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V SIMPOZIJUM BIOLOGA I EKOLOGA REPUBLIKE SRPSKE
sa međunarodnim učešćem - SBERS 2025
Prirodno-matematički fakultet, Univerzitet u Banjoj Luci,
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V SYMPOSIUM OF BIOLOGISTS AND ECOLOGISTS OF REPUBLIC OF SRPSKA
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ANTIMICROBIAL POTENTIAL OF THE METHANOL AND WATER EXTRACTS OF *Potentilla argentea* L. AERIAL PARTS AND ROOTS

Anđela Dubroja Krstić[1*], Strahinja Pešić[1], Marija Novakovic[1], Dina Stojanović[2], Nataša Joković[1], Jelena Vitorović[1], Marija Stepić[3]

[1]*Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš, Višegradska 33, 18000 Niš; Serbia*
[2]*Medical Faculty, Military Medical Academy, University of Defence, Belgrade, Crnotravska 17, 11000 Belgrade (Voždovac), Serbia*
[3]*Institute for Forage Crops Kruševac, 37251 Globoder, Kruševac, Serbia*
*Corresponding author: andjela.dubroja@pmf.edu.rs

Potentilla argentea L., is traditionally used in Kruševac, Serbia, as an herbal decoction for the treatment of gastrointestinal disorders. This study evaluated and compared the antimicrobial activity of both the plant root and aerial parts (stems, leaves and flowers). *P. argentea* samples were collected during two different periods: March and May. Samples were dried, ground, and subjected to ultrasonic extraction using methanol (ME) and water (AE). The aqueous extract of the root was prepared following the traditional method of tea preparation, with modifications involving 24-hour steeping in water prior to filtration, rather than immediate use as in typical preparation. Antimicrobial activity was assessed by determining Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) against seven American Type Culture Collection (ATCC) bacterial strains: *Staphylococcus aureus* ATCC 6538, *Bacillus cereus* ATCC 11778, *Enterococcus faecalis* ATCC 29212, *Escherichia coli* ATCC 25922, *Salmonella enteritidis* ATCC 13076, *Enterobacter aerogenes* ATCC 13048 and *Pseudomonas aeruginosa* ATCC 9027. None of the extracts inhibited *E.coli*, while the strongest antimicrobial activity was observed againts *S. enteritidis* (0,0098/0,0098 mg/ml). ME from aerial parts exhibited stronger antimicrobial activity compared to root extracts. However, root ME exhibited greater antimicrobial activity against *B. cereus* compared to aerial part ME, while it showed no antimicrobial activity against *E. aerogenes* and *P. aerogenes*. No significant difference was observed between root and aerial parts ME against *S. aureus* and *E. faecalis*, though samples harvested in May exhibited greater antimicrobial acitivity in both cases. AE from roots collected in March showed no antimicrobial activity.

KEYWORDS: silver cinquefoil, MIC, MBC, herbal decoction, ultrasonic extraction