – Spectrum of floriferous elements for *Asperulo capitatae-Seslerietum rigidae* (Zólyomi 1939) Coldea 1991 association.

Ligulario sibiricae-Ribetum petraei nova ass. holotypus hoc. loco Table 2, survey 2.

Table 2

Ligulario sibiricae – Ribetum petraei nova ass.

			Survey	1	2	3	4	5	
			Altitude (mx10)	140	140	130	130	130	
			Inclination (degree)	plane	plane	plane	plane	plane	
			Area(m^2)	25	25	25	25	25	
			Coverage (%)	85	90	90	70	80	
F.b.	**E. f.**	**2n**							**K**
			Char. ass.						
H	Eua(bor)	P	*Ligularia sibirica*	+	2	2	2	2	V
mPh	Ec(mont)	D	*Ribes petraeum*	3	3	2	+	+	V
			Adenostyletalia s.l.						
H	Eua	P	*Senecio hercynicus*	+	+	+	1	+	V
H	E	D	*Thalictrum aquilegiifolium*	+	-	+	+	+	IV
mPh	Alp-E	P	*Alnus viridis*	+	+	-	+	+	IV
H	Eua(mont)	P	*Delphinium elatum* ssp. *elatum*	+	-	+	+	-	III
H	Alp-Carp-B	D	*Aconitum paniculatum*	-	+	+	+	-	III
H	Eua(mont)	D	*Cortusa matthioli*	+	+	-	-	+	III
H	Alp-E	D	*Rumex alpinus*	+	-	+	-	-	II
G	Eua	D	*Polygonatum verticillatum*	-	1	+	-	-	II
H	E	P	*Valeriana sambucifolia*	-	+	-	+	-	II
H	Ec(mont)	P	*Gentiana asclepiadea*	-	-	+	-	+	II
H	Eua(alp.bor)	P	*Geranium sylvaticum*	+	-	-	-	-	I
G	E(subalp.)	P	*Thelypteris limbosperma*	-	-	-	+	-	I
H	Eua(mont)	D	*Rumex arifolius*	+	-	-	-	-	I
nPh	Ec	P	*Rosa pendulina*	-	+	-	-	-	I
H	Ec(mont)	P	*Achillea distans*	-	+	-	-	-	I
H	Ec(mont)	D	*Carduus personatus*	-	-	-	-	+	I

			Alno – Ulmion						
H	E	D	*Stellaria nemorum*	+	+	+	+	+	V
H	Cp	P	*Geum rivale*	1	+	+	+	-	IV
H	Ec(mont)	D	*Chaerophyllum hirsutum*	+	+	+	+	-	IV
G	Eua	P	*Aegopodium podagraria*	+	+	+	+	-	IV
H	Eua	P	*Filipendula ulmaria*	+	+	+	-	-	III
H	Cm	P	*Athyrium filix-femina*	-	-	-	+	+	II
H-G	Cm	P	*Urtica dioica*	1	-	-	1	-	II
H	Eua(mont)	D	*Brachypodium sylvaticum*	+	-	-	-	-	I
H	Ec	P	*Geranium phaeum*	-	+	-	-	-	I
G	Cp	P	*Equisetum sylvaticum*	-	+	-	-	-	I
H	Ec(mont)	P	*Astrantia major*	-	-	+	-	-	I
			Fagetalia (incl. Symphyto – Fagion)						
H	Ec(mont)	D	*Veronica urticifolia*	-	-	+	+	+	III
nPh	Eua	D	*Daphne mezereum*	+	+	-	+	-	III
H	Cp	P	*Poa nemoralis*	-	-	1	+	-	II
G	Carp(end)	P	*Hepatica transsilvanica*	-	-	1	+	-	II
H	E	D	*Luzula luzuloides*	-	-	-	+	+	II
MPh	Ec	P	*Acer pseudoplatanus*	+	-	-	+	-	II
H	Carp-Balc	D	*Pulmonaria rubra*	+	-	-	-	-	I
H-G	Ec	D	*Symphytum tuberosum*	-	+	-	-	-	I
G	Eua	D	*Lilium martagon*	-	-	+	-	-	I
H	E	P	*Hordelymus europaeus*	+	-	-	-	-	I
			Vaccinio – Piceion						
MPh	E	D	*Picea abies*	+	+	+	+	1	V
mPh	Ec(mont)	D	*Lonicera nigra*	-	+	1	-	1	III

