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*Original scientific paper*

## DENDROFLORA OF THE GALIČICA MOUNTAIN RANGE AND ISLAND OF GOLEM GRAD IN THE REPUBLIC OF MACEDONIA

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This article presents data regarding the tree species and their forms of habitus, areal types and ecological valence on Galičica Mountain and the island of Golem Grad which are part of National Park Galičica. Our research was conducted during the period from 1995 to 2018, during which we registered much higher diversity and richness in dendroflora compared to other mountains on the Balkan Peninsula. According to this research, autochthonous dendroflora of Galičica and the island of Golem Grad consist of 180 taxa which is 56 % of the entire dendroflora of the Republic of Macedonia.

**Kew words:** dendroflora; form of habitus; areal types; ecological valency; Galičica Mountain; island of Golem Grad

### INTRODUCTION

The mountain Galičica is situated between two natural lakes, Ohrid and Prespa, in the Republic of Macedonia and covers an area of 39.250 ha. The island of Golem Grad is situated on the southwestern part of Prespa lake and it is the only natural island in the Republic of Macedonia. Both Galičica Mountain and the island Golem Grad are constituents of the National Park Galičica (NPG). It is characterized with significant floristic richness, [1–16] due to many factors: geographical position, geology, petrography, soil composition, orography, climate, hydrography, florogenesis and antropo-zoogenic influence [17–25]. This mountain range, although relatively smaller compared to others in the south of the country, is considered to be among the most diverse and rich in dendroflora in the Balkan Peninsula [1, 8, 9, 15–17].

The specificity of the dendroflora is manifested not only by the presence of a large number of plant species, but also by the fact that many of them are endemic, relict, rare plants and some species reach the borders of their natural ranges within NPG.



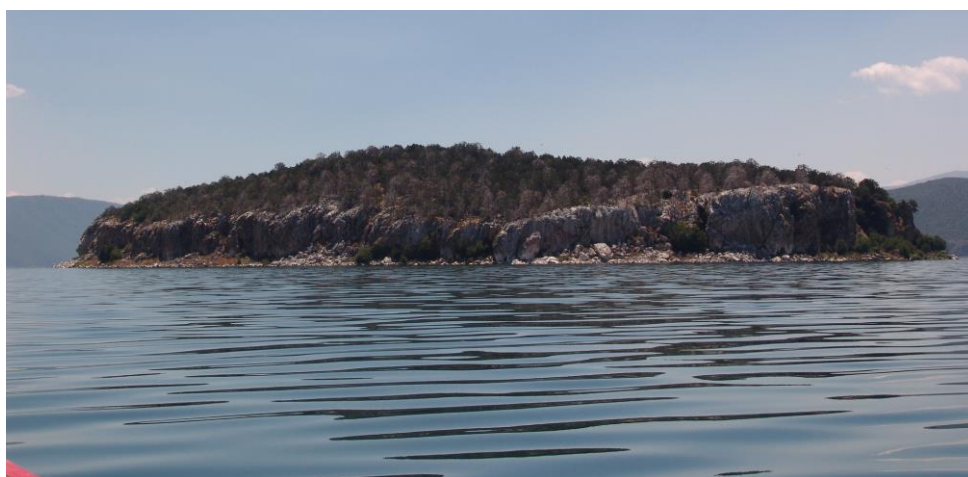
**Figure 1.** Investigated area on Galičica Mt.

Most relict species are relics from the Tertiary, which are scattered mainly in the deep valleys and the slopes of Galičica. Beside endemic and relict species, Galičica and the island of Golem Grad are characterized by rare plants which are found only on other one or two mountains within the Republic of Macedonia [1, 26–28].

The great and specific floristic richness of the mountain range Galičica and the island of Golem Grad attracted the attention of many botanists, phytogeographers and florists, from the 19th century to the present [1, 3–16].

In order to protect and preserve the extraordinary natural wealth of this mountain range, in October 1958, with the decision of the Assembly of the Republic of Macedonia, part of this massif (22.700 ha) was declared as National Park, including the island of Golem Grad in Prespa lake.

