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BOOK OF ABSTRACTS



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PREFACE

A Word from the Editor

Agriculture has played a key role in the development of human civilization. Agriculture is also central in the current debate on sustainable development. In fact, agriculture development is essential for the achievement of many Sustainable Development Goals (SDGs) in the context of the 2030 Agenda for Sustainable Development.

Development and diffusion of agricultural techniques in the last century (cf. Green revolution) has steadily increased agricultural productivity with positive impacts in terms of food security and rural development. A remarkable shift in agricultural practices – and consequently agricultural/farming systems as well as food systems – has occurred in response to introduction of new technologies. The last century has seen the intensification, concentration and specialization of agriculture; agriculture increasingly depends on new technologies and inputs such as chemicals (e.g. fertilizers, pesticides), mechanization, irrigation and plant breeding (hybrids and GMOs).

The agricultural sector is called nowadays to adapt to climate change while increasing efficiency and reducing negative externalities (e.g. water pollution). Therefore, there is a transition towards sustainability in agriculture to address concerns related to socio-economic justice, resources conservation, environment protection, etc. Science and innovation are crucial to address these new sustainability challenges. Recent trends would indicate that the incorporation of scientific knowledge (e.g. principles of ecosystem management and agro-ecology) into farming practices can enhance productivity and allow achieving ‘sustainable intensification’ in all agriculture subsectors (crop production, animal production, forestry, fisheries).

In your hands is the Book of Abstracts of the 9th International Scientific Agricultural Symposium "AGROSYM 2018", which I hope you will find useful in your research, education and professional activities. Symposium themes cover all branches of agriculture and are divided into seven sections: 1) Plant production, 2) Plant protection and food safety, 3) Organic agriculture, 4) Environmental protection and natural resources management, 5) Animal Husbandry, 6) Rural Development and Agro-economy, and 7) Forestry and agroforestry.

The aim of AGROSYM 2018 is to make an important contribution to agriculture science and practice in the Balkan region and beyond. This Book of Abstracts encompasses 1206 contributions from about 1200 participants representing 85 countries. Full texts of the submitted communications will be available in electronic form (CD and web: <http://agrosym.ues.rs.ba>).

AGROSYM 2018 was made possible through the commitment and contributions of a wide range of partners and sponsors. Many thanks to all the authors, reviewers and colleagues for their help in editing this Book of Abstracts. Special thanks go to all co-organizers for their unselfish collaboration and comprehensive support.

East Sarajevo, 1st October 2018

Prof. Dušan Kovačević, PhD

Editor in Chief



CONTENT

1. PLANT PRODUCTION	120
STUDY ABOUT SOME ECOLOGICAL ASPECTS OF GRAIN OAT CULTIVARS (<i>Avena sativa</i> L.) IN ALBANIAN CONDITIONS	
Adrian DOKO, Simir KRASNIQI, Albert KOPALI, Asllan CELAMI, Isuf KAZIU ...	121
QUALITY OF NECTARINE FRUIT IN HERZEGOVINA REGION	
Aida ŠUKALIĆ, Vedrana KOMLEN, Alma MIČIJEVIĆ	122
INFLUENCE OF PRODUCTION SYSTEM ON THE CONTENT OF LYCOPENE IN TOMATO FRUIT AT VARIOUS AGRO-ECOLOGICAL CONDITION	
Aleksandra GOVEDARICA-LUČIĆ, Omer KURTOVIĆ, Jelena PLAKALOVIĆ, Ivana BOŠKOVIĆ, Alma RAHIMIĆ	123
GROWTH PARAMETERS OF TOMATO TRANSPLANTS CULTIVATED BY THE FLOATING CONTAINERS TECHNOLOGY	
Elma SEFO, Nikolina TADIĆ, Zdravko MATOTAN, Ivan SPUŽEVIĆ, Lutvija KARIĆ, Zrinka KNEZOVIĆ.....	124
INFLUENCE OF THE SELECTED VARIETIES OF LETTUCE (<i>Lactuca sativa</i> L.) ON YIELD AND NITRATE CONCENTRATIONS	
Lutvija KARIĆ, Ćerima ZAHIROVIĆ, Dragan ŽNIDARČIĆ, Josip JURKOVIĆ, Almina HADŽIASIMBEG, Elma SEFO	125
COMPARATIVE VALUE OF GRASS AND LEGUMES PROTEIN YIELD AT DIFFERENT CUTTING REGIMES IN TEMPORARY GRASSLANDS	
Muamer BEZDROB, Aleksandar SIMIĆ, Teofil GAVRIĆ, Saud HAMIDOVIĆ, Nermin RAKITA.....	126
DIVERSITY OF <i>IN SITU</i> WILD PEAR (<i>Pyrus communis</i> L.) POPULATION IN THE LOCALITY OF KOZARA (Bosnia and Herzegovina)	
Nada ZAVIŠIĆ, Gordana ĐURIĆ	127
POMOMETRIC PROPERTIES OF POMEGRANATE (<i>PUNICA GRANATUM</i> L.) IN HERZEGOVINA REGION (BOSNIA AND HERZEGOVINA)	
Paulina ŠARAVANJA, Zlatko ČMELIK, Zrinka KNEZOVIĆ, Radica ĆORIĆ	128
VEGETATION OF THE CLASS <i>STELLARIETEA MEDIAE</i> IN THE “LIJEVČE POLJE” AREA IN NORTHERN BOSNIA AND HERZEGOVINA	
Sanja ČEKIĆ, Zlatan KOVAČEVIĆ, Danijela PETROVIĆ	129
ALTERNATIVE SUBSTRATE USE IN SAGE TRANSPLANTS PRODUCTION (<i>SALVIA OFFICINALIS</i> L.)	

