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Phytogeographical characteristics and endemism of the flora of Rogozna Mt. (SW Serbia)

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***Abstract*:**

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Based on presence of area types and area groups, the phytogeographical analysis show that Rogozna Mt. is area with eurasian-submediterranean-centraleuropean-pontic characteristics. Eurasian area type is dominant in the flora of Rogozna Mt. Detailed analysis of the Eurasian area type showed a numerous presence of the species with Central European-Mediterranean (73) and Central European-Mediterranean-Pontic (73) types of distribution. The influence of the Mediterranean region is especially pronounced. There are 117 species with Mediterranean-Submediterranean type of distribution, many of which are endemics or subendemics. Typical Pontic elements of flora are present in very low percent (1.27%), but taxa with Mediterranean-Pontic (14.7%) and Central-European-Mediterranean-Pontic (9.38%) are numerous. The presence of an imposing number of endemic taxa (51) has a great significance from the aspect of biodiversity and conservation of the area.

Key words: area-types and groups, endemites, flora

***Apstrakt*:**

Papović, O., Miljković, M., Ranđelović, N., Ranđelović, V.: ***Fitogeografske karakteristike i endemizam flore planine Rogozne (JZ Srbija). Biologica Nyssana, 5 (2), Decembar 2014: 103-112.***

Na osnovu zastupljenosti areal-tipova i areal-grupa, fitogeografskom analizom je utvrđeno da planina Rogozna predstavlja područje sa evroazijsko-submediteransko-srednjeevropsko-pontskim karakteristikama. Evroazijski areal-tip je dominantan u flori Rogozne. Detaljna analiza evroazijskog areal-tipa pokazuje brojno učešće taksona srednjeevropsko-mediteranskog (73) i srednjeevropsko-mediteransko-pontskog (73 taksona) tipa distribucije. Uticaj mediteranskog regiona je naročito izražen. Prisutno je 117 taksona mediteransko-submediteranskog tipa distribucije, od kojih su mnoge endemiti i subendemiti. Tipični pontski elementi flore je prisutan sa malim procentom (1.27%), ali su taksoni sa mediteransko-pontskim (14.7%) i srednjeevropsko-mediteransko-pontskim (9.38%) brojni. Prisustvo impozantnog broja endemičnih taksona (51) ima veliki značaj sa aspekta biodiverziteta i očuvanje područja.

Ključne reči: areal-tipovi i grupe, endemiti, flora

Fig 1. Position of Rogozna Mt. on phytogeographical map of the southeastern Europe based on Horvat et al. (1974)

Introduction

Rogozna is the mountain located in southwestern Serbia (Papović et al., 2014). According to phytogeographical division of the Southeastern Europe (Horvat et al., 1974) the Rogozna Mt. is situated near the border of the Illyrian, West Mesian and Scardo-Pindhian provinces of the Balkan floristic subregions (**Fig. 1**). Such position of the mountain reflects to a large extent on the genesis of its flora. In addition, geological composition of the terrain has a significant influence on the phytogeographical and ecological characteristics of the flora. It is represented by Upper Cretaceous flysch of Kosovska Mitrovica which seals the immediate contact between the ophiolite mélange of the Vardar Zone and Drina–Ivanjica metamorphic unit in the east and west, respectively (Borojević-Šoštarić et al., 2012). In the central part of mountain, serpentine rocks (ophiolite) are brought to the surface. East and west of them widespread dacite-andesite and quartz latite (Milovanović & Karamata, 1960; Urošević et al., 1966, 1970). On the surface of serpentine rocks, very fragile and fine-grained, poor soil is developed, whose water and mineral regime are unfavourable (Prodanović et al., 2010). Areas of the soil-rock systems, which may be grouped together as serpentines occur in many parts of the world and, wherever they occur, are known by their remarkable plant life (Whittaker, 1954). The plants which develop on serpentines are called serpentinophytes (Pavlović, 1962; Vasić & Diklić, 2001). According to preference for the serpentine supstrate, serpentinophyte can be obligate (plants which are mainly growing on serpentine) and facultative (plants which often grow on serpentine, but also inhabit other kinds of supstrate) (Stevanović et al., 2003).

The aims of this study are to determine phytogeographical characteristics of the flora of Rogozna Mt. based on the presence of area types and groups of plant taxa. Special attention was paid to the obligate serpentinophytes and endemics.

