

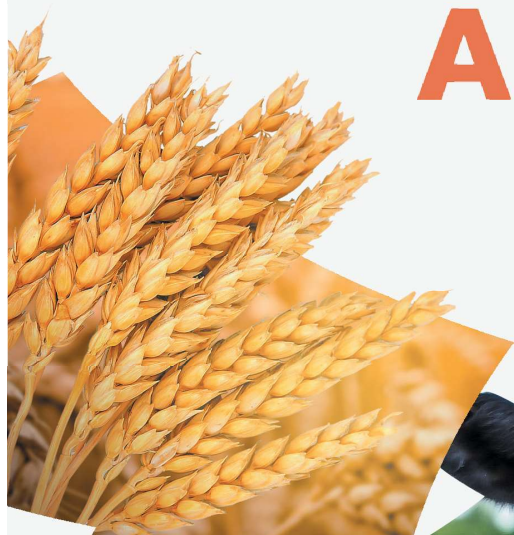
IX INTERNATIONAL SYMPOSIUM ON AGRICULTURAL SCIENCES

24th September 2020
Banja Luka
Bosnia and Herzegovina

BOOK OF ABSTRACTS



AGRORES 2020



BOOK OF ABSTRACTS

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AGRICULTURAL SCIENCES



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02_01

Fruits under the spotlight of analytical chemists

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Abstract

Many problems on which analytical chemists work originate in other fields, and agriculture is one of them. Analytical chemistry brings a unique perspective to the study of natural products and plant-based food. It is important to highlight the nutritional aspects and phytochemical compounds of fruits that confer human health benefits when they are consumed regularly, preventing development of several diseases. These diverse compounds include dietary fiber, minerals, vitamins, and primary and secondary metabolites that occur naturally in plants.

Various fruits, especially wild and indigenous, are recognized as an excellent source of phytochemicals with health-promoting properties. Our research group mainly focuses on polyphenolic compounds, and so far, we have established profiles of wild Serbian fruits, such as elderberry (*Sambucus nigra*), hawthorn (*Crataegus monogyna*), cornelian cherry (*Cornus mas*), and blackthorn (*Prunus spinosa*), and five different *Rosa* species (*R. canina*, *R. glutinosa*, *R. rubiginosa*, *R. multiflora*, and *R. spinosissima*). Results show classification of the fruit samples on the basis of variations in the content of individual flavonoids, phenolic acids and antioxidant capacity and pointed to some unfairly forgotten wild fruits as a great source of bioactive natural compounds. Similarly, we have studied chemical composition of mulberries, strawberries, raspberries, and blackberries. According to the health promoted compounds some genotypes were recommended for clonal propagation and commercialization.

Aside from quality and nutritional value, data gathered from the analysis of carbohydrates, minerals, trace elements and polyphenols could be valuable when questions regarding the differences in the type of the production regime (organic or integrated) should be answered. According to our results, some quantitative variations in individual phenolic compounds and their distribution in fruits and leaves was evident in organic and integrated farming of blueberry and strawberry cultivars.

To conclude, this work proved wild fruits to be an interesting field in the search for compounds with potential bioactivity. Due to uniqueness in terms of its phytonutrient content, some of investigated fruits were identified as "super-food", and may be considered particularly useful in food supplement production, particularly as a

source of natural antioxidants. Furthermore, some of these species could be used in blood sugar regulation and skin protection, or to extend the shelf life of food products and replace synthetic antioxidants, avoiding potential health risks and toxicity. However, additional bioactivity testing is needed, especially bearing in mind the synergistic effect among polyphenols as an important factor determining the functional properties.

Key words: Fruits, nutrition, chemical traits, phytochemicals