

**GOCE DELCEV UNIVERSITY - STIP
FACULTY OF AGRICULTURE**



JOURNAL OF AGRICULTURE AND PLANT SCIENCES

YEAR 2021

VOLUME 19, Number 2

Editor in Chief

Liljana Koleva Gudeva, Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, liljana.gudeva@ugd.edu.mk

Editors

Ljupco Mihajlov, Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, ljupco.mihajlov@ugd.edu.mk

Fidanka Trajkova, Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, fidanka.trajkova@ugd.edu.mk

Administrator

Biljana Atanasova, Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, biljana.atanasova@ugd.edu.mk

Technical Editing

Kire Zafirov, Publishing Department, Goce Delcev University, Stip,
Republic of North Macedonia, kire.zafirov@ugd.edu.mk

Language Editors

Biljana Ivanova, MA, Senior lecturer, Faculty of Philology, Goce Delcev University, Stip,
Republic of North Macedonia Macedonia,
biljana.petkovska@ugd.edu.mk – English language Editor

Danica Gavrilovska Atanasovska, Goce Delcev University, Stip,
Republic of North Macedonia Macedonia,
danica.gavrilovska@ugd.edu.mk – Macedonian language Editor

Editorial Office

Faculty of Agriculture, Goce Delcev University, Stip, Krste Misirkov Str., No.10-A P.O. Box 201, 2000
Stip, Republic of North Macedonia
japs@ugd.edu.mk
<http://js.ugd.edu.mk/index.php/YFA>

**GOCE DELCEV UNIVERSITY - STIP
FACULTY OF AGRICULTURE**

doi.org/10.46763/JAPS201

ISSN 2545-4447 print
ISSN 2545-4455 on line
Vol. 19, No. 2, Year 2021



Journal of Agriculture and Plant Sciences, JAPS, Vol 19, No. 2

YEAR 2021

VOLUME XIX, Number 2

Editorial Office

Faculty of Agriculture, Goce Delcev University - Stip,

Krste Misirkov Str., No.10-A, P.O. Box 201,

2000 Stip, Republic of North Macedonia

japs@ugd.edu.mk

<http://js.ugd.edu.mk/index.php/YFA>

EDITORIAL BOARD

Aco Kuzelov,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, aco.kuzelov@ugd.edu.mk

Danijela Raičević,

Biotechnical Faculty, University of Montenegro, Mihaila Lalica b.b., Podgorica,
Montenegro, nelar@mail.com

Dragan Skorić,

Serbian Academy of Sciences and Arts, Knez Mihajlova 35, 11000 Belgrade,
Serbia, draganskoric@sbb.rs

Dragomir Vlcev,

Institute of Agriculture – Karnobat,
Bulgaria, vulchevd@abv.bg

Hatice Gülen,

Istanbul Bilgi University, Faculty of Engineering and Natural Sciences, Department of Genetics and
Bioengineering, Istanbul,
Turkey, hatice.gulen@bilgi.edu.tr

Jovica Vasin,

Institute of Field and Vegetable Crops, Novi Sad,
Serbia, jovica.vasin@ifvcns.ns.ac.rs

Kiril Bahcevandziev,

Coimbra Agricultural School, 3045-601 Coimbra,
Portugal, kiril@esac.pt

Klemen Lisjak,

Agricultural Institute of Slovenia, Hacquetova ulica 17, Ljubljana,
Slovenia, klemen.lisjak@kis.si

Marijan Bubola,

Institute of Agriculture and Tourism, Karla Huguesa 8, 52440 Poreč,
Croatia, marijan@iptpo.hr

Maryna Mardar,

Odessa National Academy of Food Technologies, Odessa, 65039, Kanatnaya Str.,
Ukraine, marinamardar2003@gmail.com

Rubin Gulaboski,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia Macedonia, rubin.gulaboski@ugd.edu.mk

Sanja Radeka,

Institute of Agriculture and Tourism, Karla Huguesa 8, 52440 Poreč,
Croatia, sanja@iptpo.hr

Sasa Mitrev,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, sasa.mitrev@ugd.edu.mk