Material and methods

The analysis is based on the floristic list shown in the article "Analysis of the flora of Rogozna Mountain in Southwestern Serbia" (Papović et al., 2014) supplemented (see **Tab. 1.**) by data from the literature (Rexhepi, 1979; Krivošej et al., 2013; Prodanović et al., 2013) and herbarium collection (HMN).

Nomenclature was correlated with Med-Checklist (Greuter et al., 1984-1989), Flora Europaea (Tutin et al., 1964-1980), and Euro+Med PlantBase (Euro+Med, 2006).

Area types, groups and floristic elements of the plant species were defined by Meusel et al. (1965, 1978), Meusel and Jäger (1992) and Stevanović (1992).

Results

Revision of the flora of Rogozna Mt.

List of the species shown in previous article (Papović et al., 2014) is supplemented with 17 species (**Tab. 1**). After herbarium revision, it was established that misidentification occurred in the case of 6 species, where data related to other taxa (**Tab. 2)**. Some of the species do not grow on the Rogozna Mt., such as *Andromeda polyfolia* L., *Potentilla leucopolitana* P.J. Mueller, *Angelica verticilaris* L., *Hacquetia epipactis* (Scop.) DC., *Tordilium apulum* L., *Cerastium transsilvanicum* Schur., *Dianthus ciliatus* Guss., *Dianthus serotinus* Waldst. & Kit. and *Melampyrum fimbriatum* Vandas.

Phytogeographical analysis

For the phytogeographical analysis, all plant taxa were classified into 12 area types and 20 area groups (**Tab. 3**). As expected, the largest number of the species has Eurasian type of distribution (360 taxa), but also numerous taxa that have a Mediterranean (118) and Meridional-submeridional (121) type of distribution. The other area types and groups contribute with small percentages to the chorological composition of the Rogozna Mt. flora.

Table 1. The list of supplemented plant species according to the literature and herbarium data

Plant species	Data
Asparagus tenuifolius Lam., Asparagaceae	Rexhepi, 1979
Bupleurum tenuissimum L., Apiaceae	Prodanović et al., 2013
Laburnum alpinum (Mill.) Bercht. et J. Presl., Fabaceae	Prodanović et al., 2013
Ophioglossum vulgatum L., Ophioglossaceae	Krivošej et al., 2013
Hedera helix L., Araliaceae	HMN
Sedum album L., Crassulaceae	HMN
Carex caryophyllea Latour., Cyperaceae	HMN
Cheilanthes persica (Bory) Kuhn, Adiantaceae	HMN
Euphorbia amygdaloides L., Euphorbiaceae	HMN
Robinia pseudoacacia L., Fabaceae	HMN
Quercus frainetto Ten., Fagaceae	HMN
Erodium cicutarium (L.) L'Herit, Geraniaceae	HMN
Scilla bifolia L., Liliaceae	HMN
Corydalis solida (L.) Clairv., Plantaginaceae	HMN
Plantago lanceolata L., Plantaginaceae	HMN
P. major L., Plantaginaceae	HMN
Anthoxanthum odoratum L., Poaceae	HMN

Table 2. Revision of the list of flora of Rogozna Mt. from Papović et al. (2014)

Incorrectly listed taxa	Correct name
Alnus viridis (Chaix) Lam. et D.C.	*A. glutinosa* (L.) Gaertn.
Cerastium grandiflorum Waldst. & Kit.	*C. decalvans* Schlosser & Vuk.
Cerastium sylvaticum Waldst. & Kit.	*C. fontanum* Baumg.
Dianthus pinifolius Sibth. & Sm. *ssp. pinifolius*	*D. pinifolius* Sibth. & Sm. *ssp. serbicus* Wettst.
Silene bupleuroides L. ssp. *bupleuroides*	*S. bupleuroides* L. ssp. *staticifolia* (Sibth. & Sm.) Chowd.
Sempervivum heuffelii Schott	*Jovibarba heuffelii* (Schott) Á. Löve & D. Löve
Tulipa scardica Bornm.	*T. serbica* Tatić et Krivošej

Table 3. Phytogeographical spectrum of the Rogozna Mt. (N – number of taxa, % - percent of the total flora)

