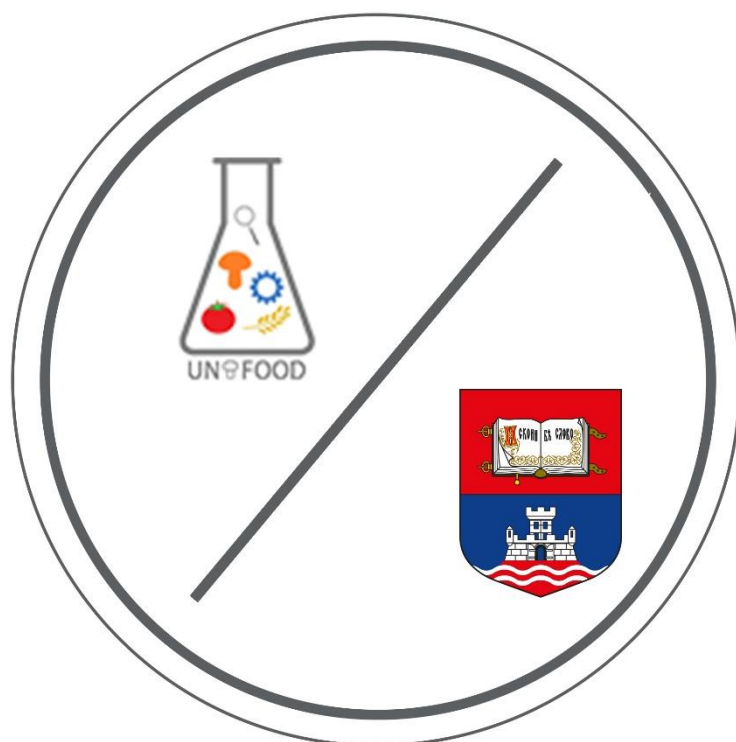


UNIFOOD CONFERENCE



University of Belgrade

Book of Abstracts

Belgrade, September 24-25, 2021

CIP - Kategorizacija u publikaciji Narodna biblioteka Srbije, Beograd

CIP - Каталогизација у публикацији - Народна библиотека Србије, Београд

663/664(048)

UNIFOOD conference (2021 ; Beograd)

Program i zbornik radova = Book of Abstracts / Unifood conference, Belgrade, September 24-25, 2021 ;
[editors Mirjana Pešić, Živoslav Tešić].

- Belgrade : University of Belgrade, 2021 (Beograd : Razvojno-istraživački centar Grafičkog inženjerstva TMF).
- 197 str. ; 30 cm

Tiraž 30.

ISBN 978-86-7522-066-4

a) Храна - Апстракти

COBISS.SR-ID 47517705

UNIFOOD Conference, Belgrade September 24-25 2021

Book of Abstracts

Published by

University of Belgrade
Studentski trg 1
11000 Belgrade
www.bg.ac.rs,
email: kabinet@rect.bg.ac.rs

For Publisher

Ivanka Popović, rector

Editors

Mirjana Pešić
Živoslav Tešić

Cover Design Layout

Ivana Isaković

Circulation

30

ISBN 978-86-7522-066-4

Print

Razvojno-istraživački centar Grafičkog inženjerstva
Faculty of Technology and Metallurgy, Karnegijeva 4, Belgrade

Published

2021.



UNIFood2021 Conference

24th-25th September 2021 University of Belgrade

2nd International UNIFood Conference



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POLYPHENOLS CONTENT OF BERRY LEAVES AND CALLUSES

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Secondary plant metabolites are synthesized as stress-responding compounds and provide selective advantages to plants. This is a huge group of compounds with heterogeneous structures. One of the biggest class of these compounds are polyphenols. Most of them also act as antioxidants, providing benefits for human health. Consequently, food scientists explore possibilities for the isolation and application of these bioactive compounds in food industry. In order to obtain polyphenols, which are present in the plant in low quantities, a conventional plant cultivation is not efficient enough. *In vitro* plant tissue culture techniques, in highly controlled conditions and using appropriate medium, allow, in shorter period of time, production of the whole plant or the plant tissue with ability to synthesize desired compounds, overcoming this problem.

In order to determine whether *in vitro* tissues can be a good source of polyphenols, in this paper, *in vitro* shoot and callus cultures were established. It was done with two berry fruit genotypes – blackberry (*Rubus* subg. *Rubus* Watson ‘Čačanska Bestrna’) and blueberry (*Vaccinium corumbosum* L. ‘Toro’). Extraction and quantification of total phenolics (TPC) and total flavonoid content (TFC) were done both from callus and leaves tissues obtained from *in vitro* plants, as well as from field-grown plants. TPC and TFC were the highest in leaves of blueberry (13.47–14.06 mg GAE/g DW, for *in vitro* and field-grown plants, respectively) whereas low TPC and TFC values (0,78–2,39 mgGAE/g DW) for both callus cultures were obtained.

Results show that *in vitro* tissues could be a good source of polyphenols. Considering the cultivation time reduction and the process simplification, tissues are rentable sources of polyphenols.

Keywords: *plant tissue culture, berry fruits, polyphenols, flavonoids*

Acknowledgements: *This paper was supported by the Ministry of Education, Science and Technological Development of Republic of Serbia, grants No. 451-03-9/2021-14/200116 (Faculty of Agriculture) and No. 451-03-9/2021-14/200215 (Fruit Research Institute, Čačak)*