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# UTICAJ BAKTERIJSKIH TRETMANA NA VREDNOSTI SPAD INDEKSA LISTOVA SADNICA HRASTA KITNjAKA (*Quercus petraea* (Matt.) Liebl)

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Bakterije koje promovišu rast biljaka (eng. *Plant Growth Gromoting Bacteria*, PGPB) predstavljaju raznovrsnu grupu mikroorganizama koje poboljšavaju performanse biljaka, pomažu rast i prevazilaženje šoka presađivanja. Efekat PGPB na fiziologiju i morfologiju drvenastih vrsta u uslovima Srbije nije istražen. Hrast kitnjak je autohtona, ekološki i ekonomski veoma cenjena vrsta u šumarstvu Srbije. Njegove šume se poslednjih decenija suočavaju sa fiziološkim problemima koji dovode do sušenja, pa je izražena potreba za veštačkom obnovom i sadnicama koje će se uspešno adaptirati i integrisati u novu sredinu. U radu je ispitivan efekat 2 bakterijska izolata iz rizosfere prirodnih kitnjakovih sastojina – *Viridibacillus arvi*R3.17 i *Pseudomonas koreensis*R4.2.1P, na količinu hlorofila u listovima jednogodišnjih sadnica kitnjaka iz 3 srpske provenijencije – Rudnik, Grabova reka i Rogozna. Merenja su vršena SPAD hlorofilmetrom na uzorku od 10 biljaka po tretmanu, tri puta u toku vegetacionog perioda – junu, avgustu i oktobru. SPAD indeksi analizirani su primenom ANOVA i Tukijevog testa. Vrednosti SPAD jedinica rastu od početka ka sredini vegetacionog perioda i smanjuju u oktobru. Najveća srednja vrednost, 39,8, izmerena je u junu kod biljaka tretiranih *P. koreensis* R4.2.1P izolovanom iz rizosfere kitnjaka, iz provenijencije Grabova reka. Najmanja srednja vrednost, 30,0, zabeležena je u oktobru, u grupi biljaka tretiranih *V. arvi*R3.17 izolovanom iz rizosfere kitnjaka, iz provenijencije Rogozna. Takođe, postoje statistički značajne razlike između tretmana izolatom *V. arvi*R3.17 u odnosu na kontrolne tretmane svih provenijencija u avgustu i oktobru. Dobijeni preliminarni rezultati ohrabruju dalje izučavanje PGPB u kontekstu drvenastih vrsta, ali je neophodno pratiti uticaj na većem broju jedinki.

**Ključne reči:** bakterije, kitnjak, hlorofil

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# INFLUENCE OF BACTERIAL TREATMENT ON LEAF SPAD VALUE OF SESSILE OAK (*Quercus petraea* (Matt.) Liebl) SEEDLINGS

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Plant Growth Promoting Bacteria (PGPB) represent a diverse group of microorganisms that improve plant performance, help growth, and overcome transplantation shock. The effect of PGPB on the physiology and morphology of woody species in Serbian conditions has not been investigated. The sessile oak is an autochthonous, ecologically and economically highly valued species in Serbian forestry. In recent decades, its forests have been facing physiological problems that lead to drying, so there is a need for artificial reforestation and seedlings that will successfully adapt and integrate into the new environment. The paper examined the effect of 2 bacterial isolates from the rhizosphere of natural sessile oak stands – *Viridibacillus arvi*R3.17 and *Pseudomonas koreensis*R4.2.1P - on the amount of chlorophyll in the leaves of one-year sessile oak seedlings from 3 Serbian provenances - Rudnik, Grabova reka and Rogozna. Measurements were made with a SPAD chlorophyll meter on a sample of 10 plants per treatment, three times during the growing season - June, August and October. The SPAD indexes were analyzed using ANOVA and Tukey's test. SPAD units increased from the beginning to the middle of the growing season and decreased in October. The highest mean value, 39.8, was in June in plants treated with *P. koreensis*R4.2.1P isolated from the rhizosphere of sessile oak, from the Grabova reka provenance. The lowest value, 30.0, was recorded in October in the group of plants treated with the *V. arvi*R3.17 isolated from the rhizosphere of sessile oak, from the Rogozna provenance. Also, there are statistically significant differences between the treatments with the *V. arvi*R3.17 isolate compared to the control treatments of all provenances in August and October. The obtained preliminary results encourage further study of PGPB in the context of woody species, but monitoring the impact on a larger number of individuals is necessary.

**Key words:** bacteria, sessile oak, chlorophyll

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