

Serbian Plant Physiology Society

Institute for Biological Research "Siniša Stanković", University of Belgrade

**2<sup>nd</sup> International Conference  
on Plant Biology**

**21<sup>st</sup> Symposium of the Serbian  
Plant Physiology Society**

**COST ACTION FA1106  
QUALITYFRUIT Workshop**

***Book of Abstracts***



Petnica, 17-20 June 2015



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tract. The microdilution method for evaluation of antimicrobial activity of *D. lamarckii* extract was performed on the selected strains of bacteria and fungi. The antigenotoxicity of *D. lamarckii* extract (80 mg mL<sup>-1</sup> of food) against ethyl methanesulphonate (EMS, 1 mM) induced genotoxicity was evaluated *in vivo* in the anterior midgut of *Drosophila melanogaster* using modified alkaline comet assay. The total phenolic and flavonoid contents were also determined. The total phenolic content was 36.60 mg GAEs g<sup>-1</sup> and total flavonoids content was 40.99 mg REs g<sup>-1</sup>. The MIC values indicate that *D. lamarckii* exhibited good antibacterial properties against *Pseudomonas fluorescens* (MIC 1.25 mg mL<sup>-1</sup>), *Escherichia coli* and *Azobacter chroococum* (MIC 10 mg mL<sup>-1</sup>). The extract exerted excellent antifungal activity against *Phialophora fastigiata* (MIC 2.5 mg mL<sup>-1</sup>). The most resistant fungi were *Candida albicans*, *Aspergillus niger* and *Doratomyces stemonitis*. High significances in the reduction of % DNA in tail (80.3%) were found in the group simultaneously treated with EMS and extract, with an average frequency of selected parameter of 10.17 ± 0.51 that was similar to that of the negative group (8.42 ± 0.70).

**Keywords:** *Digitalis lamarckii*, phenolic content, antimicrobial activity, antigenotoxic potential

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## HPLC analysis and *in vivo* assessment of the genotoxicity and antigenotoxicity of the *Filipendula ulmaria* methanol extract

PP4-9

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*Filipendula ulmaria* L. is commonly used in traditional folk medicine in the region of the central Balkans to treat fever, the common cold, arthritis and other inflammatory conditions. The aim of the present study was to determine possible *in vivo* genotoxicity of extracts (20, 40 and 80 mg mL<sup>-1</sup> of food) from the roots and aerial parts in the anterior midgut of *Drosophila melanogaster* using modified alkaline comet assay and protective effect of the highest dose of extract against ethyl methanesulphonate (EMS) induced genotoxicity. HPLC was employed for the identification of the phenolic compounds present in extracts. In both extracts caffeic acid glucosides and procyanidin derivatives were identified. In aerial part extract, HPLC analysis showed the presence of catechin, epicatechin, salicylic acid, rutin, hyperozide and several quercetin glucosides. There were no statistically significant differences in total scores between negative and groups treated with *F. ulmaria* root extract, while aerial part extract had weak genotoxic effects depending on the concentration. The percentage reduction in DNA damage was more evident in group treated simultaneously with EMS and root extract (87.5%) and less expressive in group treated with aerial part extract (54.7%). Results of the study provide scientific basis for the use of this plant extract in the future development as antigenotoxic agent.

**Keywords:** *Filipendula ulmaria*, DNA damage, antigenotoxicity, HPLC profiling

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