

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



**1st INTERNATIONAL MEETING
AGRISCIENCE & PRACTICE (ASP 2018)**

BOOK OF ABSTRACTS

**10th - 11th May 2018
Stip, Republic of Macedonia**

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**1st INTERNATIONAL MEETING AGRISCIENCE & PRACTICE
ASP 2018**

Organized by

**FACULTY OF AGRICULTURE
GOCE DELCEV UNIVERSITY - STIP, REPUBLIC OF MACEDONIA
10-11 May 2018, Stip, Republic of Macedonia**

In the past ten years the educational, research and applicative activities of the Faculty of Agriculture – Stip, Goce Delcev University – Stip, contributed to the development of agriculture sector in the country and broader region.

The Faculty of Agriculture organizes the 1st International Meeting Agriscience & Practice (ASP 2018), giving an opportunity to the participants for presentation and discussion of original scientific and practical results in different fields of agriculture.

The 1st International Meeting Agriscience & Practice (ASP 2018) 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 broader, 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.

We are pleased to welcome you at the Faculty of Agriculture and we wish you active participation in the Meeting.

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TABLE OF CONTENTS

AGRICULTURAL ECONOMICS	9
UNIVERSITY-ENTERPRISE KNOWLEDGE TRANSFER: CAN AGRICULTURE BE PRECISE? Kiril Bahcevandziev	10
DEVELOPMENT OF FAMILY BUSINESS IN TOBACCO PRODUCTION ACTIVITIES Silvana Pasovska, Trajko Miceski.....	11
TRANSITION PROCESSES IN AGRICULTURE IN THE REPUBLIC OF MACEDONIA WITH ACCENT ON THE VEGETABLE PRODUCTION Despina Popovska, Biljana Drvoshanova, Afrodita Ibushoska, Lazo Dimitrov, Jovan Azderski	12
ECONOMICAL PROFITABILITY OF TOMATO (<i>Solanum lycopersicum</i> L.) OPEN - FIELD PRODUCTION Elenica Sofijanova, Ljupco Mihajlov	13
PLANT BIOTECHNOLOGY	15
APPLICATION OF PHYTOHORMONES IN IMPROVEMENT OF AGRICULTURAL AND HORTICULTURAL SPECIES IN <i>IN VITRO</i> AND <i>IN VIVO</i> CONDITIONS Liljana Koleva Gudeva, Fidanka Trajkova	16
<i>IN VITRO</i> MULTIPLICATION OF THE BALCAN ENDEMIC SPECIES <i>Stachys leucoglossa</i> Griseb. AND <i>Stachys balcanica</i> P.W.Ball. Desislava I. Mantovska, Ivalena I. Ilieva, Veneta M. Kapchina-Toteva, Zhenya P. Yordanova	17
EFFICIENT PROTOCOL FOR MICROPROPAGATION OF <i>Artemisia annua</i> L. Ely Zayova, Trendafil Nedev, Ludmila Dimitrova, Alexander Tomov, Detelina Petrova, Aneliya Raycheva, Ganka Chaneva.....	18
MICROPROPAGATION OF ORNAMENTAL PLANTS: PRACTICAL APPLICATION AND OPPORTUNITIES IN REPUBLIC OF MACEDONIA Ivana Velesanova, Fidanka Trajkova, Liljana Koleva Gudeva	19
CURRENT APPLICATION OF ANTHOR CULTURE AS A TOOL FOR IMPROVEMENT OF HORTICULTURAL CROPS Marija Pockovska, Fidanka Trajkova, Liljana Koleva Gudeva.....	20
MODULATION OF THE PRIMARY METABOLISM OF <i>Pisum sativum</i> L. BY GIBBERELLIC ACID Momchil Paunov, Hristijan Ivanov, Vasil Chavgov, Alexander Tomov, Victor Rashev, Anelia Raycheva, Ganka Chaneva, Miroslava Zhiponova.....	21
EVALUATION OF TOTAL PHENOLS IN ALFALFA (<i>Medicago sativa</i> L.), COLLECTED FROM DIFFERENT LOCALITIES IN THE REPUBLIC OF	

MACEDONIA Valentina Butleska Gjoroska, Marija Krstikj, Ivana Jovanovska-Klincharska, Ana Cvetanovska, Lenka Cvetanovska, Liljana Koleva Gudeva..22

PLANT PRODUCTION25

EFFECT OF ABIOTIC AND BIOTIC STRESS AND CROP MANAGEMENT ON HEALTH CONDITION AND YIELD OF CEREALS Radivoje Jevtić, Vesna Župunski, Mirjana Lalošević, Novica Mladenov, Bojan Jocković26

DRONES AND THEIR APPLICATION IN PRECISION FARMING Marina Stoyanova, Vesselin Koutev27

EXAMINATION OF SOME QUALITY FEATURES OF OATS GROWN IN CONDITIONS OF ORGANIC PRODUCTION Adrijana Burovska, Dragica Spasova, Biljana Atanasova, Dusan Spasov, Mite Ilievski.....28