AREA TYPE/Area group/Area subgroup	**N**	**%**
COSMOPOLITAN (Cosm)	**23**	**2.92**
HOLARCTIC (Hol)	**38**	**4.82**
PALAEOHOLARCTIC-PALAEOTROPIC (Ph-Pt)	**6**	**0.76**
BOREAL (Bor)	**7**	**0.89**
ARCTIC-ALPINE (A-A)	**2**	**0.25**
ANTROPOHORIC (Ant)	**7**	**0.89**
EURASIAN (EA)	**358**	**45.43**
Eurasian (EA)	**213**	**27.03**
Eurasian (EA)	117	14.83
West Eurasian (EAW)	96	12.17
Central European-Mediterranean-Pontic (Ce-M-P)	**73**	**9.26**
C. European-Mediterranean-Pontic-Oriental-Turanian (Ce-Med-Pont-Or-Tur)	3	0.38
C. European-Mediterranean-Pontic-Oriental (Ce-Med-Pont-Or)	22	2.79
C. European-Mediterranean-Pontic (Ce-Med-Pont)	45	5.70
C. European-Pontic (Ce-Pont)	3	0.38
Central European-Mediterranean (Ce-Med)	**73**	**9.26**
Central European-Mediterranean (Ce-Med)	66	8.37
Central European-Submediterranean (Ce-Smed)	7	0.89
EURASIAN MOUNTAIN (EAM)	**50**	**6.34**
Eurasian Mountain (EAM)	**6**	**0.76**
Eurasian Mountain (EAM)	2	0.25
West Eurasian Mountain (EAMW)	4	0.51
South European Mountain (SEM)	**18**	**2.28**
S. European Mountain (SEM)	12	1.39
Apenninic-Balkanic-Anatolian (Ap-Balk-An)	1	0.13
Balkanic (Balk)	5	0.63
Central S. European Mountain (CSEM)	**26**	**3.30**
CSEM-Caucasian (CSEM-Cau)	1	0.13
Central S. European Mountain (CSEM)	18	2.28
(Illyrian)-Balkanic ((Illyr)-Balk)	5	0.64
Balkanic-Anatolian (Balk-an)	1	0.13
Alpine-Balkanic-Carpathian (Alp-Balk-Carp)	1	0.13
CENTRAL EUROPEAN (CE)	**51**	**6.46**
Centraleuropean (CE)	41	5.20
Alpine-Apenninic-Balkanic (Alp-Apen-Balk)	1	0.13
Alpine-Balkanic-Carpathian (Alp-Balk-Carp)	1	0.13
Balkanic-Carpathian (Balk-Carp)	3	0.38
Pannonian-Balkanic (Pan-Balk)	1	0.13
Balkanic (Balk)	4	0.51
PONTIC-SOUTH SIBERIAN (Pont-SS)	**10**	**1.27**
Balkanic-Pontic (Balk-pont)	1	0.13
Pontic (Pont)	9	1.14
MERIDIONAL-SUBMERIDIONAL (MSM)	**118**	**14.96**
Mediterranean-Pontic-Oriental (Med-Pont-Or)	**4**	**0.51**
Mediterranean-Submediterranean-Oriental-Turanian (Med-Smed-Or-Turan)	1	0.13
Mediterranean-Submediterranean-Oriental (Med-Smed-Or)	3	0.38
Medeterranean-Pontic (Med-Pont)	**114**	**14.45**
Atlantic-Medeterranean-Pontic (Atl-Med-Pont)	2	0.25
Medeterranean-Pontic (Med-Pont)	35	4.44
Submediterranean-Pontic (Smed-Pont)	77	9.76
MEDITERRANEAN-SUBMEDITERRANEAN (Med-Smed)	**118**	**14.95**
Mediterranean-Submediterranean (Med-Smed)	**51**	**6.46**

AREA TYPE/Area group/Area subgroup	**N**	**%**
Mediterranean-Submediterranean (Med-Smed)	28	3.55
Mediterranean-E. Submediterranean (Med-ESmed)	3	0.38
Submediterranean (Smed)	20	2.53
E. Mediterranean-E. Submediterranean (EMed-ESmed)	**67**	**8.19**
E. Mediterranean	12	1.52
Alpine-(Illyrian)-Balkanic (Alp-(Illyr)-Balk)	5	0.64
Alpine-Balcanic-Carpathian (Alp-Balk-Carp)	1	0.13
Apenninic-(Dacian-Illyrian)-Balkanic (Apen-(Dac-Illyr)-Balk)	4	0.51
Apenninic-Balkanic-Anatolian (Apen-Balk-Anatol)	1	0.13
(Illyrian)-Balkanic-Anatolian-(Crimean) ((Illyr)-Balk-Anat-(Crim))	5	0.64
Balkanic-Dacian-(Danubian) (Balk-Dac-(Danub)	2	0.25
Illyrian-Balkanic-Anatolian-Caucasian (Illyr-Balk-Anat-Cau)	1	0.13
Balkanic-Caucasian (Balk-Cau)	2	0.25
Illyrian-Balkanic-Crimean (Illyr-Balk-Crim)	1	0.13
(Illyrian)-Balkanic-Carpathian (Balk-Carp)	4	0.51
(Illyrian)-Balkanic ((Illyr)-Balk)	29	3.66
TOTAL	**789**	**100.00**

Table 4. List of the obligate serpentinophytes distributed on Rogozna Mt.

