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Original scientific paper

MOENCHIA ERECTA (L.) G. Gaertn., B. Mey & Scherb. AND CATAPODIUM MARINUM (L.) C.E. Hubb. TWO NEW SPECIES IN THE FLORA OF THE REPUBLIC OF MACEDONIA

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The paper deals with the two new species for the flora of the Republic of Macedonia - *Moenchia erecta* (L.) G. Gaertn., B. Mey & Scherb. and *Catapodium marinum* (L.) C.E. Hubb. and their distribution on the territory of the Republic of Macedonia.

Key words: *Moenchia erecta*; *Catapodium marinum*; flora; distribution; Republic of Macedonia

INTRODUCTION

The floristic and vegetation researches performed intensively in the Republic of Macedonia in the last period have led to new knowledge about the presence of new, hitherto unknown species for the territory. During our research of early spring thermophilic vegetation of the alliance *Romulion* (*Helianthemalia*, *Helianthemetea*), which develops in the southern and southeastern parts of the discussed territory (Dojran, Strumica, Radoviš) and scrub vegetation in the zone of pseudomaquis (*Paliuretalia*, *Crataego-Prunetea*) (Gevgelija, Valandovo, Bogdanci, Dojran, Strumica, Demir Kapija) [1] we found two new species in the flora of the Republic of Macedonia - *Moenchia erecta* (*Caryophyllaceae*) and *Catapodium marinum* (*Poaceae*).

MATERIAL AND METHODS

The floristic investigation has been carried out according to the standard methods. For the pur-

poses of determining the plant species, the most important floristic works concerning the flora of Europe [2, 3], Balkan Peninsula [4–7], Republic of Macedonia [8] and other regional floras, as well as some special papers and databases [9] dealing with taxonomy, nomenclature and chorology of the taxa studied were used. The herbarium material is deposited in the Herbarium of the Institute of Biology, Faculty of Natural Sciences and Mathematics in Skopje (MKNH).

RESULTS AND DISCUSSION

Moenchia erecta (L.) G. Gaertn., B. Mey & Scherb.

Moenchia erecta is a small annual plant with ascending basal branches. Flowers are tetramerous with 4 stamens and cylindrical capsule, usually slightly exceeding the sepal. It is widespread in most of Europe (mainly in the Mediterranean region, Atlantic Europe – West, Central and South

Europe, North, North-West Africa and the Middle East [3, 9], and secondarily in North America [10] (Figure 1).

It is a rare plant species in the Balkan Peninsula, only known from few localities in the territory of Greece [7], Bulgaria [6], Croatia [11] and Slovenia [12].

In Republic of Macedonia it was first discovered in the southeastern parts (Strumica-Novo Selo), near the border with Bulgaria (Figure 2). It develops in habitats with typical early spring thermophilic vegetation that belongs to the sub-Mediterranean ass. *Lago-Poetum bulbosae*, alliance *Romulion* (*Helianthemetalia*, *Helianthemetea*). In the elaborated territory, such vegetation is dominated by: *Aira elegantissima* Schur, *Alyssum desertorum* Stapf, *Achillea coarctata* Poir., *Galium divaricatum* Pourr. ex Lam., *Hypochoeris cretensis* (L.) Bory et Chaub., *Hypochoeris glabra* L., *Linaria pelisseriana* (L.) Mill., *Lotus angustissimus* L., *Myosotis ramosissima* Rochel, *Ornithopus compressus* L., *Plantago bel-*

lardii All., *Poa bulbosa* L., *Psilurus incurvus* (Gouan) Schinz et Thell., *Romulea bulbocodium* (L.) Sebast. et Mauri, *Scleranthus verticillatus* Tausch, *Trifolium campestre* Schreb., *Trifolium scabrum* L., *Tuberaria guttata* (L.) Fourr., *Vulpia ciliata* Dumort and others.

In the northern and northeastern parts of Greece (Thassos, Kavala, Myrtofito, Askos, Nea Peramos), *M. erecta* appears in the population of the Mediterranean community - ass. *Romuleo graecae-Poetum bulbosae* [13]. It can be found on grazed places also elsewhere in the Mediterranean basin [14, 15] and it belongs to an element of Mediterranean heavily grazed dry grasslands [16].

