

**BOOK of ABSTRACTS**

**27<sup>th</sup> Congress  
of Chemists  
and Technologists  
of Macedonia**

**ХИМИЈА**

20-23 9 2024 OHRID, RN MACEDONIA





**Сојуз на хемичарите и технолозите на  
Македонија  
Society of Chemists and Technologists of  
Macedonia**

**27<sup>th</sup> Congress of SCTM**

# **BOOK of ABSTRACTS**

**25–28 September 2024  
Metropol Lake Resort  
Ohrid, N. Macedonia**

**Skopje, 2024**



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**Society of Chemists and Technologists of Macedonia**  
**25–28 September 2024, Metropol Lake Resort, Ohrid**

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The 27<sup>th</sup> Congress of SCTM is a



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Dear Esteemed Colleagues and Participants,

We are pleased to present the Book of Abstracts for the 27<sup>th</sup> Congress of the Society of Chemists and Technologists of Macedonia. Like our previous congresses over the past two decades, this event takes place in the cradle of Slavic literacy—a region with a rich history of intellectual accomplishments. We trust that the heritage, along with the beauty of Lake Ohrid and the city itself, will not only make your stay enjoyable but also serve as an added source of inspiration for your own work.

The SCTM congresses have grown into a prominent platform for regional researchers from all fields of chemistry and chemical engineering. We are honored to welcome plenary and invited speakers not only from Macedonia but also from countries like Czechia, Denmark, Italy, Serbia, Spain, and the United Kingdom. In addition, we are proud to feature a wide range of oral and poster presentations from researchers representing Austria, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Germany, Greece, Italy, Kosovo, Montenegro, Poland, Serbia, Slovenia, Spain, Romania, and Russia. With nearly 200 presentations from 550 authors and co-authors, it is especially gratifying to see many attendees returning as regular participants.

We hope this Book of Abstracts serves as both a source of inspiration and a record of the exceptional work presented at the 27<sup>th</sup> SCTM Congress. Let's use this opportunity to celebrate not only our achievements but also our resilience, determination, and steadfast commitment to advancing knowledge. Together, we can overcome challenges and, through our collective efforts, continue to drive innovations that make a positive impact on the world.

We extend our heartfelt gratitude to Prof. Jadranka Blaževska Gilev and Prof. Biljana Angjuševa for once again taking on the challenging task of organizing this year's congress. Their tireless efforts and dedication ensured the event's success. We also wish to thank all the members of the scientific and organizational committees who worked tirelessly behind the scenes, with special recognition to Assoc. Prof. Vojo Jovanov, Marija Prosheva and Despina Kostadinova for their management of the website, Book of Abstracts, and other essential tasks.

Our thanks also go to the reviewers and participants whose contributions have been vital to the success of this Congress. Your commitment to the scientific mission emphasizes the value of collaboration, especially during uncertain times. It is through the exchange of ideas, sharing of knowledge, and building of connections that we strengthen our community and advance our fields. Lastly, we express our sincere gratitude to the sponsors, acknowledged at the end of this book, for their generous support.

Prof. Zoran Zdravkovski, president

Society of Chemists and Technologists of Macedonia



# CONTENT

## PLENARY LECTURES

PL 1	<b>STEFANO BELLUCCI</b> INFN-Laboratori Nazionali di Frascati, Frascati <b>Graphene-based nanomaterials for water purification</b>	1
PL 2	<b>RADMILA TOMOVSKA</b> Polymat Institute of the University of the Basque Country UPV/EHU, Donostia-San Sebastian <b>Emulsifier-Free Waterborne (Meth)acrylic Formulations Enhanced with Zwitterionic Monomers</b>	2
PL 3	<b>ELIA TOMÁS-PEJÓ</b> IMDEA-Energy Institute, Madrid <b>Carboxylates platform as efficient alternative to sugar platform when targeting at microbial oils production</b>	3
PL 4	<b>MIRJANA KOSTIC</b> University of Belgrade, Faculty of Technology and Metallurgy – Serbia <b>Cellulose: from Natural to Novel Cellulose-based Functional Materials</b>	4