Plant taxa	**Area type**	**Floristic element**
Stachys recta L. subsp. *baldaccii* (K. Malý) Haye	SEM	Dinaric-Scardo-Pindhian
Bromus pannonicus Kummer & Sendtner	MSM	Balkan-Pontic-Pannonian
Asplenium cuneifolium Viv.	CE	Central European
Silene paradoxa L.	Med-smed	Mediterranean-Submediterranean
Paragymnopteris marantae (L.) K. H. Shing	Med-smed	Mediterranean-Submediterranean
Hypochaeris illyrica K. Malý	Med-smed	E Illyrian-Moesian
Halacsya sendtneri (Boiss.) Dörfler	Med-smed	Moesian-Scardo-Pindhian
Scrophularia tristis (K. Malý) Šilić	Med-smed	Illyrian-Moesian
Alyssum bertolonii Desv.	Med-smed	Moesian-Scardo-Pindhian
Alyssum markgrafii O. E. Schulz ex Markgraf	Med-smed	Moesian-Scardo-Pindhian
Fumana bonapartei Maire & Petitmengin	Med-smed	Illyrian-Scardo-Pindhian
Sedum serpentini Janchen	Med-smed	Moesian-Scardo-Pindhian
Scabiosa fumarioides Vis. & Pančić	Med-smed	Moesian-Scardo-Pindhian
Thymus lykae Degen	Med-smed	W Moesian-Scardo-Pindhian
Tulipa serbica Tatić & Krivošej	Med-smed	W Moesian
Orobanche nowackiana Markgraf	Med-smed	Dinaric-Scardo-Pindhian
Helleborus serbicus Adamović	Med-smed	Dinaric-W Moesian
Galium rubrum L.	Med-smed	C Mediterranean-Submediterranean
Haplophyllum boissieranum Vis. & Pančić	Med-smed	Moesian-Scardo-Pindhian

Obligate serpentinophytes and its phytogeographical characteristics

On the Rogozna Mt. 19 plant taxa from the group of obligate serpentinophytes based on Stevanović et al. (2003) were recorded (**Tab. 4**). One of these - *Tulipa serbica*, is the local endemic for Rogozna Mt. (Tatić & Krivošej, 1997). Most of the other obligate serpentinophytes are the Balkan endemics (12 taxa) or subendemics (2 taxa), while 4 taxa have a wider distribution – Central European or Mediterranean-Submediterranean.

Endemism of the flora

The endemic plants are very important plant group for understanding the florogenetic tendencies and phytogeographic characteristics of each region (Ranđelović et al., 2008). Based on the complete list of plant taxa inhabiting the Rogozna Mt., a list of 51 Balkan endemic taxa was prepared (**Tab. 5**). The largest number of the endemic taxa has a Mediteranean-Submediteranean type of distribution (**Fig. 2**).

Table 5. List of the Balkan endemics distributed on Rogozna Mt.