The study of dendroflora as part of the rich flora of this mountain, from a scientific point of view, is a special interest, of course, due to the large number of woody species, represented by lower taxonomic categories which were not the subject of these studies, but the position to taxa of the species.



**Figure 2.** The island of Golem Grad in Prespa lake

Besides determining of the total number of woody species, their inventory, it is also of interest were to be solved the systematic affiliation and bio-ecological characteristics of all kinds.

With the study of the dendroflora of this massif and the island, a clear presentation of the horizontal and vertical distribution of the individual woody species, and some other ecological circumstances are obtained.

The obtained results and recognition for the dendroflora of the mountain massif of Galičica, besides the fact that have special importance for the science and forestry practice, will also find wider application in the ecology, protection of biodiversity, raising the education of the civil society for the beautiful and rare natural heritage, as well as for the bigger valorization of those heritage within the National Park Galičica.

## METHODS

We used standard methodology for conducting floristical research. Collected plant material was

deposited in the herbarium of the Faculty of Forestry in Skopje -Herba SF.

The specimens were determined using reference literature: The Flora of the Republic of Macedonia (Micevski, 1995–2010), Flora Europaea (Tutin et al. eds., 1964–1980), Prodrromus florae peninsulae Balcanicae (Hayek, 1927–1933), Mountain flora of Greece (Strid & Tan, eds., 1987, 1991), Flora Helenica (Strid & Tan, eds., 1997, 2002). The nomenclature of the taxa is presented according to Euro+Med PlantBase [29] and for some taxa The Plant List [30]. Areal types of tree species were determined according to Gajić [31] and Pignatti [32].

## RESULTS AND DISCUSSION

According to our research conducted from 1995 to 2018, autochthonous dendroflora of Galičica and the island of Golem Grad consist of 180 taxa (species and subspecies), thus representing 58% of the entire dendroflora of the Republic of Macedonia [13]. These 180 taxa are within 86 genera, 44 families and 3 subfamilies, 27 orders, 4 subclasses, 2 classes and 1 division (Table 4).

By form of habitus (Table 1), of the total dendroflora of 180 taxa, 76 (42.2 %) belong to the category of trees, 62 taxa (34.5 %) are shrubs, 25 taxa

(14 %) are half shrub, 14 species (7.7 %) are lianas and 3 species (1.6 %) are semiparasites-epiphytes.

**Table 1.** Participation of tree species according to the form of habitus

Form accord. habitus	tree			shrub			halfshrub	lianas	epiphyte	Total
	high tree (HT)	medium tree (MT)	low tree (LT)	high (HSh)	medium (MSh)	low (LSh)	Halfshrub (HSh)	Lianas (l)	Epiphyte (E)	
N	13	39	24	16	21	25	25	14	3	180
%	7.2	21.7	13.3	8.9	11.7	13.9	14	7.7	1.6	100
Total		76			62		25	14	3	180
%		42.2			34.5		14	7.7	1.6	100

The autochthonous tree species of Galičica Mountain belong to 9 bigger floristic elements, and as the most numerous is Euro-Asian with 58 species (32.2 %), then the Boreal with 30 species or (16.6 %) and the Euri Mediterranean with 25 species (6.6 %). The share of the Balkan and sub-Balkan endemic floristic element with 23 species (12.8 %) gives special significance to this mountain and sets it in Eu-

rope as one of the few with such numerous endemic species in the composition of dendroflora.

Less numerous are the Steno Mediterranean floristic element with 15 species (8.3 %), the Mediterranean-mountainous with 12 species (6.6 %), The floristic element with wider distribution is represented with 11 species (6.1 %), and the Atlantic floristic element with only 1 representative i.e. 0.56 %.

