

ANTIMICROBIAL ACTIVITY OF FRACTIONS AND THE EXTRACT FROM *GENTIANA ASCLEPIADEA* L. UNDERGROUND PARTS WITH MOLECULAR DOCKING ANALYSIS

Miloš Jovanović¹, Jelena Matejić², Dušanka Kitić², Tatjana Mihajilov Krstev³, Nemanja Kitić⁴, Katarina Šavikin¹, Milica Milutinović²

¹Institute for Medicinal Plants Research "Dr. Josif Pančić", Belgrade, Serbia

²University of Niš, Faculty of Medicine, Department of Pharmacy, Niš, Serbia

³University of Niš, Faculty of Sciences and Mathematics, Department of Biology and Ecology, Niš, Serbia

⁴University of Niš, Faculty of Medicine, Serbia

Contact: Miloš Jovanović

1 Tadeuša Koščuška Str., 11000 Belgrade, Serbia

E-mail: mjovanovic@mocbilja.rs;

milos.jovanovic@gmail.com

The willow gentian (*Gentiana asclepiadea* L.) is a valuable source of secoiridoids, C-glycosylated flavones and xanthenes used empirically in the treatment of liver and gastrointestinal disorders. Guided by ethnopharmacological data on the use of *G. Asclepiadea* underground parts in the treatment of diarrhea, antimicrobial activity against selected pathogens of gastrointestinal significance was examined. Presented study was aimed to evaluate antimicrobial activity of the aqueous-ethanolic extract of *G. asclepiadea* underground parts and its petroleum ether, ethyl acetate, butanol and water fractions. A molecular docking analysis was performed as well. The antimicrobial activity against pathogens related to gastrointestinal disorders was tested by a microdilution method. The ethyl acetate fraction showed the greatest antimicrobial activity. The lowest MIC of 0.78 mg/ml was observed against *Bacillus cereus* and *Staphylococcus aureus*, achieved by the petroleum ether and ethyl acetate fractions, respectively. The greatest bactericidal activity (MBC of 0.78 mg/ml), achieved by the ethyl acetate fractions, was recorded against *Enterococcus faecalis*. The yeast *Candida albicans* was the most resistant against the fractions and the extract. C-glycosylated flavones isoorientin and isovitexin showed the best binding affinity on *Enterococcus faecalis* lipote-protein ligase A as determined by a molecular docking analysis. Considering the results of our study, underground parts of *G. asclepiadea* could be used as a valuable natural source of secondary metabolites with promising antimicrobial activity.

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Key words: *Gentiana asclepiadea*, antimicrobial activity, extracts, fractions, molecular docking