Shuhe Wei,

Institute of Applied Ecology, Chinese Academy of Sciences, China, shuhewei@iae.ac.cn
Velichka Nikolova Rodeva, Maritsa Vegetable Crops Research Institute, 32 Brezovsko shosse St. Plovdiv 4003,
Bulgaria, velirod@yahoo.com

Violeta Dimovska,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, violeta.dimovska@ugd.edu.mk

Wolfram Schnäckel,

Anhalt University of Applied Sciences, Bernburger Straße 55, 06366 Köthen,
Germany, wolfram.schnaekkel@hs-anhalt.de

CONTENT

**Ana Angelovska, Tome Nestorovski, Radmila Chrcheva Nikolovska,
Zehra Hajrulai Musliu**

OBSERVATION OF THE CHEMICAL PARAMETERS ON IMPORTED AND
DOMESTIC WINES FOUND IN THE MARKET IN REPUBLIC OF NORTH MACEDONIA.....9

**Sanja Kostadinović Veličkovska, Zoran Arsevski,
Daniela Dimovska, Fidanka Ilieva, Aco Kuzelov**

TOTAL BACTERIAL COUNT, SOMATIC CELL COUNT AND PRESENCE OF
AFLATOXIN M1 IN RAW MILK FROM THE "OVČE POLE" REGION,
REPUBLIC OF NORTH MACEDONIA 19

**Biljana Kovacevik, Sasa Mitrev, Ivan Boev,
Natalija Markova Ruzdik, Blazo Boev**

ONE FACTORIAL ANOVA IN ASSESSMENT OF GROUNDWATER QUALITY IN
VULNERABLE AREA OF AGRICULTURE POLLUTION 27

Cvetanka Kulukovska, Sasa Mitrev, Emilija Arsov

REAL TIME PCR METHOD FOR PPV DIAGNOSTIC ON PLUMS AND APRICOT IN
THE REPUBLIC OF NORTH MACEDONIA 37

Fidanka Trajkova, Sasho Arsov, Liljana Koleva Gudeva

THE ROLE AND IMPORTANCE OF AGROBIODIVERSITY FOR AGRICULTURE 47

INTRODUCTION

The end of 2021 will be remembered by the world for the new variant of the SARS-CoV-2 virus called omicron, which gave the covid-19 pandemic a new chapter. The human population, since the beginning of the pandemic which occurred at the end of 2019 and continues for two years, adapts all mechanisms of operation in conditions of pandemic, mainly with online communication and systems of enhanced internet communication and minimization of personal contacts.

Agricultural production seems to have been hit hardest. Except in conditions of pandemic and economic crisis, the production of food of plant origin is also facing serious problem of global warming. A rise in temperature of 1.5°C is a threat to all ecosystems with long-term consequences of declining and even extinction of some endangered species. The agoecosystem is not spared from this effect either. In food production in the last decade the challenges of the scientific and professional community were focused on systems of soilless production and the use of contemporary biotechnological methods. Even if the covid-19 pandemic is brought under control, the world will not be able to keep global warming at 1.5°C. Despite the promises of all countries that they will reduce pollution, rising of temperatures will continue with forecast that the end of the century will end with a rise in global temperatures of up to 2.4°C. This is an additional threat, but at the same time a challenge, for the scientific community to deal with food production in conditions of pandemic, global warming and rapid growth of human population.

Only science, with scientifically proven methods, is able to find appropriate solutions to deal with the global problems that plague the world since the beginning of the XXI century. New trends in science are not unknown for local research centers either. As a small but well-established research center, the Faculty of Agriculture at the Goce Delcev University - Stip strives to be in trend with the novel trends, to implement all data and available methods in agricultural production and to offer the economy scientifically and professionally proven methods in the processes of agricultural production.

In the conditions of a covid-19 pandemic, the Editorial Board of JAPS continuously had published all journal issues in order to share with the scientific and professional community the new research results in the field of agricultural production and plant sciences. We are honored and pleased to share with you five peer-reviewed scientific papers in JAPS issue No. 19., Vol.2 and also to encourage our colleagues from the Republic of Northern Macedonia, the region and wider to publish the results from their research in JAPS.

**Editorial Board,
December, 2021**

**Editor in chief,
Prof. Liljana Koleva Gudeva, PhD**

