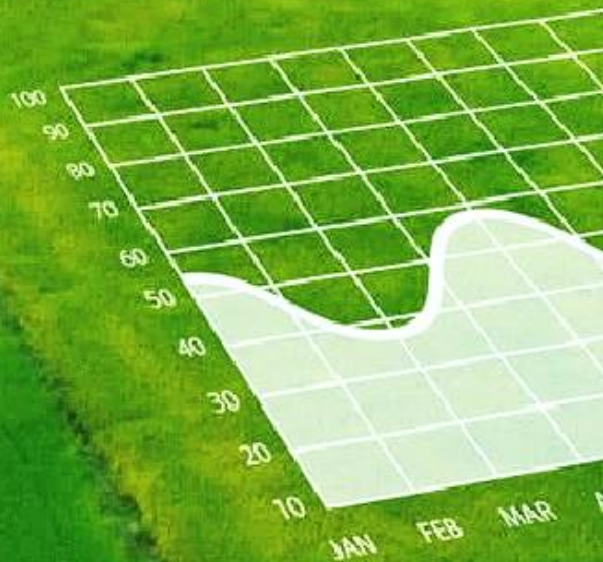


**5. KONFERENCIJA O AGROTURIZMU SA MEĐUNARODNIM
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**5th AGROTOURISM CONFERENCE WITH INTERNATIONAL
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KNJIGA SAŽETAKA **BOOK OF ABSTRACTS**



PROKUPLJE
23-24. APRIL 2025





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Procena efekta primene rizobijalnih sojeva na prinos lucerke gajene na zemljištu sa povećanom koncentracijom nikla

Snežana Anđelković¹, Mila Pešić², Sonja Tošić Jojević², Biljana Sikirić², Vesna Mrvić², Mira Milinković², Olivera Stajković-Srbinić²

¹Institut za krmno bilje Kruševac, 37251 Globoder, Kruševac

²Institut za zemljište, Teodora Dražera 7, 11000 Beograd

Email: snezana.andjelkovic@ikbks.com

Sažetak: Lucerka (*Medicago sativa* L.) je najznačajnija leguminozna vrsta za stočarstvo, a razlog za to jeste što se ova biljna vrsta odlikuje visokom hranljivom, energetskom i biološkom vrednošću. Zahvaljujući ovim osobinama lucerka se koristi i kao dodatak u ishrani humane populacije, u farmaceutskoj i kozmetičkoj industriji. Lucerka živi u simbioznoj zajednici sa rizobijalnim bakterijama pri čemu u procesu azotofiksacije može da fiksira 43-80 % potrebnog azota. Ova leguminoza može da apsorbuje veliku količinu potencijalno toksičnih elemenata, što predstavlja potencijalnu opasnost da oni uđu u lanac ishrane. U sprovedenim istraživanjima ispitivan je uticaj primene sojeva *Ensifer meliloti*: 218, 224, G-nov, 4193cs, 217k i 252 na prinos suve mase u prvom i drugom otkosu lucerke (sorta K-28) u godini zasnivanja. Eksperiment je postavljen na oglednom polju Instituta za krmno bilje Kruševac po randomiziranom blok sistemu u četiri ponavljanja u proleće 2024. godine na zemljištu sa povećanom koncentracijom nikla. U prvom otkosu masa suve materije kretala se u rasponu od 151,2 do 246,8 g/m², a u drugom otkosu od 116,6 do 286,4 g/m². U oba otkosa, na tretmanu na kome je primenjen izolat 252 zabeležena je veća vrednost suve mase u odnosu na kontrolu. Takođe, pozitivan efekat je postignut apliciranjem soja 218 u prvom i soja 4193cs u drugom otkosu. Ovo su rezultati prve faze eksperimenta, a u daljim istraživanjima analiziraće se efekat inokulacije ovim sojevima na usvajanje nikla od strane lucerke pošto pri povećanoj koncentraciji u zemljištu, raste sadržaj ovog metala u nadzemnim organima i korenu lucerke, a sa ciljem pronalaženja rešenja za proizvodnju dovoljnih količina kvalitetne i zdravstveno bezbedne stočne hrane.

Ključne reči: lucerka, nikl, zemljište, *Ensifer meliloti*

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Assessment of the effect of application of rhizobial strains on the yield of alfalfa grown in soil with increased nickel concentration

Snežana Anđelković¹, Mila Pešić², Sonja Tošić Jojević², Biljana Sikirić², Vesna Mrvić², Mira Milinković², Olivera Stajković-Srbinić²

¹Institute for Forage Crops Kruševac, 37251 Globoder, Kruševac

²Institute of Soil Science, Teodora Dražera 7, 11000 Belgrade

Email: snezana.andjelkovic@ikbks.com

Abstract: Alfalfa (*Medicago sativa* L.) is the most important leguminous species of plant in animal husbandry, because this plant is characterized by high nutritional, energetic and biological value. Thanks to these characteristics, alfalfa is also used as a supplement in human nutrition, pharmaceutical and cosmetic industry. Alfalfa lives in symbiotic community with rhizobial bacteria undergoing the process of nitrogen fixation, where it can fix 43-80 % of the necessary nitrogen. This legume can absorb a large amount of potentially toxic elements, which could possibly enter the food chain. The purpose of the research was to examine the effect of application of *Ensifer meliloti* strains: 218, 224, G-nov, 4193cs, 217k and 252 on the yield of dry mass in the first and second harvest of alfalfa (variety K-28) in the year of establishment. The experiment was set up on the experimental field belonging to the Institute for forage crops in Kruševac, according to a randomized block system, in four repetitions during the spring of 2024, in soil with an increased nickel concentration. The mass of dry matter in the first harvest ranged from 151.2 to 246.8 g/m², and from 116.6 to 286.4 g/m² in the second harvest. Both harvests noted a higher value of dry mass for the treatment where isolate 252 was applied, compared to the control. A positive effect was also noted when applying the strain 218 in the first harvest and the strain 4193cs in the second harvest. These were the results of the first phase of the experiment. Further research should analyze the effect of inoculation with these strains on the alfalfa nickel absorption, since the content of this metal in the aerial parts and the roots of alfalfa increases with the increased concentration in soil. The aim of this research is to find a solution for the production of sufficient quantities of high-quality and safe fodder.

Keywords: alfalfa, nickel, soil, *Ensifer meliloti*

Acknowledgments: This research was supported by the Science Fund of the Republic of Serbia, Grant No. 7015, Utilizing rhizobia to reduce the risk of heavy metal accumulation in alfalfa: Nickel (Ni) case study—RhizoDETOX and by the Ministry of Science, Technological Development and Innovations of the Republic of Serbia, contract No. 451-03-136/2025-03/200011.

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