**Table 2.** Percentage in participation of tree species according to the floristic elements

floristic element	Balkan and subBalk.	Steno Mediterranean	Euri Mediterranean	Mediterranean Mountain	Euro Asian	Boreal	Orophyl-South Europe	Atlantic	Floristic element with wider distribution	Total
N	23	15	25	12	58	30	5	1	11	180
%	12.78	8.33	13.89	6.67	32.22	16.67	2.78	0.56	6.11	100.00

According to the ecological valence of Galičica, the most frequent are the thermophytic taxa with 36 % or 64 species, then thermomesophytic with 18.8 % or 33 taxa, with 17 %, or 30 species are the thermoxerophytic, mesophilic with 10.8 % or 19 species and least represented are xerophyte species with 4.5 % or 8 species which is shown in

Table 3. This relationship is the result of the ecological conditions, primarily the basic substrate and the influence of the submediterranean climate, and the small percentage of the xerophyte species is due to higher relative air humidity, which is conditioned by the immediate proximity of the lakes.

**Table 3.** Participation of tree species according to the ecological valence

ecological valency	T	K	M	TK	TM	TH	Total
N	65	9	20	30	33	23	180
%	36.1	5	11.1	16.7	18.3	12.8	100



On this mountain and island of Golem Grad too, there is a large number of rare tree types i.e. they can be seen only on Galičica or maybe on other 1 to 2 mountains but except on those, they cannot be found anywhere else in Macedonia: *Prunus prostrata*, *Genista radiata*, *Pinus heldreichii*, *Euphorbia veneta*, *Euphorbia glabriflora*, *Celtis planchoniana*, *Acantholimon ulicinum*, *Cotoneaster parnasicus*, *Staphylea pinnata* and *Aesculus hippocastanum*;

The largest number of autochthonous tree species are assumed to be directly descended from the Tertiary. At present, the following species are considered as remnants of the old Tertiary dendroflora on Galalichica: *Berberis croatica*, *Pinus peuce*, *Aesculus hippocastanum* and *Staphylea pinnata*.

For a certain number of woody species, the mountain massif of Galičica represents their land range. Such woody species whose near-

southernmost boundary spreads on this mountain are: *Juniperus sabina*, *Staphylea pinnata* and *Pinus peuce*, while the species that reach their northernmost border here are: *Acantholimon ulicinum*, *Euphorbia characias subsp. characias* and *Prunus prostrata*. Woody species with easternmost boundary are: *Prunus coccomilia*, *Genista radiata* and *Laburnum alpinum*, and with the westernmost boundary: *Celtis planchoniana* (island of Golem Grad).

On Galičica Mountain, there are sites which are characterized with great diversity and large floristic wealth in relatively small areas. As such we would mention the following: "Zli Dol", with 65 and "St. Zaum" (Osoj) with 56 woody species. The majority of these woody species are Balkan endemics, Tertiary relics or belong to the group of rare woody plants.