## INVITED LECTURES

IL 1	<b>ANDREW PETER EDWARD YORK</b> Johnson Matthey Technology Centre, Sonning Common, U.K. <i>Johnson Matthey Catalysis Research: How Novel Science and Characterization Supports Technology</i>	5
IL 2	<b>GORAN STOJANOVIC</b> Faculty of Technical Science, University of Novi Sad, Novi Sad, Serbia <b>How to Attract EU Funds for Funding Your Innovative Research</b>	6
IL 3	<b>OLE MEJLHEDE JENSEN</b> Technical University of Denmark, Lyngby, Denmark <b>Building Smarter</b>	7
IL 4	<b>KATEŘINA ŠEBKOVÁ</b> RECETOX, Masaryk University, Brno, Czech Republic <b>Critical Importance of Environmental Data and Analysis for Addressing the Triple Planetary Crisis</b>	8
IL 5	<b>SNEZANA VUCETIC</b> University of Novi Sad, Faculty of Technology Novi Sad, HeritageLab, Novi Sad, Serbia <b>The Secrets Behind the Eyes of Mona Lisa</b>	9
IL 6	<b>ONDŘEJ ADAMOVSÝ</b> RECETOX, Faculty of Science, Masaryk University, Brno, Czechia <b>The Microplastic Visualization and Analytical Challenges</b>	10
IL 7	<b>ALEKSANDRA BUŽAROVSKA</b> Ss Cyril and Methodius University, Faculty of Technology and Metallurgy, Skopje, N. Macedonia <b>Piezoelectric Polymeric Materials as Energy Harvesting Systems</b>	11



<b>IL 8</b>	<b>VLADIMIR IVANOVSKI</b> Ss. Cyril and Methodius University in Skopje, Faculty of Natural Sciences and Mathematics, Institute of Chemistry, Skopje, Macedonia <b>IR Reflectance Spectroscopy with Some Examples of Its Application</b>	12
<b>IL 9</b>	<b>DARKO DIMITROVSKI</b> Ss. Cyril and Methodius University, Faculty of Technology and Metallurgy, Skopje, N. Macedonia <b>Harnessing Anoxygenic Phototropic Bacteria for Bioconversion of Food By-Products</b>	13

## ORAL AND POSTER PRESENTATIONS

### ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

#### ORAL PRESENTATIONS

<b>AEC O-1</b>	<u>Vllaznim Mula</u> , Jane Bogdanov, Jasmina Petreska Stanoeva, Lulzim Zeneli and Zoran Zdravkovski <b>Assessment of Volatile Organic Compounds in Indoor and Outdoor Air across N. Macedonia and Kosovo</b>	14
<b>AEC O-2</b>	<u>Musaj Paçarizi</u> , Epir Qeriqi, Berat Sinani, Krste Tašev and Trajče Stafilov <b>Mining Landfills in the Republic of Kosovo - A Case of the Artana Landfill</b>	15
<b>AEC O-3</b>	<u>Marijana Kragulj Isakovski</u> , Dragana Tamindžija, Jelena Beljin, Irina Jevrosimov, Tamara Apostolović, Srđan Rončević, Snežana Maletić <b>The Impact of Inoculated Biochar on Pesticide Adsorption and Biosorption in Soil</b>	16
<b>AEC O-4</b>	<u>Sofija Kostandinovska</u> , Marija Chobanova, Slavcho Hristovski, Dzoko Kungulovski and Natalija Atanasova-Pancevska <b>Ecology of Soil Species of the Genus Bacillus and the Influence of Environmental Factors on their Biologically Active Compounds</b>	17