Plant taxa	Area type	Floristic element
Campanula sparsa Friv. subsp. *sphaerothrix* (Griseb.) Hayek	CE	Adriatic-Egean-Macedonic-Thracian-Moesian-Dacian
Trifolium medium L. subsp. *balcanicum* Velen.	CE	Dinaric-Moesian-Scardo-Pindhian
Acer hyrcanum Fischer & C. A. Meyer subsp. *intermedium* (Pančić) Bornm.	CE	Dinaric-Moesian-Scardo-Pindhian-Peloponnesian
Acer heldreichii Orph. ex Boiss. subsp. v*isianii* K. Malý	CE	Moesian-Scardo-Pindhian
Trifolium velenovskyi Vandas	CE	Moesian-Scardo-Pindhian
Knautia dinarica (Murb.) Borbás subsp. *dinarica*	EAM/CSEM	Dinaric-Moesian
Stachys alpina L. subsp. *dinarica* Murb.	EAM/CSEM	Dinaric-Scardo-Pindhian
Viola aetolica Boiss. & Heldr. subsp. *kopaonikensis* Pančić ex Tomović & Niketić, ined.	EAM/CSEM	Dinaric-W Moesian
Pastinaca hirsuta Pančić	EAM/CSEM	E Moesian
Tephroseris crassifolia (Schultes) Griseb. & Schenk	EAM/CSEM	Illyrian-Moesian
Silene sendtneri Boiss. subsp. *sendtneri*	EAM/CSEM	Illyrian-Moesian-Scardo-Pindhian
Campanula moesiaca Velen.	EAM/CSEM	Moesian-Scardo-Pindhian
Melampyrum scardicum Wettst.	EAM/CSEM	Moesian-Scardo-Pindhian
Trifolium trichopterum Pančić	EAM/CSEM	Scardo-Pindhian-Macedonic-Thracian
Cerastium decalvans Schlosser & Vuk. subsp. *leontopodium* (Stoj. et Stef.) Niketic	EAM/SEM	Dinaric-Moesian-Scardo-Pindhian-Hellenic-Peloponnesian
Dianthus cruentus Griseb. subsp. *cruentus*	EAM/SEM	Dinaric-Moesian-Scardo-Pindhian-Peloponnesian
Stachys scardica (Griseb.) Hayek	EAM/SEM	Dinaric-Moesian-Scardo-Pindhian-Thessaly
Acinos alpinus (L.) Moench subsp. *albanicus* (Kümmerle & Jáv.) Niketić	EAM/SEM	Dinaric-Scardo-Pindhian
Stachys recta L. subsp. *baldaccii* (K. Malý) Haye	EAM/SEM	Dinaric-Scardo-Pindhian
Pimpinella serbica (Vis.) Bentham & Hooker fil. ex Drude	EAM/SEM	Moesian-Scardo-Pindhian
Erysimum kuemmerlei Jáv.	EAM/SEM	Moesian-Scardo-Pindhian-Macedonic-Thracian
Dianthus pinifolius Sibth. & Sm. subsp. *serbicus* Wettst.	Med-smed	Dacian-Moesian-Scardo-Pindhian
Linum hologynum Reichenb.	Med-smed	Dacian-Moesian-Scardo-Pindhian
Galatella albanica Degen	Med-smed	Dinaric-Adriatic-W Moesian-Scardo-Pindhian
Eryngium palmatum Pančić & Vis.	Med-smed	Dinaric-Moesian-Scardo-Pindhian
Trifolium pignantii Fauché & Chaub.	Med-smed	Dinaric-Moesian-Scardo-Pindhian-Thessaly
Alyssum markgrafii O. E. Schulz ex Markgraf	Med-smed	Dinaric-Scardo-Pindhian
Orobanche nowackiana Markgraf	Med-smed	Dinaric-Scardo-Pindhian
Melampyrum heracleoticum Boiss. & Orph.	Med-smed	Dinaric-Scardo-Pindhian-Thessaly
Helleborus serbicus Adamović	Med-smed	Dinaric-W Moesian
Linaria rubioides Vis. & Pančić subsp. r*ubioides*	Med-smed	Dinaric-W Moesian
Melampyrum hoermannianum K. Malý	Med-smed	E Illyrian-Dinaric-Moesian
Hypochaeris illyrica K. Malý	Med-smed	Illyrian-Moesian
Scrophularia tristis (K. Malý) Šilić	Med-smed	Illyrian
Onosma echioides L. *dalmatica* (Scheele) Peruzzi & N. G. Passal.	Med-smed	Illyrian-Adratic-Dinaric
Hieracium tommasinianum K. Malý	Med-smed	Illyrian-Moesian-Scardo-Pindhian
Scabiosa fumarioides Vis. & Pančić	Med-smed	Illyrian-Moesian-Scardo-Pindhian
Acanthus hungaricus (Borbás) Baenitz	Med-smed	Illyrian-Moesian-Scardo-Pindhian-Macedonic-Thracian
Thymus praecox Opiz subsp. *jankae* (Čelak.) Jalas	Med-smed	Illyrian-Moesian-Scardo-Pindhian-Macedonic-Thracian
Fumana bonapartei Maire & Petitmengin	Med-smed	Illyrian-Scardo-Pindhian

