

# Biological activities of phenolic compounds and ethanolic extract of *Halacsya sendtneri* (Boiss) Dörfler

## Research Article

Pavle Mašković<sup>1,\*</sup>, Jelena Dragišić Maksimović<sup>2</sup>, Vuk Maksimović<sup>2</sup>, Jelena Blagojević<sup>3</sup>, Mladen Vujošević<sup>3</sup>, Nedeljko T. Manojlović<sup>4</sup>, Marija Radojković<sup>5</sup>, Milica Cvijović<sup>1</sup>, Slavica Solujić<sup>6</sup>

<sup>1</sup>Faculty of Agronomy, University of Kragujevac,  
32 000 Čačak, Serbia

<sup>2</sup>Department of Life Sciences, Institute for Multidisciplinary Research,  
University of Belgrade, 11030 Belgrade, Serbia

<sup>3</sup>Department of Genetic Research, University of Belgrade,  
Institute of Biological Research, 11060 Belgrade, Serbia

<sup>4</sup>Department of Pharmacy, Medical Faculty,  
University of Kragujevac, 34 000 Kragujevac, Serbia

<sup>5</sup>Department of Biotechnology and Pharmaceutical Engineering,  
Faculty of Technology, University of Novi Sad,  
21 000 Novi Sad, Serbia

<sup>6</sup>Faculty of Science, University of Kragujevac,  
34 000 Kragujevac, Serbia

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**Abstract:** The objective of this study was to evaluate the efficacy of the ethanolic extract of endemic plant *Halacsya sendtneri* in inhibiting the growing of the test fungi and bacteria as well as to determine its genotoxic potential and toxicity using the *Allium* anaphase-telophase assay. Minimum inhibitory concentrations (MIC) were determined for 15 indicator strains of pathogens, representing both bacteria and fungi. The highest susceptibility to the ethanolic extract of *H. sendtneri* was exhibited by *Pseudomonas glycinea* (FSB4), (MIC=0.09 mg/ml) among the bacteria, and by *Phialophora fastigiata* (FSB81), (MIC=1.95 mg/ml) among the fungi. The composition of *H. sendtneri* extracts was also determined using HPLC analysis. Rosmarinic acid was found to be the dominant phenolic compound. The *Allium* anaphase-telophase genotoxicity assay revealed that the ethanolic extract of *H. sendtneri* at concentrations of 31.5 mg/l and below does not produce toxic or genotoxic effects. This is the first report of chemical constituents, genotoxic and antimicrobial activities of the endemic species, *H. sendtneri*.

**Keywords:** Antimicrobial activity • Genotoxicity • *Halacsya sendtneri* • Phenolic compounds

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## 1. Introduction

The use of traditional medicinal plants for primary health care and other purposes has progressively increased worldwide in recent years. Much attention has been given to various plant secondary metabolites that are a common feature of specific plants and plant families. Many plant secondary metabolites and essential oils have antimicrobial properties that make plant extracts and products successful in the treatment of bacterial, fungal and viral infections [1-3]. The *Boraginaceae* family occurs worldwide, and

it consists of about 100 genera with more than 2000 species, (one of the species is *Halacsya sendtneri*) [4]. Many members of the *Boraginaceae* family produce secondary metabolites such as alkaloids, naphthoquinones, polyphenols, phytosterols and terpenoids [5,6]. Polyphenols, including flavonoids and phenolic acids, produced by the family *Boraginaceae*, have a wide range of pharmaceutical activities, including anti-inflammatory, anti-viral and anti-bacterial activities [7-9].

*Halacsya sendtneri* is a member of the monotypic genus *Halacsya* of the family *Boraginaceae*, its range

\* E-mail: pavlem@tfc.kg.ac.rs