#### POSTER PRESENTATIONS

<b>AEC P-1</b>	<u>Marina Maletić</u> , Marija Vukčević, Nataša Karić, Katarina Trivunac and Aleksandra Perić Grujić <b>Adsorption of Diazepam onto Differently Modified Waste Cotton-based Yarn</b>	18
<b>AEC P-2</b>	<u>Marina Maletić</u> , Nataša Karić, Marija Vukčević, Aleksandra Perić Grujić and Katarina Trivunac <b>The Adsorption Efficiency of Selected Pharmaceuticals from Water Using Chemically Modified Potato Starch</b>	19
<b>AEC P-3</b>	<u>Majlinda Ramadani</u> , Elida Lecaj, Adelina Haskaj, Bahri Sinani and Musaj Paçarizi <b>Assessment of Heavy Metal Contamination in The Soils of Mitrovica City in The Republic of Kosovo</b>	20
<b>AEC P-4</b>	<u>Vllaznim Mula</u> , Jane Bogdanov, Jasmina Petreska Stanoeva, Lulzim Zeneli and Zoran Zdravkovski <b>Assessing Volatile Methyl Siloxanes in Indoor Environments Using Passive Sampling</b>	21
<b>AEC P-5</b>	<u>Enisa Selimović</u> , Bojana Veljković, Aleksandra Pavlović and Emilija Pecev-Marinković <b>Quantitative Determination of Microelements in Forest Berries from the Pešter Plateau in The Republic of Serbia by ICP-OES Method</b>	22

AEC P-6	<u>Enisa Selimović</u> , Bojana Veljković, Aleksandra Pavlović and Emilija Pecev-Marinković <b>Research of Macroelement and Microelement Composition in Domestic Fruit from the Pešter Plateau in the Republic of Serbia</b>	23
AEC P-7	<u>Sanja Mutić</u> , Jasmina Anojčić, Tamara Apostolović, Tajana Simetić, Nina Đukanović and Jelena Beljin <b>Electroanalytical Approach for Quantification of Pesticide Maneb in River Water Sample Using Biochar-Modified Carbon Paste Electrode</b>	24
AEC P-8	<u>Jasmina Anojčić</u> , Sanja Mutić, Nina Đukanović, Tajana Simetić, Tamara Apostolović and Jelena Beljin <b>Use of Hardwood Biochar for the Development of a Sensitive Electrochemical Sensor for the Determination of Pesticide Mancozeb in Wastewater Sample</b>	25
AEC P-9	<u>Shpresa Thaqi- Ndrecaj</u> , Arieta Camaj Ibrahim and Agron Thaqi <b>Analysis of Heavy Metal Pollution in the Drenica River by Feronikel and the Bioaccumulation of These Metals</b>	26
AEC P-10	<u>Jasmina Rinkovec</u> and Gordana Pehneć <b>Levels of Platinum, Palladium and Rhodium in Zagreb Air</b>	27
AEC P-11	<u>Jovana Perendija</u> , Aleksandra Radomirović and Slobodan Cvetković <b>Removal of Toxic Textile Dyes from Aqueous Solution by Waste Hop-Based Biosorbent: Influence of Particle Size on Adsorption Efficiency</b>	28
AEC P-12	Elida Lecaj, Adelina Haskaj, Majlinda Ramadani, Bahri Sinani, Berat Sinani and <u>Musaj Paçarizi</u> <b>Pollution Indicators of Heavy Metals in the Sediments of The Lepenc River in Republic of Kosovo</b>	29
AEC P-13	<u>Granit Kastrati</u> , Musaj Paçarizi, Krste Tašev, Trajče Stafilov and Flamur Sopaj <b>Presence of As, Hg, and Tl in Honey and Pollen in Kosovo</b>	30
AEC P-14	<u>Adelina Haskaj</u> , Elida Lecaj, Majlinda Ramadani, Bahri Sinani, Berat Sinani and Musaj Paçarizi <b>Analysis of Water Quality Using Physicochemical Parameters: A Study of Lepenc River</b>	31
AEC P-15	Paula Benjak, Marija Tomaš, Vedrana Špada, Ivana Grčić and <u>Ivan Brnardić</u> <b>Solar Photocatalysis as a Method for Passive Air Purification Using Modified Recycled Rubber Tiles</b>	32
AEC P-16	<u>Tamara Apostolović</u> , Tajana Simetić, Nina Đukanović, Jasmina Anojčić, Sanja Mutić, Snežana Maletić and Jelena Beljin <b>Removal of Organic Pollutants from Water Using Wood-Derived Biochar</b>	33
AEC P-17	<u>Ljiljana Kljajević</u> , Snežana Nenadović, Nataša Mladenović Nikolić, Marija Ivanović, Sanja Knežević, Katarina Nikolić and Jelena Gulicovski <b>Immobilization of Toxic Pollutants (Pb, Cu, and Cd) from Wastewater by New Eco-friendly Materials Based on Red Mud, Fly Ash and Wood Ash</b>	34
AEC P-18	Aleksandra Bazan-Wozniak, <u>Alicja Pawlak</u> , Agnieszka Nosal-Wiercińska and Robert Pietrzak <b>Sorption properties of biocarbons produced from residues after supercritical extraction of raw plants</b>	35