Plant taxa	Area type	Floristic element
Halacsya sendtneri (Boiss.) Dörfler	Med-smed	Illyrian-W Moesian-Scardo-Pindhian
Sedum serpentini Janchen	Med-smed	Illyrian-W Moesian-Scardo-Pindhian
Potentilla visianii Pančić	Med-smed	Illyrian-W Moesian-Scardo-Pindhian
Haplophyllum boissieranum Vis. & Pančić	Med-smed	Illyrian-W Moesian-Scardo-Pindhian
Eryngium serbicum Pančić	Med-smed	Moesian
Tragopogon pterodes Pančić ex Petrović	Med-smed	Moesian-Macedonic-Thracian
Alyssum montanum L. subsp. *serbicum* Novák	Med-smed	Moesian-Scardo-Pindhian
Bupleurum apiculatum Friv.	Med-smed	Moesian-Thessaly-Macedonic-Thracian-Aegean
Tulipa serbica Tatić & Krivošej	Med-smed	W Moesian
Linum tauricum Willd. subsp. *serbicum* (Podp.) Petrova	Med-smed	W Moesian
Thymus lykae Degen	Med-smed	W Moesian-Scardo-Pindhian

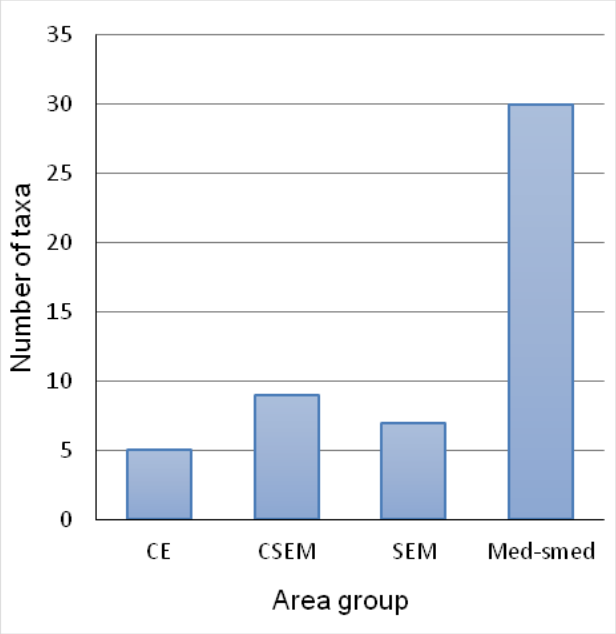

Fig 2. Representation of area types in the endemic flora of the Rogozna Mt.

Discussion

Based on presence of area types and area groups, the phytogeographical analysis show that Rogozna Mt. is area with eurasian-submediterranean- centraleuropean- pontic characteristics.

Eurasian area type is dominant in the flora of Rogozna Mt. The dominance of Eurasian floristic elements is decisive for the genesis of the flora on this mountain. However, detailed analysis of the Eurasian area type showed a numerous presence of the species with Central European-Mediterranean (73) and Central European-Mediterranean-Pontic (73) types of distribution, which indicates a significant influence of these floristic chorions on the genesis of the flora. However, in comparison to the Ibar river valley, where the Pontic flora and related area groups (Central European-Mediterranean-Pontic and Mediterranean-Pontic) are numerous (Prodanović, 2007; Prodanović et al. 2012), Pontian floristic region made less influence on the genesis of the Rogozna Mt. flora (**Fig. 3**).

The influence of the Mediterranean region is especially pronounced. There are 117 species with Mediterranean-Submediterranean type of distribution, many of which are endemics or subendemics. Out of these, 51 species (6.46%) are widespread in the Mediterranean. That is more than the percent of these floristic elements in the flora of Kosovo (5.23%) (Rexhepi, 1997). The Mediterranean exhibits influence through the valley of the river Ibar. As confirmation of this, there is more pronounced presence of Mediterranean species in this river valley (72 taxa, 8.79%) (**Fig. 3**) (based on the floristic list from Prodanović, 2007). Most of the obligate serpentinophytes has a Mediterranean type of distribution (**Tab. 4**).

Serpentine massifs are characterized by significant presence of the Pontic taxa. According to Stevanović et al. (2003) the spread of Pontic flora throughout the central and east Balkans was especially pronounced during Ice Age. Serpentine habitats were very suitable for these plants (Jakovljević et al., 2011). On the Rogozna Mt. typical Pontic elements of flora are present in very low percent (10 taxa or 1.27%), but taxa with Mediterranean-Pontic (116 or 14.7%) and Central-European-Mediterranean-Pontic (74 or 9.38%) are numerous. Small presence of the plant taxa with Pontic type of distribution is a consequence of large distance from the Pontic region. Additionally, the high massif of Kopaonik Mt. is a significant barrier which prevents the spread of Pontic elements of flora from the east.