nPh	Arct(alp.)	D	*Clematis alpina*	-	1	-	+	+	III
H-G	Cp	D	*Oxalis acetosella*	-	+	-	-	+	II
Ch-nPh	Cp	D	*Vaccinium vitis – idaea*	-	-	+	-	+	II
Ch	Cp	P	*Lycopodium annotinum*	-	-	-	-	+	I
Ch	Ec(mont)	P	*Saxifraga cuneifolia*	-	-	-	-	+	I
Th	Carp-Balc	P	*Campanula patula* ssp. *abietina*-	-	-	+	-		I
			Sambuco-Salicion						
MPh	Eua	D	*Sorbus aucuparia*	+	+	-	+	+	IV
mPh	Eua-Cp	D	*Salix capraea*	-	2	2	1	3	IV
mPh	Eua-Cp	P	*Sambucus racemosa*	-	-	+	+	+	III
nPh	Cp	D	*Rubus idaeus*	2	1	1	-	-	III
			Convolvulion						
G-H	Eua	P	*Petasites hybridus*	-	+	-	-	1	II
			Epilobietalia						
H-G	Eua(cont)	P	*Calamagrostis arundinacea*	-	+	1	1	1	IV
H	Eua	D	*Fragaria vesca*	-	+	-	+	+	III
H	Cp	D	*Solidago virgaurea*	-	-	+	-	+	II
H	Cp	P	*Epilobium angustifolium*	2	-	-	-	-	I
			Varia						
H	Eua	D	*Hypericum maculatum*	+	-	+	+	+	IV
H	Ec	P	*Alchemilla xanthochlora*	+	-	+	+	-	III
H	Ec(mont)	D	*Cirsium erisithales*	-	-	+	+	+	III
H	Cp	D	*Parnassia palustris*	-	-	+	+	+	III
G	Cp	P	*Gymnocarpium robertianum*	-	-	+	-	+	II
H	Cp	P	*Asplenium viride*	-	-	+	-	+	II
H	End(Carp-Rom)	D	*Scabiosa lucida*	-	-	-	+	+	II

Ch	Carp(end)	P	*Thymus comosus*	-	+	-	-	+	II
H	Pont-Med	D	*Scrophularia scopolii*	+	-	-	-	-	I
H	Eua(mont)	D	*Anthemis tinctoria*	-	-	+	-	-	I
H	Cp(arct.alp)	D	*Polystichum lonchitis*	-	-	+	-	-	I
H	E(Alp.)	D	*Campanula cochlearifolia*	-	-	+	-	-	I
H	Ec	D	*Sedum vulgare*	-	+	-	-	-	I
Ch	Carp-Balc	-	*Saxifraga luteo-viridis*	-	-	+	-	-	I
H	Carp(end)	P	*Dianthus spiculifolius*	-	-	+	-	-	I
H	Ec(mont)	D	*Valeriana tripteris*	-	-	-	-	+	I
H	Carp(end)	D	*Silene nutans* ssp. *dubia*	-	-	-	+	-	I
H	Carp(end)	D	*Campanula carpatica*	-	-	-	+	-	I
H	Eua(med)	D	*Campanula persicifolia*	-	-	-	+	-	I
Th	Med	D	*Cnidium silaifolium*	-	-	-	-	+	I
H	Cp(arct.alp)	D	*Phleum alpinum*	-	-	-	+	-	I

Species only in a survey: Geranium sylvaticum (1): H, Eua(alp.bor), P; *Thelypteris limbosperma* (4): G, E(subalp), P; *Rumex arifolius* (1): H, Eua(mont), D; *Rosa pendulina* (2): nPh, Ec, P; *Achillea distans* (2): H, Ec(mont), P; *Carduus personatus* (5): H, Ec(mont), D; *Brachypodium sylvaticum* (1): H, Eua(mont), D; *Geranium phaeum* (2): H, E, P; *Equisetum sylvaticum* (2): G, Cp, P; *Astrantia major* (3): H, Ec(mont), P; *Pulmonaria rubra* (1): H, Carp-Balc,D; *Symphytum tuberosum* (2): H-G, Ec, D; *Hordelymus europaeus* (1): H, E, P; *Lycopodium annotinum (5)*: Ch, Cp, P; *Saxifraga cuneifolia* (5): Ch, Ec(mont), P; *Campanula patula* ssp. *abietina* (4): Th, Carp-Balc, P; *Epilobium angustifolium* (1): H, Cp, P; *Scrophularia scopolii* (1): H, Pont-Med, D; *Anthemis tinctoria* (3): H, Eua(mont), D; *Polystichum lonchitis* (3): H, Cp(arct.alp), D; *Campanula cochlearifolia* (3): H, E(Alp.), D; *Sedum vulgare* (2): H, Ec, D; *Saxifraga luteo-viridis* (3): Ch, Carp-Balc; *Dianthus spiculifolius* (3): H, Carp(end), P; *Valeriana tripteris* (5): H, Ec(mont), D; *Silene nutans* ssp. *dubia* (4): H, Carp(end), D; *Campanula carpatica* (4): H, Carp(end), D; *Campanula persicifolia* (4): H, Eua(med), D; *Cnidium silaifolium* (5): Th, Med, D; *Phleum alpinum* (4): H, Cp(arct.alp), D.
Place and date of survey: 1,2,3,4,5 – Cheile Zănoagei (9.09.2004).