Baba-Aissa KARIMA, Moussaoui KAMEL, Verdeguer SANCHO MERCEDES, Djazouli ZAHREDDINE.....	219
ANTIBACTERIAL ACTIVITY OF <i>ARTEMISIA JUDAICA</i> ESSENTIAL OIL AGAINST SOME MULTI-RESISTANT BACTERIAL STRAINS	
Kadda HACHEM ¹ , Bankaddour ZERAGUI, Aicha BOUHAFSOUN, Nouredine HALLA, Amine Habib BORSALI, Khaled KAHLOULA.....	220
EVALUATION OF ANTIMICROBIAL ACTIVITY OF HYDROALCOHOLIC EXTRACTS FROM <i>SALVIA ARGENTEA</i> LEAVES	
Yasmina BENABDESSEM, Kadda HACHEM, Amine Habib BORSALI, Khaled KAHLOULA, Miloud SLIMANI	221
STUDY OF ALLELOPATHIC EFFECTS OF <i>CUPRESSUS ARIZONICA</i> ESSENTIAL OIL AGAINST GERMINATION AND SEEDLING GROWTH OF WEEDS AND WHEAT	
Kamel MOUSSAOUI, Khouloud AIT IALEFF, Hasna Nesrine ZIANE, Karima BABA- AISSA, Zahreddine DJAZOULI.....	222
DIRECT IDENTIFICATION OF ESSENTIAL OIL ADULTERATION BY USING VIBRATIONAL SPECTROSCOPY	
Karima BOUNAAS, Naima BOUZIDI, Yasmina DAGHBOUCHE, Salvador GARRIGUES, Miguel DE LA GUARDIA, Mohamed EL HATTAB	223
BIOACTIVE PROPERTIES OF THE ENDEMIC ALGERIAN <i>MYRTUS NIVELII</i> BATT & TRAB.: SCIENTIFIC APPROACHES TO THE TRADITIONAL USES	
Wahiba RACHED ¹ , Malika BENNACEUR ² , Lillian BARROS, Ricardo C. CALHELHA, Sandrina HELENO ³ , Maria José ALVES, Ana Maria CARVALHOD, Abderrazak MAROUF, Isabel C.F.R. FERREIRA	224
BIOLOGICAL ACTIVITY OF <i>LAURUS NOBILIS</i> L. IN VITRO	
Mehani MOUNA ¹ , Goumni ZAHIRA, Salhi ASMA, Salhi NASRINE , Segni LADJEL, Terzi VALERIA, Morcia CATARINA.....	225
AGRONOMICAL AND PHYSIOLOGICAL BEHAVIOR OF DURUM WHEAT (<i>TRITICUM DURUM</i> DESF.) UNDER SEMI-ARID CONDITIONS	
Nadjim SEMCHEDDINE, Miloud HAFSI.....	226
INVENTORY OF WEED SPECIES OF CITRUS GROVES IN THE REGION OF TLEMCCEN (NORTHWESTERN ALGERIA)	
Soumia CHEMOURI, Mohamed LARID, Mustapha AINED TABET, Choukry TEFIANI	227
GRAIN YIELD PERFORMANCE OF SELECTED BLAST RESISTANT RICE (<i>ORYZA SPP.</i>) UNDER LOWLAND AND UPLAND GROWING CONDITIONS IN BENIN	

BIOACTIVE PROPERTIES OF THE ENDEMIC ALGERIAN *MYRTUS NIVELII* BATT & TRAB.: SCIENTIFIC APPROACHES TO THE TRADITIONAL USES

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Abstract

Myrtus nivelli leaves are widely used in the Algerian folk medicine, due to its health-promoting properties attributed to the phenolic composition. In this context, bioactivities of the aqueous extract and its organic sub-fractions (ethyl acetate and butanol) were evaluated with focus on antioxidant properties (free radicals' scavenging activity, reducing power, inhibition of β -carotene bleaching and lipid peroxidation), anti-inflammatory potential (inhibition of NO production in lipopolysaccharide-stimulated RAW 264.7 macrophages), cytotoxicity for human tumor cells and normal porcine liver primary cells, and antibacterial activity against ten clinical isolates. The obtained results indicated high activities for all the tested samples. The antioxidant activity was higher than that obtained for Trolox (positive control), showing the ethylacetate fraction the highest activity as also the highest inhibition of NO production ($EC_{50} = 104 \pm 6 \mu\text{g/mL}$) and cytotoxicity for all the tested tumor cell lines (HeLa- $15.39 \pm 1 \mu\text{g/mL}$, MCF-7- $16.12 \pm 1 \mu\text{g/mL}$, NCI-H460-, HepG2- $17.67 \pm 1 \mu\text{g/mL}$ and $49.01 \pm 3 \mu\text{g/mL}$). The butanol fraction and the crude aqueous extract presented the highest antibacterial activity. Overall, this study highlights the potential of *M. nivelli* leaves in the preparation of bioactive ingredients.

Keywords: *Myrtus nivellii*, extract/fractions, antioxidant, anti-inflammatory, cytotoxicity, antibacterial.