Floristic endemism of the serpentine areas in the Balkans is very pronounced (Stevanović et al., 2003; Millaku et al. 2008; Pavlova, 2007; Tomović, 2007; Tomović et al., 2014). The presence of an imposing number of endemic taxa has

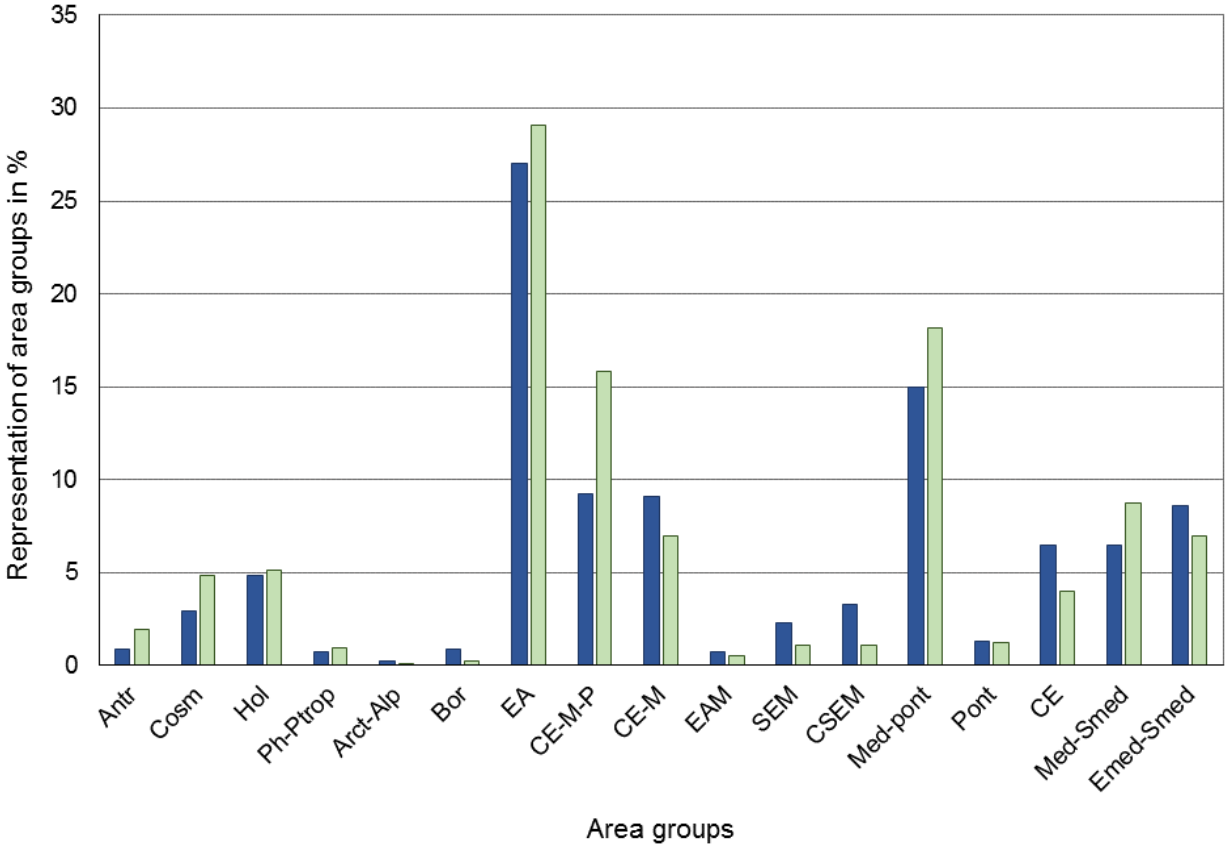

Fig 3. Comparative spectrum of the basic area groups in the flora of the Rogozna Mt. (**Tab. 3**) and the Ibar river valley (according to the data of P r o d a n o v i ć , 2007)