**Figure 3.** *Juniperus foetidissima* (left –bark on a trunk; right - habitus)



**Figure 4.** *Acantholimon ulicinum* (left) *Euphorbia glabriflora* (right)





**Figure 5.** *Aesculus hippocastanum* (left ) *Cotoneaster parnassicus* (right)



**Figure 6.** *Prunus prostrata*



**Figure 7.** *Euphorbia characias* L. subsp. *characias* (left ) *Celtis planchoniana* (right)

**Table 4.** Overview of the autochthonous dendroflora of Galičica Mt and island Golem Grad

№	taxa	Synonym	Common name
			Macedonian
1	2	3	4
1	<i>Ephedra foeminea</i> Forssk.	<i>Ephedra campylopoda</i> C. A. Mey.	кревка коситерница
2	<i>Ephedra major</i> Host		коситерница
3	<i>Taxus baccata</i> L.		тиса
4	<i>Abies borisii-regis</i> Mattf.	<i>Abies alba</i> var. <i>acutifolia</i> Turrill	ела
5	<i>Pinus peuce</i> Griseb.		молика, елов бор
6	<i>Pinus nigra</i> J. F. Arnold		црн бор
7	<i>Pinus heldreichii</i> H. Christ	<i>Pinus leucodermis</i> Antoine	муника
8	<i>Juniperus communis</i> L.		модра смрека
8	<i>Juniperus communis</i> subsp. <i>nana</i> Syme		планинска смрека
9	<i>Juniperus oxycedrus</i> L.		црвена смрека
10	<i>Juniperus sabina</i> L.		смрделика
11	<i>Juniperus excelsa</i> M. Bieb.		дива фоја
12	<i>Juniperus foetidissima</i> Willd.		питома фоја
13	<i>Clematis vitalba</i> L.		повит
14	<i>Clematis flammula</i> L.		скребут
15	<i>Clematis viticella</i> L.		халожина
16	<i>Berberis croatica</i> Horvat		/
17	<i>Berberis vulgaris</i> L.		жолтика
18	<i>Iberis sempervirens</i> L.		/
19	<i>Platanus orientalis</i> L.		чинар
20	<i>Ulmus minor</i> Mill.		полски брест
21	<i>Ulmus glabra</i> Huds.	<i>Ulmus glabra</i> Huds.	планински брест
22	<i>Ulmus laevis</i> Pall.	<i>Ulmus effusa</i> Willd.	вез
23	<i>Celtis australis</i> L.		копривка
24	<i>Celtis planchoniana</i> K. I. Chr.	<i>Celtis glabrata</i> Planch.	/
25	<i>Morus alba</i> L.		бела црница
26	<i>Morus nigra</i> L.		црна црница
27	<i>Ficus carica</i> L.		смоква
28	<i>Fagus sylvatica</i> L.		бука
29	<i>Castanea sativa</i> Mill.		костен
30	<i>Quercus trojana</i> Webb	<i>Quercus macedonica</i> A. DC.	македонски даб
31	<i>Quercus cerris</i> L.		цер
32	<i>Quercus frainetto</i> Ten.	<i>Quercus farnetto</i> Ten.	плоскач
33	<i>Quercus petraea</i> (Matt.) Liebl.		горун
34	<i>Quercus pubescens</i> Willd.		благун
35	<i>Quercus pubescens</i> Willd. subsp. <i>pubescens</i>	<i>Quercus virgiliana</i> (Ten.) Ten.	/
36	<i>Quercus robur</i> subsp. <i>pedunculiflora</i> (K. Koch) Menitsky	<i>Quercus pedunculiflora</i> K. Koch	стежер
37	<i>Betula pendula</i> Roth		бреза
38	<i>Alnus glutinosa</i> (L.) Gaertn.		евла
39	<i>Corylus avellana</i> L.		леска
40	<i>Corylus colurna</i> L.		мечја леска

Table 4 (continuation)