ORGANIC GRAIN CROPS IN INSTITUTE OF AGRICULTURE – KARNOBAT, BULGARIA Dina Atanasova, Vasilina Maneva29

ADVANCEMENT OF PRODUCTIVITY BREEDING OF WINTER OATS (*Avena sativa* L.) AT THE INSTITUTE OF AGRICULTURE IN KARNOBAT, BULGARIA Todorka Savova30

CHARACTERIZATION OF SOME DOMESTIC AND INTRODUCED COTTON VARIETIES IN THE AGRO ECOLOGICAL CONDITIONS OF STRUMICA REGION Lence Buseva, Dragica Spasova, Biljana Atanasova.....31

PREPARING MAIZE DESCRIPTIONS FOR DUS Stamen Dimitrov, Ivan Zhalnov, Chavdar Dochev.....32

TESTING OF GERMAN MAIZE HYBRIDS FOR ECONOMICAL QUALITIES Ivan Zhalnov, Stamen Dimitrov, Nikolay Georgiev33

VARIATION OF MORPHOLOGICAL PROPERTIES IN SOME VIRGINIA TOBACCO VARIETIES Milan Mitreski, Jane Aleksoski, Ana Korubin – Aleksoska, Marjan Trajkoski, Jordan Trajkoski34

AGROECOLOGICAL CONDITIONS FOR GROWING SOME HYBRIDS OF SUNFLOWER IN OVCHE POLE REGION Ivan Donev, Ljupco Mihajlov, Emilija Arsov, Sasa Mitrev35

EXAMINATION ON YIELD AND YIELD ASSOCIATED PARAMETERS IN DIFFERENT RICE GENOTYPES Kata Angelova, Verica Ilieva, Natalija Markova Ruzdik, Ilija Karov, Ljupco Mihajlov, Mite Ilievski.....36

PROTEIN PROFILE OF SOME GENOTYPES OF FLAX (*Linum usitatissimum* L.) IN THE STRUMICA REGION, REPUBLIC OF MACEDONIA Mite Ilievski, Biljana Atanasova, Dusan Spasov, Dragica Spasova, Verica Ilieva, Natalija Markova Ruzdik, Pavle Vuckov37

OPPORTUNITIES AND RECOMMENDATIONS FOR CULTIVATION OF CHICKPEAS (<i>Cicer arietinum</i> L.) Monika Gligorova, Ljupco Mihajlov	38
GENETIC AND ENVIRONMENTAL EFFECT ON THE GRAIN YIELD OF SPRING BARLEY VARIETIES CULTIVATED IN THE REPUBLIC OF MACEDONIA Nenad Petkovski, Ljupco Mihajlov, Natalija Markova Ruzdik	39
STUDY OF QUANTITATIVE CHARACTERISTICS IN ORIENTAL TOBACCO GENOTYPES Ana Korubin – Aleksoska, Milan Mitreski, Jane Aleksoski, Mohammad Ayaz Ahmad, Sime Dojcinov, Zarko Bebic	40
THE EFFECT OF BACKCROSS METHOD IN TOBACCO BREEDING Jane Aleksoski	41
DEGUSTATIONAL PROPERTIES OF SOME BASMAK TOBACCO VARIETIES Karolina Kochoska, Milan Mitreski, Romina Kabranova, Ilija Risteski	42
PLANT PROTECTION	43
DETECTION OF <i>Pectobacterium carotovorum</i> subsp. <i>carotovorum</i> , BACTERIAL STALK AND HEAT ROT DISEASE ON SUNFLOWER SEEDS Mitrev Sasa, Kovacevik Biljana, Arsov Emilija.....	44
STUDY OF STOLBUR PHYTOPLASMA ON WINE GRAPEVINE VARIETY IN THE REPUBLIC OF MACEDONIA Tuckovska Biljana, Arsov Emilija, Mitrev Sasa ..	45
IMPACT OF AMPELOTECHNICAL MEASURES IN THE GRAPEVINE PROTECTION FROM OCCURRENCE OF GREY MOULD (<i>Botrytis cinerea</i>) Bojkov Gligor, Arsov Emilija, Mitrev Sasa	46
USE OF SOME ESSENTIAL OILS IN BIOLOGICAL CONTROL OF PLANT PATHOGENIC FUNGI Natalija Atanasova-Pancevska, Jane Bogdanov, Violeta Boskovska, Verica Peneva, Dzoko Kungulovski.....	47
EFFECTIVE CONTROL OF THE TOBACCO SEEDLINGS FROM DAMPING OFF DISEASE IN DUAL INFECTION IN BEDS Biljana Gveroska.....	47
IMPLEMENTATION OF MODERN IT TOOLS IN AGRICULTURAL PRACTICE Zoran Zdravev, Emilija Arsov, Fidanka Trajkova, Sasa Mitrev	49
<i>Xylella fastidiosa</i> – POSSIBLE THREAT IN PRODUCTION OF GRAPEVINE AND OLIVE TREES IN THE REPUBLIC OF MACEDONIA Kristina Manevska, Emilija Arsov, Sasa Mitrev	50
QUALITY CONTROL AND FOOD SAFETY	51
PARTICULAR FEATURES OF THE HORSE MEAT AGING Stefan G. Dragoev, Dessislava B. Vlahova-Vangelova, Dessislav K. Balev, Kolyo T. Dinkov, Aco Kuzelov.....	52

