

## ANTIMICROBIAL ACTIVITY EVALUATION OF LYOPHILIZED JUICE AND WASTE EXTRACT OF RED CURRANT VARIETY REDPOLL

Maja Cvetković<sup>1</sup>, Tatjana Mihajilov Krstev<sup>2</sup>, Katarina Šavikin<sup>3</sup>,  
Gordana Zdunić<sup>3</sup>, Dušanka Kitić<sup>1</sup>, Dušica Stojanović<sup>1</sup>, Milica  
Randelović<sup>1</sup>, Milica Milutinović<sup>1</sup>, Dušan Ilić<sup>1</sup>, Bojana Miladinović<sup>1</sup>

<sup>1</sup>Department of Pharmacy, Faculty of Medicine, University of Niš,  
81 Dr Zorana Djindjica Blvd., 18000 Niš, Serbia

<sup>2</sup>Department of Biology and Ecology, Faculty of Science and Mathematics,  
University of Niš, 33 Višegradska St., 18000 Niš, Serbia

<sup>3</sup>Dr Josif Pančić Institute of Medicinal Research, 1 Tadeuša Košćuška St.,  
11000 Belgrade, Serbia

*Contact:* Bojana Miladinović  
Department of Pharmacy, Faculty of Medicine, University of Niš  
81 Zorana Djindjica Blvd., 18000 Niš, Serbia  
bojana.miladinovic@medfak.ni.ac.rs  
Tel. number 069-1045097

Berries include a large number of species that are known for their nutritional and health benefits. Several studies have found that red currant has different biological properties, such as antiproliferative, anticancer, antimicrobial, anti-inflammatory, antidiabetic, and antioxidant. The aim of this study was to investigate the antimicrobial activity of lyophilized fruit juice (RPJL) and waste extract (RPWL) obtained from red currant (*Ribes rubrum* L.) variety Redpoll on different Gram-positive (*Bacillus cereus*, *Listeria monocytogenes*, *Staphylococcus aureus*, *Enterococcus faecalis*) and Gram-negative bacteria (*Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella enteritidis*, *Proteus mirabilis*, *Enterobacter aerogenes*) and one yeast (*Candida albicans*). The activity of dominant active compounds (ascorbic acid, quercetin and kaempferol) contained in red currants under the same conditions were also examined to determine their responsibility in the antimicrobial effect. Tested RPJL and RPWL showed moderate antimicrobial activity. The minimum inhibitory (MIC) and microbicidal concentrations (MBC/MFC) of RPJL and RPWL were 100 mg/ml and more than 100 mg/ml. RPJL and RPWL have the same effect on Gram (+) bacteria and the same MIC and MBC value. RPWL showed stronger antimicrobial effects on Gram (-) bacteria while the juice did not inhibit the growth of the Gram (-) bacteria at all. Standard solutions of ascorbic acid and quercetin showed strong inhibitory and microbicidal activity at lower concentrations than tested samples with the MIC/MBC (MFC) = 2.5–10 mg/ml. Results showed that red currants could have potential applications as natural antimicrobial agents. *Acta Medica Medianae* 2023;62(2): 38-44.

**Key words:** red currants, Redpoll, antimicrobial activity, berries, preservatives.