Zănoaga Gorges are crossed by the superior course of the Ialomița river. Because of the floriferous diversity of the abrupts of this valley, Ialomița Gorges present a remarkable floriferous interest, even if they have been investigated, in an intensive manner, until present.

The vegetal landscape of these gorges is distinguished by the abundance of ancient populations, dominated by *Ligularia sibirica* and *Ribes petraeum*.

The bushes of *Ligularia sibirica* from the course of this valley were recorded by Al. Beldie (3). The investigations emphasized that these populations of *Ligularia sibirica* are extended out of these gorges, to Ialomița Hermitage.

The phytosociological interest of disseminations of *Ligularia sibirica* from these gorges is due to unusual ecological conditions, which they endured. Although *Ligularia sibirica* is known as a component of some mesotrophic and oligotrophic peat bogs, on the intense acidophilous substratum, but in case of these gorges, it vegetates on the calcareous substratum. In Romania, *Ligularia sibirica* was recorded from the other stations with calcareous substratum, Brusturet Gorges (6, 1). Populations of *Ligularia sibirica* from Romania had a tardiglaciar or würmian pleniglaciar oldness. For all these, Prof. F. Ehrendorfer (Verb. Com.) expressed his opinion that vestiges of the populations of *Ligularia sibirica,* both in Austria and in Romania, could have a greater oldness, being preglaciar relicts.

The mobility of detritus from Zănoaga Gorges, like other places, which contain *Ligularia sibirica*, reduced the intensity of cenotic competition, in this way assuring the continuity of this coenosis, which includes numerous vegetal components, with a remarkable phytogeographical interest. Vegetal coenoses on the Zănoaga Gorges abrupts form mosaics, with various floriferous composition and present an obvious ecotonal character. Because of synusia dominated by the components of *Adenostyletalia* order, this cenosis belongs to megaphorbiets. Out of the components of coenosis of megaphorbiets in the Gorges of Zănoaga are to be found species like: *Alnus viridis, Geranium sylvaticum, Cortusa matthioli, Valeriana sambucifolia.* Beside this, in the studied coenosis are represented species belonging to *Alno-Ulmion* alliance (*Geum rivale, Geranium phaeum, Astrantia major, Filipendula ulmaria*).

In its turn, coenotic mobility, which emphasizes the maintaining of the gorges in a state of relative youth, is confirmed by the presence of some species of the *Sambuco-Salicion* alliance (*Salix capraea, Sambucus racemosa, Sorbus aucuparia*). Areal-geographical structure (Fig. 2) of *Ligulario sibiricae-Ribetum petraei* association expresses the net dominance of Eurasian (28%) and Centraleuropean (21.33%) elements. The cormoflora fund of these megaphorbiets is remarked by the participation with a significant weight of Circumpolar elements (18.66%), but especially Carpathian-Balkan (4%) and Carpathian-Endemics (6.66%). We mention out of these the next floriferous elements: *Dianthus spiculifolius, Hepatica transsilvanica, Silene nutans* ssp. *dubia, Thymus comosus, Scabiosa lucida, Saxifraga luteo-viridis, Campanula carpatica, Pulmonaria rubra.*

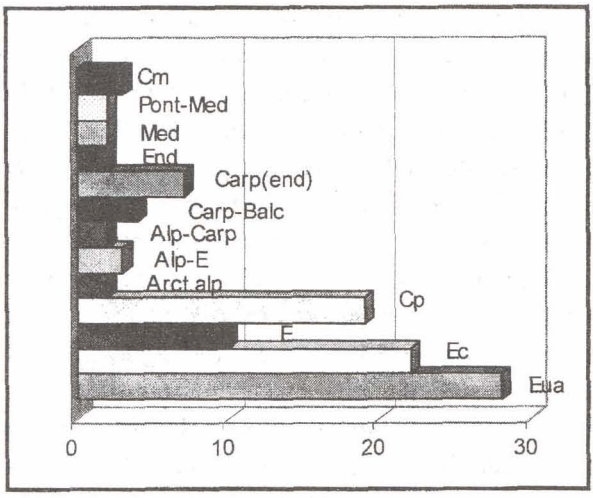

Fig. 2 – Spectrum of floriferous elements
for *Ligulario sibiricae-Ribetum petraei* nova ass. association.

CONCLUSIONS

On the basis of phytosociological studies realized during the investigation from Ialomița basin (the Bucegi Mountains) we identified two vegetal associations, with relict character, which include numerous Carpathian and Carpathian-Balkan elements, with a remarkable phytogeographical interest.

Ligulario sibiricae-Ribetum petraei nova ass. is a new association described from Zănoaga Gorges (the Bucegi Mountains); this coenosis belongs to megaphorbiets because of synusia dominated by characteristic species of *Adenostyletalia* order.

Overall the vegetation of Zănoaga and Tătaru Gorges presents an obvious scientific interest, which justified their declaration as natural reserves.

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