MONITORING UDDER HEALTH AND MILK HYGIENE ON-FARM USING QUICK SCREENING METHODS Dimitar Nakov, Metodija Trajchev	53
CHARACTERIZATION OF LEAD ISOTOPE RATIOS IN VARIOUS PLANT FOODS AND BEVERAGES WITH APPLICATION OF Q-ICP-MS Biljana Balabanova, Violeta Ivanova-Petropulos, Sasa Mitrev	54
DETERMINATION OF THE INFLUENCE OF CATTLE BREEDS ON THE COLOUR OF CALF MEAT Dimche Kitanovski, Vladimir Kitanovski, Elena Joshevska	55
SEASONAL CHANGES ON BOVINE BULK TANK MILK QUALITY FROM THREE REGIONS IN MACEDONIA Dusica Santa, Dimitar Nakov, Sonja Srbinovska, Metodija Trajcev	56
CHANGES IN FATTY ACID COMPOSITION OF POULTRY MEAT AFTER HEAT TREATMENT Mitre Stojanovski, Anita Čakarova, Aco Kuzelov, Elena Joshevska, Gordana Dimitrovska, Dzulijana Tomovska, Katerina Bojkovska	57
ANTIMICROBIAL ACTIVITY OF POMEGRANATE PEEL EXTRACTS FROM “KARAMUSTAFA” AND “IDŽIS” VARIETIES Violeta Dimovska, Fidanka Ilieva, Ljupco Mihajlov, Sanja Kostadinović Veličkovska, Biljana Kovacevik	58
SOIL SCIENCE AND HYDROLOGY	59
AEROBIC GRANULATION TECHNOLOGY FOR COST EFFICIENT MUNICIPAL AND INDUSTRIAL WASTEWATER TREATMENT <GRANULIS> Kungulovski Ivan, Kungulovski Dzoko	60
THE INFLUENCE OF THE PERLITE AS A SUBSTRATE FOR IMPROVING ON SOME WATER PROPERTIES ON THE FLUVIAL SOIL WITH AN APLICATION OF RETENTIONAL CURVES Vesna Markoska, Kiril Lisichkov, Blazo Boev, Rubin Gulaboski	61
VITICULTURE, ENOLOGY AND FRUIT PRODUCTION.....	63
THE EFFECT OF PRUNING ON FRIUTING CAPACITY OF MICHEL PALIERI TABLE GRAPE VARIETY, GROWING IN TIKVES VINEYARD Efremco Nikolov, Violeta Dimovska, Fidanka Ilieva	64
AGROBIOLOGICAL ESTIMATION OF GRAPEVINE VARIETIES FOR WHITE AND RED WINES Venelin Roychev, Angel Ivanov, Neli Keranova, Nikolay Tsaykin	65
VINEYARD IRRIGATON SYSTEMS CONTROLLED ONLINE THROUGH GSM MODULE Efremco Nikolov, Dimitrija Angelkov, Violeta Dimovska	66

CHARACTERIZATION OF LEAD ISOTOPE RATIOS IN VARIOUS PLANT FOODS AND BEVERAGES WITH APPLICATION OF Q-ICP-MS Biljana

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Abstract

Studies of the isotopic composition of lead are commonly used in the environmental science. If lead is present in the soil, a plant will take up small amounts and subsequent isotope ratio studies might provide unique means of differentiating between different plant sources of origin. Among all the naturally occurring lead isotopes, only ²⁰⁴Pb is non-radiogenic, whereas, ²⁰⁶Pb, ²⁰⁷Pb and ²⁰⁸Pb are the daughter products of the radioactive decay of ²³⁸U and ²³⁵U and ²³²Th, respectively. Small Pb isotope abundance variation occurs in nature and the isotopic composition of lead in the environment is dependent on local pollution sources. Being able to accurately measure all of the Pb isotopes is very important for the number of investigations. Quadropole inductively coupled plasma with mass spectrometry (Q-ICP-MS) was used to investigate whether this chemical application can offer a reliable and practical solution to the problem of the polyatomic overlap in the presence of organically based matrix samples. Very good sensitivity was obtained for ²⁰⁶Pb, ²⁰⁷Pb and ²⁰⁸Pb isotopes, while, ²⁰⁴Pb suffers from isobaric interference from ²⁰⁴Hg. Satisfactory linearity (R) was obtained in the range from 5 to 100 µg/L. The study summarizes the instrument optimization procedure for Pb isotope measurements in plant food and wine samples. The calculated isotope ratios ranges: a) ²⁰⁷Pb/²⁰⁶Pb: from 0.985 to 1.122 with standard deviation of data distribution of 0.038 and b) ²⁰⁸Pb/²⁰⁶Pb: from 2.221 to 2.998 with standard deviation of data distribution 0.21. The isotopic ratios were presented for samples from the same and different geographical regions.

Key words: lead, isotope ratio, plant food, wine, Q-ICP-MS

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