



***RICCIOCARPOS NATANS* (L.) CORDA, A NEW LIVERWORT FOR THE FLORA OF MONTENEGRO**

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S y n o p s i s

Species *Ricciocarpos natans* (L.) Corda, the new taxon in flora of Montenegro is described in this paper. The information are given about the characteristics of the region, location and the habitat on which this species is found, all its ecological characteristics and distribution on the Balkan Peninsula.

Key words: liverwort, the Skadar Lake, flora, ecology, distribution

S i n o p s i s

***RICCIOCARPOS NATANS* (L.) CORDA, NOVA VRSTA JETRENJAČE ZA FLORU CRNE GORE**

U radu je opisana vrsta *Ricciocarpos natans* (L.) Corda, novi takson u flori Crne Gore. Dati su podaci o karakteristikama područja, lokaliteta i staništa na kome je vrsta konstatovana, kao i njene ekološke osobine i rasprostranjenje na Balkanskom poluostrvu.

Ključne riječi: jetrenjača, Skadarsko jezero, flora, ekologija, distribucija

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INTRODUCTION

The Skadar Lake is the biggest freshwater surface on the Balkan Peninsula. It is situated on the Montenegrin and Albanian border, between 19° and $19^{\circ} 30'$ of eastern geographical length and between 42° and $42^{\circ} 30'$ of northern geographical width. It spreads in the direction north-west and south-east, like the Dinara massif. The length of the lake, which has an expanded, oval shape, is 40 km, and its width is 14 km with the total surface area, when the average water level is 370 km². From the west, south-west and south the lake is surrounded by the foothills of the mountains Ručka Gora, Sutorman, Rumija, Lisinja and Taraboš, and from the north, north-east and east it is surrounded by Ceklinsko polje (field), Donja Zeta, Kastratsko polje (field) and the parts of the mountain Prokletije (Nedeljković, 1959).

The northern coast of the Skadar Lake is cut by many small and big rivers. The River Plavnica is one of the smallest, constant rivers which in its course flows through the flat region of floodable meadows, where the width of its riverbed is 8 to 12 metres. The riverbed along its entire length is muddy. Emergents macrophytes' vegetation is developed along the banks of the river. The width of the riverbed, its depth and water speed cause relatively narrow zone of this vegetation which is presented by the fragments of the two associations of the plants: *Scirpito -Phragmitetum* Koch, 1926 and *Sparganio - Glycerietum fluitantis* Br. - Bl. 1925 (Blaženčić & Blaženčić, 1984).



Karta. 1. GPS karta istraživanog područja, sa koordinatama.
Plavnica, 11-SEP-05, 16:00:03, N 42.27254, E 19.20280

MATERIAL AND METHODS

The samples of these materials were taken in June 2005. The water level was very high, and for that reason the floodable meadows in Plavnica were under the water (coordinates of this region are given on the Map 1). The collection of the samples was carried out manually, from the coast, by a rake especially made for collecting water plants. The material from the field was carried in the plastic bags filled with water, and later it was conserved in 4 % formaldehyde.

The collected and identified material was kept in the wet collection of the Natural History Museum of Montenegro. Collected plants were identified by using keys for mosses: Pavletić (1968), Petrov (1975), Landwehr (1980), Smith (1990), aquatic macrophytes: Tutin et al. (1964-1980), and Josifović, M. (ed) (1970-1977) and Charophytae: Migula (1897), Corillion (1975), Gollerbah & Krasavina (1983). The floral element and distribution was given by Rezső (1964), Duell (1983) i Duell et al. (1999).

