

**TOTAL PHENOLICS AND PHENOLIC ACIDS CONTENT IN LEAVES,
 ROOTS AND SOIL OF *RAMONDA SERBICA* PANC. 1874
 IN THE GORGE OF SICEVO (SERBIA)**

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Serbian ramondia (*Ramonda serbica* Panc. 1874), a Tertiary relict and an endemic species of the Balkan Peninsula grows in rock fissures on steep limestone cliffs of the Sicevo gorge (Serbia). As pioneer species, it grows at first in the fissures which containing no soil and has insufficient space for the growth of its roots. In this way, ramondia contributes to the destruction and grinding of limestone rocks. In the later stages, litosol-humous rhizosphere soil in the initial phases gets formed. Soil occurs locally in rock fissures and consists of dead leaf and roots remains in different stages of decomposition. The present study was concentrated on determination of total phenolics in the leaves, roots and soil and on the analyses of phenolic acids in the Serbian ramondia rhizosphere soil. Possible role of phenolics as plant secondary metabolites in the regulation of distribution of this relict and endemic species is discussed.

Total phenolics were measured spectrophotometrically whereas phenolic acids were detected using Hewlett Packard 1100 HPLC system. Free forms of total phenolics in the leaves (5.321 mg/g) and roots (8.875 mg/g) of this plant were found to prevail bound forms of these compounds (2.404 mg/g and 1.909 mg/g in the leaves and the roots, respectively). Rhizosphere soil mainly consisting of leaf and root litter in different decomposition stages contains 120 times lower amount of free phenolics, comparing to that recorded in the leaves and the roots. The content of bound forms in the soil exceeded that of the free phenolics 49.8 times (5.887 mg/g vs. 0.118 mg/g). Five phenolic acids were identified: p-coumaric, ferulic, p-hydroxybenzoic, vanillic and syringic acid. Bound forms of phenolic acids in the soil exceeded free ones (79.12-320.20 µg/g vs. 7.01-9.11 µg/g), ferulic, p-coumaric and vanillic acid being the most abundant. It can be concluded that Serbian ramondia as pioneer species grow at first in the rock fissures either containing no soil or the soil in the stage of formation produces phenolic compounds as secondary metabolites and thus play the significant role in soil and humus formation.

Tab. 1. Total phenolics and phenolic acids content in *Ramonda serbica* leaves, roots and rhizosphere soil

	Total phenolics in plant and soil			Phenolic acids in rhizosphere soil				
	g/g	leaves	roots	soil	coumaric	ferulic	p-hy.benz.	vanillic
free	5,321	8,875	118.00	trace	trace	7.01	9.11	-
±	424.00	913.00	12.00	-	-	0.61	0.98	-
bound	2,404	1,909	5,887	261.92	320.20	79.12	204.46	116.32
±	284.00	202.00	598.00	27.70	29.01	8.92	21.67	18.78
total	7,725	10,784	6,005	261.92	320.20	86.11	213.57	116.32