Distribution in Republic of Macedonia:

Mk: Strumica-Novo Selo, on silicate bedrock 41.43231; 22.90296, 361 m., 16.5.2007 (leg. et det V. Matevski et A. Čarni) (MKNH)

Mk: Strumica-Novo Selo, on silicate bedrock 41.42425, 22.89463, 514 m., 16.5.2007 (leg. et det V. Matevski et A. Čarni) (MKNH)

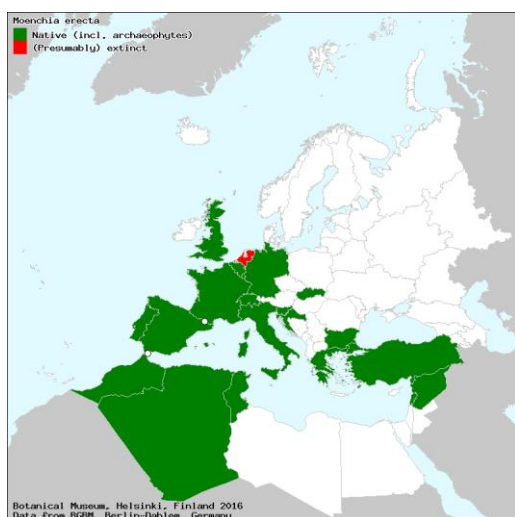


Figure 1. Map of distribution of *Moenchia erecta* (according the Euro+Med Plant Base)

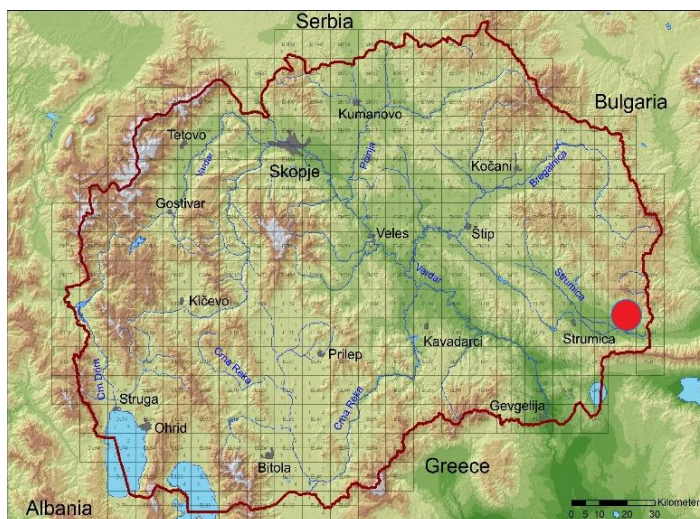


Figure 2. Distribution of *Moenchia erecta* in the Republic of Macedonia

Catapodium marinum (L.) C.E. Hubb.

Syn.: *Desmazeria marina* (L.) Druce, *Catapodium loliaceum* (Hudson) Link., *Desmazeria loliacea* (Hudson) Nyman; *Catapodium pauciflorum* (Merino) Brullo, *Sclerochloa loliacea* (Hudson) Woods.

The distribution range of *Catapodium marinum* covers dry open habitats near the sea in the South and West coasts of Europe, northwards to 59° N in Scotland (Orkney), North Africa and Middle

East [2, 9] (Figure 3). This species can be found along the Adriatic sea [17–19] and also elsewhere along the coast of Balkan Peninsula [20]. Most often this species appears on coastal habitats, close to the sea: sand dunes, and also in trampled habitats [21].

According to the available literature data this species has not been known for the Republic of Macedonia. It was discovered in surrounding of the city of Strumica (Figure 4), in the zone of shrubby vegetation (pseudomaquis) dominated by the following woody and shrubby species - *Quercus coc-*

cifera L., *Carpinus orientalis* Mill., *Crataegus monogyna* Jacq., *Ligustrum vulgare* L., *Lonicera etrusca* Santi, *Pyrus amygdaliformis* Vill., *Quercus pubescens* Willd., *Rosa sempervirens* L. and others. In the herb (ground) layer of the pseudomaquis along with *Catapodium marinum* dominate *Alyssum minutum* Schldl. ex DC, *Arabidopsis thaliana* (L.) Heynh., *Aristolochia pallida* Willd., *Asterolinon linum stellatum* (L.) Duby, *Cardamine hirsuta* L., *Carex distachya* Desf., *Cephalaria ambrosioides* (Sibth. et Sm.) Roem. et Schult., *Crepis pulchra* L., *Cystopteris fragilis* (L.) Bernh., *Dianthus pinifolius* Sm., *Draba muralis* L., *Filago gallica* L., *Lathyrus sphaericus* Retz., *Lupinus angustifolius* L., *Luzula forsteri* (Sm.) DC., *Medicago minima* (L.) L., *Scandix australis* L., *Sedum cepaea* L., *Silene italica* (L.) Pers., *Stipa bromoides* (L.) Doerfl., *Thymus sibthorpii* Benth., *Torilis arvensis* (Huds.) Link, *Trifolium angustifolium* L., *Trifolium arvense* L., *Trifolium dalmaticum* Vis., *Valerianella turgida* (Steven)

Betcke, *Veronica arvensis* L., *Vicia hirsuta* (L.) Gray, *Vicia lathyroides* L., *Vicia villosa* Roth, *Viola kitaibeliana* Schult., *Vulpia myuros* (L.) C.C.Gmel. and others.

