

SLOVENSKI KEMIJSKI DNEVI 2019
25th Annual Meeting of the Slovenian Chemical Society

**ZBORNİK
POVZETKOV**

**BOOK OF
ABSTRACTS**

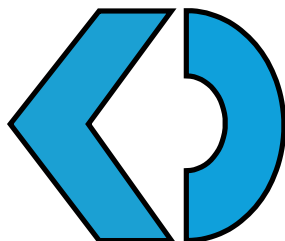
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SLOVENSKO KEMIJSKO DRUŠTVO
Hajdrihova 19, p.p. 660
SI-1001 Ljubljana, Slovenija



Zbornik povzetkov

SLOVENSKI KEMIJSKI DNEVI 2019

Maribor, Slovenija, 25.-27. september 2019

Uredili: Albin Pintar, Romana Cerc Korošec, Darja Lisjak, Matic Lozinšek, Zorka Novak Pintarič, Matjaž Valant, Silvo Zupančič

Tehnična urednica: Taja Žgajnar, Infokart, d.o.o.

Založilo in izdalo:

Slovensko kemijsko društvo; Ljubljana, Slovenija, september 2019.

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CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

54(082)(0.034.2)
66(082)(0.034.2)

SLOVENSKI kemijski dnevi (2019 ; Maribor)

Zbornik povzetkov [Elektronski vir] / Slovenski kemijski dnevi 2019, 25.-27. september 2019, Maribor, Slovenija = Book of abstracts / 25th Annual Meeting of the Slovenian Chemical Society ; [uredili Albin Pintar ... [et al.]. - El. zbornik. - Ljubljana : Slovensko kemijsko društvo, 2019

ISBN 978-961-93849-6-1
1. Pintar, Albin
COBISS.SI-ID 301685760

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Book of Abstracts

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Določanje reaktivnosti apnenčeve moke	
Tamara Savec, Darja Pečar, Vesna Rebič, Andreja Goršek	139
Determination of polyamines and their oxidative degradation products	
Tjaša Rijavec, Irena Kralj Cigić	140
Content and structural characteristics of extractable proanthocyanidins in cv. 'Refošk' (<i>Vitis vinifera</i> L.) from Karst region	
Alenka Mihelčič, Sara Natale, Andreja Vanzo, Klemen Lisjak	141
Synthesis and testing of the novel <i>Plasmodium falciparum</i> dihydroorotate dehydrogenase inhibitors	
Nika Strašek, Lara Lavrenčič, Andraž Oštrec, Dejan Slapšak, Uroš Grošelj, Marina Klemenčič, Helena Brodnik Žugelj, Jernej Wagger, Marko Novinec, Jurij Svete	142
Separation of bioactive compounds from tobacco waste using the sequence of supercritical CO₂ extraction and subcritical water extraction	
Marija Banožić, Tanja Gagić, Maja Čolnik, Mojca Škerget, Stela Jokić	143
Anaerobna fermentacija piščančjega gnoja z žagovino in z glivami predobdelanega miskantusa	
Darja Pečar, Rolando Krivec, Franc Pohleven, Andreja Goršek	144
Esterifikacija oleinske kisline z biokatalizatorjem na mezoporoznem silikatnem nosilcu	
Katja Zečević, Darja Pečar, Andreja Goršek	145
Inhibicijska učinkovitost mešanice škroba in površinsko aktivnih snovi v kislem mediju	
Špela Slapničar, Regina Fuchs-Godec	146
Synthesis and thermophysical properties of agmatine-based ionic liquids and salts bearing biorelevant anions: Old drugs towards one direction-biocompatibility	
Jovana Panić, Milan Vraneš, Aleksandar Tot, Snežana Papović, Sanja Belić, Marija Bešter-Rogač, Črtomir Podlipnik, Slobodan Gadžurić	147
Functionalization of packaging foils by chitosan nanoparticles with embedded oregano extract	
Lidija Fras Zemljič, Maša Knez Hrnčič, Sanja Potrč	148
Kinetic modeling of furfural conversion over Rh/C catalyst	
Rok Šivec, Nika Marinč, Miha Grilc, Blaž Likozar	149
Catalytic conversion of HMF towards bio-based fuels and chemicals	
Brett Pomeroy, Miha Grilc, Blaž Likozar	150
Determination of reaction mechanism for furfural hydrodeoxygenation over molybdenum oxides	
Aleksa Kojčinović, Miha Grilc, Blaž Likozar	151

Separation of bioactive compounds from tobacco waste using the sequence of supercritical CO₂ extraction and subcritical water extraction

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The food and plant industry generate large amounts of wastes or by-products annually around the world from a variety of sources. Improper management and illegal dumping of waste, particularly hazardous and toxic waste, possess increasing threats to the environment and human health.

Tobacco waste is a by-products produced in large quantities during processing of tobacco and in most cases, represents an inefficient use of valuable compounds.

Tobacco waste (type: scrap) in this study was obtained from “Fabrika Duhana Sarajevo” from Bosnia and Herzegovina. A series of operational parameters of supercritical CO₂ (SC-CO₂) extraction of tobacco waste (pressure: 100–300 bar, temperature: 40–80 °C), were investigated in a laboratory scale apparatus in order to get extracts rich in nicotine. The CO₂ mass flow rate was kept constant during the process. From reused tobacco waste (after SC-CO₂ extraction), subcritical water extraction (SWE) under selected conditions (solvent/solid ratio: 28 mL/g, temperature: 150 °C, time: 23 min) was sequentially performed to obtain the extracts rich in phenolic compounds. The content of bioactive compounds was determined using High Performance Liquid Chromatography (HPLC) and by gas chromatography (GC-MS)

Obtained extracts of tobacco waste after SC-CO₂ extraction were characterized by high levels of nicotine, and after SWE extracts were characterized by a high content of phenolic compounds, considerable amounts of nicotinic acid and nicotinamide and reduced content of nicotine. Also, presence of 5-HMF, furfural and 5-MF was detected in SWE extracts.

Key words: tobacco waste, supercritical CO₂ extraction, subcritical water extraction

Acknowledgments

This work has been supported by Croatian Science Foundation under the project “Application of innovative techniques of the extraction of bioactive components from by-products of plant origin” (UIP-2017-05-9909).