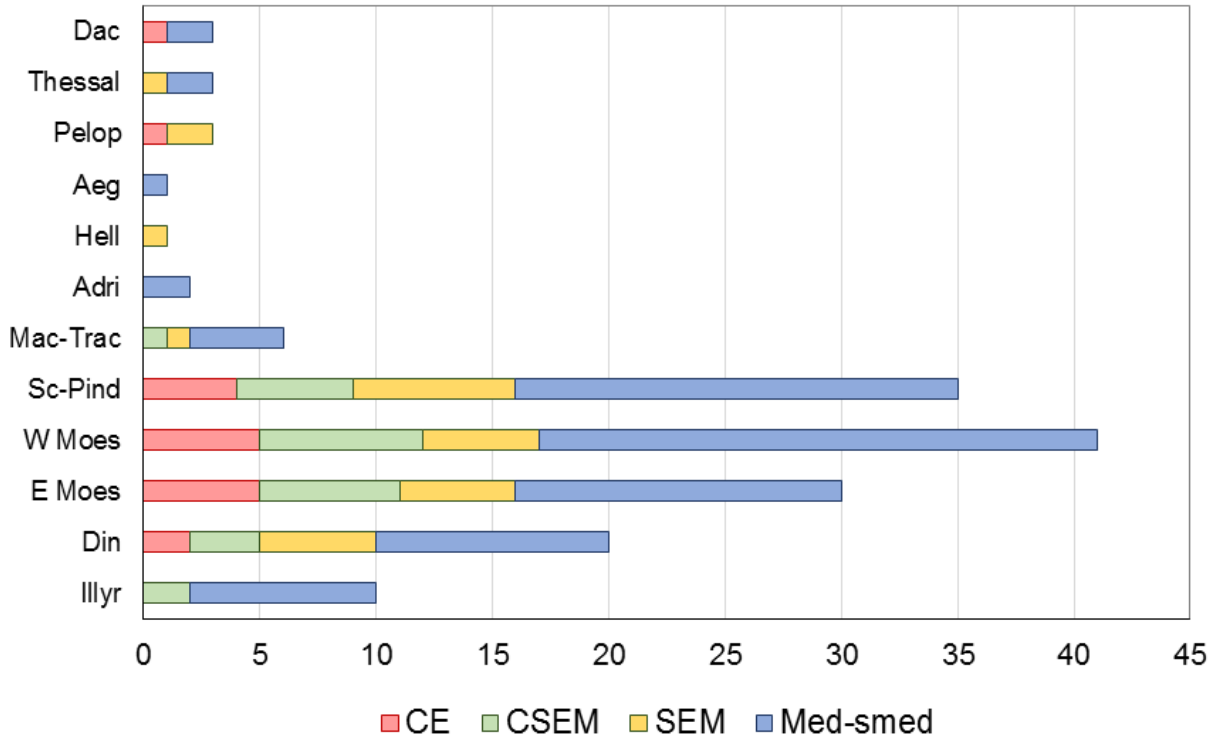

Fig 4. Spectrum of the floristic elements corresponding to the floristic provinces (total) and area type (different colour) of the endemic flora of Rogozna Mt.

a great significance from the aspect of biodiversity and conservation of the area, emphasizing the fact that the Rogozna Mt. represents an important center of the endemic Balkan flora in Serbia.

The total list of the endemic flora of the Rogozna Mt. can be divided into four area-groups (**Fig. 2**). The strong influence of the Mediterranean-Submediterranean floristic chorion, which advances through the Ibar valley, is observable in the area-spectrum of the endemic flora. The largest number of endemics (30 taxa) belongs to the Mediterranean-Submediterranean area group. Half of them belong to a group of obligate serpentinophytes (**Tab. 4**). They are distributed into 20 floristic elements (**Tab. 5**), where Illyrian-W Moesian-Scardo-Pindhian element is represented by 4 taxa, while others are represented by one or two taxa. The geomorphological characteristics of the area, primarily altitude (1479 m) (Papović et al., 2014), have enabled a strong influence of the Eurasian mountainous chorion on florogenesis. The consequence of this influence is the presence of much endemics belonging to the South European mountainous (7 taxa) and Central South European mountainous (9 taxa) area group (**Tab. 5**).

Except for the prevailing Illyrian-Moesian-Scardo-Pindhian endemic taxa (including Illyrian-W Moesian-Scardo-Pindhian, Illyrian-Moesian and Illyrian-Scardo-Pindhian) from different area groups (10 taxa), it should be noted that the Moesian-Scardo-Pindhian endemics (including W Moesian-Scardo-Pindhian) (7 taxa), regardless of the area group, represent one of the dominant group in the endemic flora of the Rogozna Mt. Additionally, all other endemics at least partially by its own areal spread into one of these floristic provinces (**Tab. 5**, **Fig 4**). This is confirmation of the fact that this region is located at the border of Illyrian, West Moesian and Scardo-Pinhian provinces of the Balkan floristic subregion.

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