41	<i>Carpinus betulus</i> L.		воден габер
42	<i>Carpinus orientalis</i> Mill.		бел габер
43	<i>Ostrya carpinifolia</i> Scop.		црн габер
44	<i>Juglans regia</i> L.		орев
45	<i>Acantholimon ulicinum</i> (Schult.) Boiss.	<i>Acantholimon androsaceum</i> (Jaub. & Spach) Boiss.	/
46	<i>Fumana ericoides</i> (Cav.) Gand.		сунчец
47	<i>Helianthemum canum</i> (L.) Baumg.		/
48	<i>Helianthemum nummularium</i> subsp. <i>grandiflorum</i> (Scop.) Schinz & Thell.	<i>Helianthemum grandiflorum</i> (Scop.) DC.	сунчаница
49	<i>Salix alba</i> L.		бела врба
50	<i>Salix</i> × <i>fragilis</i> L.		кршлива врба
51	<i>Salix triandra</i> L.		прашлика
52	<i>Salix pentandra</i> L.		/
53	<i>Salix eleagnos</i> Scop.		црна врба
54	<i>Salix amplexicaulis</i> Bory		ракита
55	<i>Salix caprea</i> L.		ива
56	<i>Salix cinerea</i> L.		лагушка
57	<i>Populus tremula</i> L.		Јасика
58	<i>Populus alba</i> L.		бела топола
59	<i>Populus nigra</i> L.		црна топола
60	<i>Vaccinium myrtillus</i> L.		боровинка
61	<i>Tilia cordata</i> Mill.	<i>Tilia parvifolia</i> Hoffm.	липа
62	<i>Tilia grandifolia</i> Hoffm.	<i>Tilia platyphyllos</i> Scop.	големолисна липа
63	<i>Tilia tomentosa</i> Moench	<i>Tilia argentea</i> DC.	сребренолисна липа
64	<i>Buxus sempervirens</i> L.		шимшир
65	<i>Euphorbia glabriflora</i> Vis.		млечка
66	<i>Euphorbia characias</i> L. subsp. <i>characias</i>	<i>Euphorbia veneta</i> Willd.	вулфанова млечка
67	<i>Daphne mezereum</i> L.		див јоргован
68	<i>Daphne laureola</i> L.		лисец
69	<i>Daphne oleoides</i> Schreb.		бријачица
70	<i>Rubus idaeus</i> L.		малина
71	<i>Rubus sanctus</i> Schreb.	<i>Rubus sanguineus</i> Friv.	капина
72	<i>Rubus ulmifolius</i> Schott		капина
73	<i>Rubus canescens</i> DC.	<i>Rubus tomentosus</i>	капина
74	<i>Rubus hirtus</i> aggr		капина
75	<i>Rubus wahlbergii</i> Arrh.		капина
76	<i>Rubus caesius</i> L.		капина
77	<i>Rosa canina</i> L.		шипка
78	<i>Rosa arvensis</i> Huds.		шипка
79	<i>Rosa gallica</i> L.		шипка
80	<i>Rosa tomentosa</i> Sm.		шипка
81	<i>Rosa pendulina</i> L.		шипка
82	<i>Rosa spinosissima</i> L.		шипка
83	<i>Prunus dulcis</i> (Mill.) D. A. Webb	<i>Amygdalus communis</i> L.	бадем
84	<i>Prunus webbii</i> (Spach) Vierh.	<i>Amygdalus webbii</i> Spach	див бадем
85	<i>Prunus mahaleb</i> L.	<i>Cerasus mahaleb</i> (L.) Mill.	горупла

Table 4 (continuation)