Ecological conditions in the reported locality were somehow different from that, reported by other authors. This area has been overpopulated already from the ancient times, there have been migrations of people (e.g. recent of "Syrian refugees") and the transhumance has been practiced for a long time [22]. So the species can move easily from the neighbouring coast in the pseudomaquis in the southern part of the Republic of Macedonia. But it is a question whether its occurrence here is stable or may be ephemeral.

Distribution in the Republic of Macedonia:

Mk: Strumica-Carevi Kuli, on silicate bedrock, 41.434333, 22.622861; SW, 518 m, 15.05.2011 (leg. et det V. Matevski et A. Čarni) (MKNH)

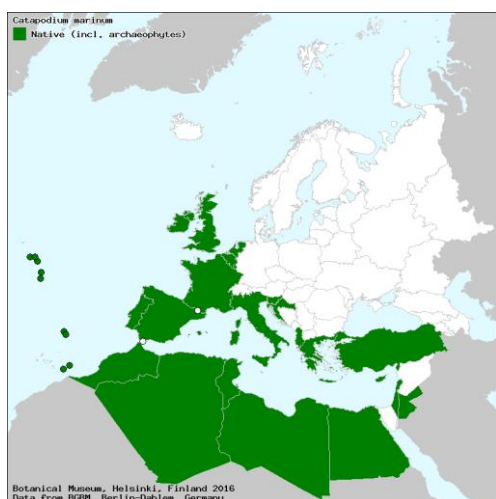


Figure 3. Map of distribution of *Catapodium marinum* (according the Euro+Med Plant Base)

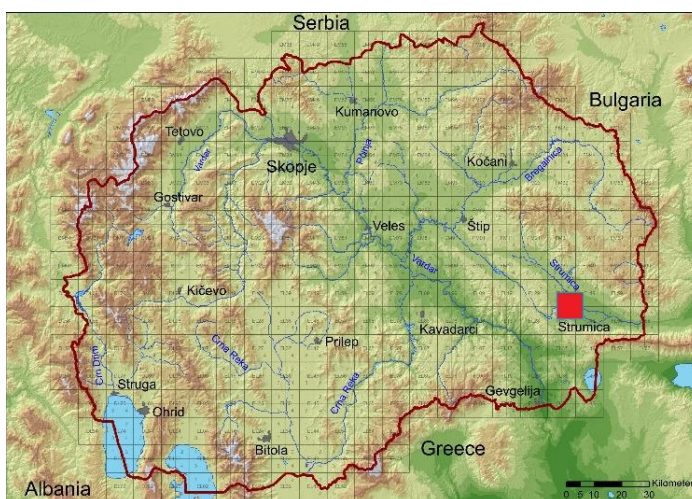


Figure 4. Distribution of *Catapodium marinum* in the Republic of Macedonia

CONCLUSION

The work deals with the newly established populations of two new species of the flora of the Republic of Macedonia and their distribution on its territory - *Moenchia erecta* (L.) P. Gaertn. (Strumica-Novo Selo) and *Catapodium marinum* (L.) C. E. Hubb. (Strumica-Carevi Kuli).

These and many other thermophilous species with Mediterranean distribution pattern (e.g. *Anthemis auriculata* Boiss., *Chaenorhinum rubrifolium* (DC.) Fourr., *Convolvulus elegantissimus* Mill., *Corynephorus divaricatus* (Pourel.) Breistr. *Dittrichia graveolens* (L.) Greuter, *Dittrichia viscosa*

(L.) Greuter, *Galium setaceum* Lam., *Helianthemum aegyptiacum* (L.) Mill., *Hymenocarpus circinatus* (L.) Savi, *Silene galica* L., *Tolpis umbellata* Bertol, *Urtica pilulifera* L. and others) [23–31] that have been found in the Republic of Macedonia in the near past show the influence of global warming [32] on flora and vegetation in the region. We can consider plant species as a good indicator of changing climate. In this way we have to monitor the appearance of those species and predict the climatic changes that are foreseen.

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MOENCHIA ERECTA (L.) G. GAERTN., V. MEY & SCHERB. И CATAPODIUM MARINUM (L.) C.E. HUBB. ДВА НОВИ ВИДА ЗА ФЛОРАТА НА РЕПУБЛИКА МАКЕДОНИЈА
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Трудот се однесува на распространувањето на два нови, досега недоволно познати видови за флората на Република Македонија - *Moenchia erecta* (L.) G. Gaertn., V. Mey & Scherb. (Струмица-Ново Село) и *Catapodium marinum* (L.) C.E. Hubb. (Струмица-Цареви Кули).

Клучни зборови: *Moenchia erecta*; *Catapodium marinum*; флора; распространување; Република Македонија