RESULTS AND DISCUSSION

In the Plavnica region (the Skadar Lake), on one of the floodable meadows (near the newly built restaurant), the species *Ricciocarpos natans* (L.) Corda, was collected from the surface, together with liverwort *Riccia fluitans* L. emend Lorbeer f. *terrestris* C. Jens., and macrophytes *Utricularia vulgaris* L., *Nitella mucronata* (A. Br.) Miguel, *Nitella syncarpa* (Thuill.) Chev., *Ceratophyllum submersum* L., *Spirodela polyrhiza* (L.) Schleiden and *Polygonum amphybuim* L.. Taking the samples was carried out at a depth of 0,2-0,5 metres. The temperature of the water at the surface was 25°C. Bushy thalli of this species were floating among the mass of *Riccia fluitans* L. emend Lorbeer f. *terrestris* C. Jens. (picture 1), so that they cannot be noticed at the first sight. Only later, by the laboratory treatment we concluded that the presence of the taxons we mentioned before. It was collected about 20 samples of liverwort *Ricciocarpos natans* (L.) Corda.

Ricciocarpos natans (L.) Corda

Synonymy: *Ricciocarpos velutinus* (Wils.) Steph., *Riccia natans* L., *R. capillata* Schmid, *R. velutina* Wils.

Floral elements: southern temperate; cosmopolitan (subcosmopolitan)

Ecology: hidrofil; foto-skiofil; indiferentan ili blago acidofilan

Distribution in Balkan Peninsula:

Species	Al	Bu	B&H	Cr	Gr	Mk	Mn	Rm	Sb	Slo	Tu
<i>Ricciocarpos natans</i> (L.) Corda		+	+		+	+	+	+	+		

Al-Albania; Bu-Bulgaria; BiH-Bosnia and Herzegovina; Gr-Greece; Cr-Croatia; Mk-Macedonia; Mn-Montenegro; Rm-Romania; Sb-Serbia; Slo-Slovenia; Tu-Turkey.

According to Pavletić (1955), the species *Ricciocarpos natans* (L.) Corda, of the all areas in former Yugoslavia is only found on the territory of the Bosnia and Herzegovina. Petrov (1975) describes this species like widely spread on the territory of Bulgaria, especially on the south of the country. In Macedonia it only grows in the spring of the river

Rašča. In Serbia this species *Ricciocarpos natans* is noticed in association with *Riccietum flutantis*, Slavnić, 1956 at the territory of Beljanska swamp near the Obrež village in Srem, in the swamps near the Jasenići Woods near Novi Sad in Petrovaradinsko-Karlovački swampy area and in the channel Sombor-Bečej near the place Turija (Slavnić, 1956), and in the work Gajić and associates (1991). Besides other Balkan countries, this species is noticed only in Romania and Greece (Duell, 1983).

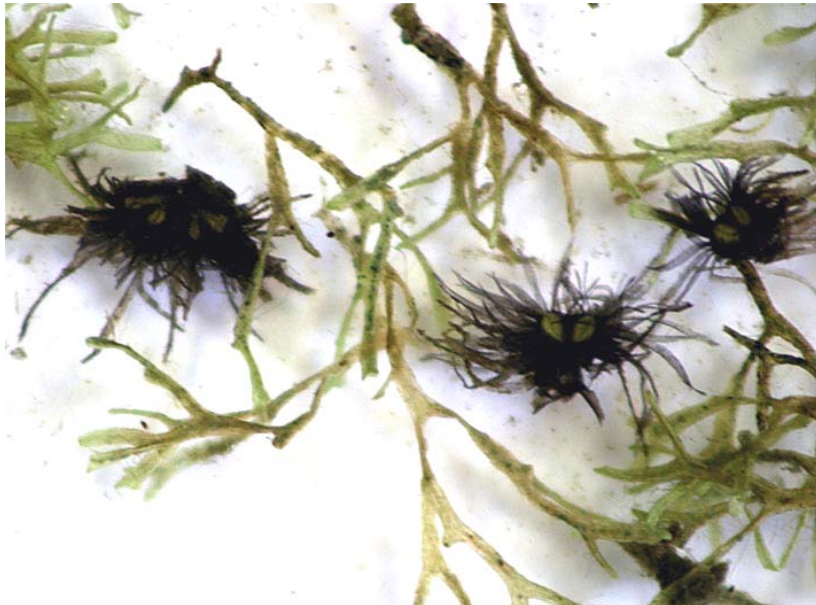


Fig. 1. *Ricciocarpos natans* (L.) Corda i *Riccia fluitans* L. emend Lorbeer f. *terrestris* C. Jens. (Photo: Photodocumentation of Natural History Museum of Montenegro)