86	<i>Prunus avium</i> (L.) L.	<i>Cerasus avium</i> (L.) Moench	цреша
87	<i>Prunus spinosa</i> L.		тринка
88	<i>Prunus cerasifera</i> Ehrh.		џанка
89	<i>Prunus coccomilia</i> Ten.		дива слива
90	<i>Prunus prostrata</i> Labill.		/
91	<i>Crataegus orientalis</i> M. Bieb.		бел глог
92	<i>Crataegus heldreichii</i> Boiss.		глог
93	<i>Crataegus sericea</i> Dzekov		глог
94	<i>Crataegus monogyna</i> Jacq.		глог
95	<i>Cotoneaster integerrimus</i> Medik.		мушмулица
96	<i>Cotoneaster tomentosus</i> (Aiton) Lindl.		мушмулица
97	<i>Cotoneaster parnassicus</i> Boiss. & Heldr.	<i>Cotoneaster mariana</i> And. A and Andonovski V.	мушмулица
98	<i>Amelanchier ovalis</i> Medik.		рушвица
99	<i>Sorbus domestica</i> L.		скоруша
100	<i>Sorbus aucuparia</i> L.		јаребика
101	<i>Sorbus torminalis</i> (L.) Crantz		брекиња
102	<i>Sorbus aria</i> (L.) Crantz		мукиња
103	<i>Sorbus umbellata</i> (Desf.) R. M. Fritsch		/
104	<i>Sorbus graeca</i> (Spach) Schauer		/
105	<i>Malus pumila</i> Mill.		киселачка
106	<i>Malus florentina</i> (Zuccagni) C. K. Schneid.		дива јаболка
107	<i>Pyrus communis</i> subsp. <i>pyraster</i> (L.) Ehrh.	<i>Pyrus pyraster</i> (L.) Burgsd.	дива круша
108	<i>Pyrus spinosa</i> Forssk.	<i>Pyrus amygdaliformis</i> Vill.	горница
109	<i>Ribes multiflorum</i> Roem. & Schult.		рибизла
110	<i>Ribes alpinum</i> L.		планинска рибизла
111	<i>Ribes petraeum</i> Wulfen		рибизла
112	<i>Genista radiata</i> (L.) Scop.		омелика
113	<i>Genista sericea</i> Wulfen		/
114	<i>Genista carinalis</i> Griseb.		/
115	<i>Genista januensis</i> Viv.		/
116	<i>Genista subcapitata</i> Panc.		/
117	<i>Genista sagittalis</i> L.		/
118	<i>Lembotropis nigricans</i> (L.) Griseb.	<i>Cytisus nigricans</i> L.	/
119	<i>Cytisus hirsutus</i> L.		заечка
120	<i>Cytisus procumbens</i> (Willd.) Spreng.		/
121	<i>Chamaecytisus pseudojankae</i> Pifko et Barina		/
122	<i>Chamaecytisus absinthioides</i> (Janka) Kuzmanov.		/
123	<i>Laburnum alpinum</i> (Mill.) Bercht. & J. Presl		доброцвет
124	<i>Hippocrepis emerus</i> subsp. <i>emeroides</i> (Boiss. & Spruner) Lassen	<i>Coronilla emerus</i> L.	заечка
125	<i>Colutea arborescens</i> L.		плускавец
126	<i>Ononis spinosa</i> L.		грмотрн
127	<i>Dorycnium herbaceum</i> Villar		/
128	<i>Astragalus angustifolius</i> Lam.		/
129	<i>Pistacia terebinthus</i> L.		смрделика
130	<i>Cotinus coggygria</i> Scop.		руј



Table 4 (continuation)

131	<i>Rhus coriaria</i> L.		гроздест руј
132	<i>Staphylea pinnata</i> L.		клокоч
133	<i>Acer tataricum</i> L.		жестил
134	<i>Acer pseudoplatanus</i> L.		горски јавор
135	<i>Acer heldreichii</i> Orph.		планински јавор
136	<i>Acer obtusatum</i> Willd.		глувач
137	<i>Acer hyrcanum</i> subsp. <i>intermedium</i> (Pančić) Bornm.	<i>Acer intermedium</i> Pančić	/
138	<i>Acer platanoides</i> L.		млеч
139	<i>Acer monspessulanum</i> L.		маклен
140	<i>Acer campestre</i> L.		клен
141	<i>Aesculus hippocastanum</i> L.		див костен
142	<i>Cornus mas</i> L.		дрен
143	<i>Cornus sanguinea</i> L.	<i>Thelycrania sanguinea</i> (L.) Fourr.	песји дрен
144	<i>Hedera helix</i> L.		бршлен
145	<i>Euonymus europaeus</i> L.		курика
146	<i>Euonymus latifolius</i> (L.) Mill.		широколисна курика
147	<i>Euonymus verrucosus</i> Scop.		брадавичеста курика
148	<i>Rhamnus cathartica</i> L.		кркавина
149	<i>Rhamnus rhodopea</i> Velen.		кршика
150	<i>Rhamnus alpina</i> subsp. <i>fallax</i> (Boiss.) Maire & Petitm	<i>Rhamnus fallax</i> Boiss.	љигавина
151	<i>Rhamnus saxatilis</i> Jacq.		кркавиња, камењарка
152	<i>Frangula rupestris</i> Schur	<i>Rhamnus rupestris</i> Scop.	кршика
153	<i>Frangula alnus</i> Mill.		трушлика
154	<i>Paliurus spina-christi</i> Mill.		чалија
155	<i>Vitis vinifera</i> L.	<i>Vitis sylvestris</i> C. C. Gmel.	дива лоза
156	<i>Viscum album</i> subsp. <i>austriacum</i> (Wiesb.) Vollm.	<i>Viscum laxum</i> Boiss. & Reut.	имела
157	<i>Loranthus europaeus</i> Jacq.		имела
158	<i>Arceuthobium oxycedri</i> (DC.) M. Bieb.		имела
159	<i>Comandra umbellata</i> subsp. <i>elegans</i> (Spreng.) Piehl	<i>Comandra elegans</i> (Spreng.) Rechb.	/
160	<i>Elaeagnus angustifolia</i> L.		дафина
161	<i>Fraxinus ornus</i> L.		црн јасен
162	<i>Fraxinus excelsior</i> L.		бел јасен
163	<i>Fraxinus angustifolia</i> Vahl.		полски јасен
164	<i>Phillyrea latifolia</i> L.	<i>Phillyrea media</i> L.	грипа
165	<i>Ligustrum vulgare</i> L.		калина
166	<i>Jasminum fruticans</i> L.		сурцел
167	<i>Vinca major</i> L.		/
168	<i>Satureja montana</i> L.		чубрика
169	<i>Viburnum lantana</i> L.		црна удика
170	<i>Viburnum opulus</i> L.		црвена удика
171	<i>Lonicera formanekiana</i> Halácsy		/
172	<i>Lonicera caprifolium</i> L.		анамски раце
173	<i>Lonicera etrusca</i> Santi		заплетина
174	<i>Sambucus nigra</i> L.		бозел

