

**Faculty of Agriculture
Goce Delcev University - Stip**



**2nd INTERNATIONAL MEETING
AGRISCIENCE & PRACTICE
(ASP 2019)**

BOOK OF ABSTRACTS

**12th April 2019
Stip, Republic of North Macedonia**

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**2nd INTERNATIONAL MEETING AGRISCIENCE & PRACTICE
ASP 2019**

Organized by

**FACULTY OF AGRICULTURE
GOCE DELCEV UNIVERSITY - STIP, REPUBLIC OF NORTH MACEDONIA
12 April 2019, Stip, Republic of North Macedonia**

In the past twelve years the educational, research and applicative activities of the Faculty of Agriculture – Stip, Goce Delcev University – Stip, contributed to the development of agricultural sector in the country and abroad.

The Faculty of Agriculture organizes the 2nd International Meeting Agriscience & Practice (ASP 2019), giving an opportunity to the participants for presentation and discussion of original scientific and practical results in different fields of agriculture.

The 2nd International Meeting Agriscience & Practice (ASP 2019) is organized with intention to bring together all agricultural stakeholders for sharing their knowledge, experience and obstacles. One of the main aims is to link research and field work in agricultural sector in the country and abroad, giving it an international dimension.

The main goal of the Meeting is to connect and promote scientific achievements and practical knowledge presented in different thematic areas.

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ANALYTICAL CHALLENGES IN CHEMICAL CHARACTERIZATION OF MEDICINAL AND AROMATIC PLANTS Biljana Balabanova^{1*}

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Abstract

Metallic ions play an important role in the metabolism of the living organisms and are the integral components of plants. The safe use of medical and aromatic plants requires the absence of toxic heavy metals in the products. However, the toxic and heavy metals may be present in the plant products due to environmental contamination during production, harvesting and processing of the plant for manufacturing of the plant product. The World Health Organization (WHO) has thus established maximum concentration limits for these elements in order to ensure the safe use of herbs. Therefore, it is important to determine the current metal levels in herbs and their parts used for medical and nutritional applications in order to determine any potential contamination. These concentrations are in the trace and ultra-trace range; thus analytical experience is needed for appropriate sample preparation, subsequent measurement by a suitable method and finally the evaluation and interpretation of the data obtained. In this investigation, possible sample preparation methods as well as analytical methods suitable for the given analytical task were summarized. Based on the sample matrix, the metals to be determined and their expected concentration range, and the sample preparation method as well as the subsequent analytical instrument have to be carefully chosen, optimized and validated.

Key words: herbs, aromatic plants, ICP-MS, microwave digestion method, toxic metals, essential elements

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