Liverwort *Ricciocarpos natans* (L.) Corda - monoecious or dioecious. Plants floating or terrestrial. Thallus branching dichotomously, grooved. Aquatic plants, green to violet, thallus dichotomously branched, often cordate, 4-9 mm long, 4-9 mm wide; in T.S. with usually two rows of irregular chambers; ventral scales conspicuous, brownish to violet, to 5.5 mm long, serrate; rhizoids few or none. Terrestrial plants yellowish-green to reddish, dichotomously branched 2-3 times, forming partial rosettes to 2 cm diameter; in T.S. with 4-5 rows of chambers; ventral scales small and inconspicuous, linear-lanceolate, colourless to violet, to ca 0.6 mm, rhizoids abundant. Spores 45-55 µm. Capsules are very rare in Europe (Smith, 1990).

Ricciocarpos natans (L.) Corda is geographically widely spread. The customary habitats are the places with shallow, warm, still and temperate polluted water on the different types of the soil (Stojanović et al. 1987), for example: swamps, bogs, ditches, fish ponds, trenches, stagnant tributaries of rivers, coastal parts of rivers and lakes or the channels in the plain areas. Just on that kind of the habitats this species is found in Vojvodina (Serbia). In the association *Riccietum flutantis* Slavnić 1956, *Ricciocarpos natans* is located with the species: *Riccia fluitans* L, *Utricularia neglecta* Lehm. f. *platyloba* Meist., *Lemna*

trisolca L., *Ceratophyllum demersum* L., *Ceratophyllum submersum* L., *Hydrocharis morsus ranae* L., *Utricularia vulgaris* L. Slavnić, 1956 (Stojanović et al. 1987).

CONCLUSION

The species *Ricciocarpos natans* (L.) Corda is the new species in the flora of Montenegro. It is found in the Skadar Lake in the zone of floodable meadows in the locality Plavnica.

It is located on the surface of the still, shallow, temperate warm water in the dense braided of the mosses, vascular plants and algae of the sectin *Riccia fluitans* L. emend Lorbeer f. *terrestris* C. Jens (this form is also mentioned for the first time in bioflora of Montenegro), *Utricularia vulgaris* L., *Ceratophyllum submersum* L., *Spirodela polyrhiza* (L.) Schleiden, *Polygonum amphybium* L., *Nitella mucronata* (A. Br.) Mig. in H.C. Hall 1840 emend. Wallman 1853 and *Nitella syncarpa* (Thuill.) Chevall.

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R e z i m e

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Vrsta *Ricciocarpos natans* (L.) Corda je nova vrsta u flori Crne Gore.

Konstatovana je na Skadarskom jezeru u zoni plavnih livada na lokalitetu Plavnica.

Nalazi se na površini mirne, plitke, umjereno tople vode u gustom spletu mahovina, vaskularnih biljaka i algi razdjela Charophyta koji čine: *Riccia fluitans* L. emend Lorbeer f. *terrestris* C. Jens. (ova se forma, takođe, prvi put pominje za briofloru Crne Gore), *Utricularia vulgaris* L., *Ceratophyllum submersum* L., *Spirodela polyrhiza* (L.) Schleiden, *Polygonum amphibuim* L., *Nitella mucronata* (A. Br.) Mig. in H.C. Hall 1840 emend. Wallman 1853 i *Nitella syncarpa* (Thuill.) Chevall

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