Table 4 (continuation)

175	<i>Solanum dulcamara</i> L.		пасквица
176	<i>Humulus lupulus</i> L.		хмель
177	<i>Artemisia alba</i> Turra	<i>Artemisia lobelii</i> All.	пелин
178	<i>Asparagus acutifolius</i> L.		спаражина
179	<i>Ruscus aculeatus</i> L.		кострика
180	<i>Hyssopus officinalis</i> subsp. <i>aristatus</i> (Godr.) Nyman		/

## CONCLUSIONS

The occurrence of a large number of woody species on Galičica Mountain and the island of Golem Grad is due to many factors: geographical position, the north-south stretching direction, influence of the Mediterranean climate coming through the valley of the river Crn Drim, demographic, antropozoogenic, cultural, historical and other factors.

Stemming from data of numerous previous works, as well as from the results obtained in this paper, some ideas for future tasks of dendrofloristics research related to this mountain massif have come up:

– Because of the large number of woody species and in some cases their morphological variability, there are many uncertainties left regarding the taxonomy, especially of lower taxa, such as subspecies, varieties and forms; further research is needed to generate relevant data in order to resolve these issues;

– in certain taxa such as *Sorbus* sp, *Rosa* sp, *Crataegus* sp, *Rubus* sp etc. the systematics to the level of species within each genus is very complex, due to the large variability of morphology and other characteristics of the species. But with new technologies and scientific knowledge, such as DNA analysis, in the future, it should be easier and safer to determine the nature of the variability, and consequently the systematic affiliation of these taxa.

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## ДЕНДРОФЛОРАТА НА ПЛАНИНАТА ГАЛИЧИЦА И ОСТРОВОТ ГОЛЕМ ГРАД ВО РЕПУБЛИКА МАКЕДОНИЈА

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Во овој труд се презентирани податоци за застапеноста на дрвните видови по форма на хабитус, флорен елемент и еколошка валенца присутни на планината Галичица и островот Голем Град кои се составен дел од Националниот Парк Галичица. Податоците презентирани во трудот се темелат на истражувањата преземени во период од 1995 до 2018 година. Според овие истражувања автохтоната дендрофлора на планината Галичица и Островот Голем Град се состои од 180 видови, што претставува 56 % од вкупната дендрофлора на Република Македонија.

**Клучни зборови:** дендрофлора; форма на хабитус; флорен елемент; еколошка валенца; Галичица; остров Голем Град