AEC P-19	<u>Stefan Trajkovic</u> , Elena Trajcova-Kovachovska, Tamara Georgievska, Natasa Anevaska-Stojanovska, Jelena Lazova and Marina Stefova <b>D-Optimal Experimental Design Utilization for Robustness Evaluation of a HPLC Method For Related Substances in Simvastatin Formulations</b>	36
AEC P-20	<u>Bojana Vulovska Trifunovska</u> , Ana Atanasova, Packa Antovska, Jelena Lazova, Jelena Acevska, Katerina Brezovska, Jasmina Tonic-Ribarska and Natalia Nakov <b>Study of Elution Strength of Ethanol as “Green” Eluent in LC Analysis of Non-polar Acidic Compounds</b>	37
AEC P-21	<u>Darko Vuksanović</u> , Dragan Radonjić and Jelena Šćepanović <b>Noise Emissions from Equipment and Working Mechanisms During Quarry Operation</b>	38
AEC P-22	<u>Jelena Šćepanović</u> , Darko Vuksanović and Dragan Radonjić <b>Waste Tires Management on the Montenegro Coast to Improve the Quality of the Environment</b>	39
AEC P-23	<u>Dragana Trajkovikj</u> , Mirjana Sazdovska, Maja Mindosheva, Bisera J. Trajkovska, Gjorgji Petrushevski and Ljupcho Pejov <b>Two-Trace Two-Dimensional Correlation Spectroscopy as a Tool in Analytical Control Laboratories for Raw Materials</b>	40
AEC P-24	<u>Viktorija Todorovska</u> , Miona Manasova, Stevce Petrovski and Gjorgji Petrushevski <b>Cleaning Validation of Laboratory Glassware</b>	41
AEC P-25	<u>Katarina Milenković</u> , Milena Nikolić, Dalibor Stanković, Dobrila Randelović, Jelena Mrmošanin, Emilija Pecev-Marinković, and Aleksandra Pavlović <b>Optimization of Cyclic Voltammetry Versus Phenolic Profile And In Vitro Properties for Determining Antioxidant Activity of Rosa Dumalis Bechst. Fruit Samples</b>	42
AEC P-26	<u>Boris Trifunoski</u> , Darko Bacvarovski, Bisera Janeska Trajkovska, Mena Ivanoska Zdravkovska and Gjorgji Petrushevski <b>Development and Validation of an Analytical Method for Determination of the Particle Size Distribution of Atorvastatin Calcium Utilizing a Low-Toxicity Dispersant as an Alternative to N-Hexane</b>	43
AEC P-27	<u>Anastasija Georgieva</u> , Bisera Janeska Trajkovska, Hristina Tomovska, Dragana Trajkovikj, Mena Ivanoska Zdravkovska and Gjorgji Petrushevski <b>Validation of an In-House Analytical Procedure for Assessing Residual Solvents in Codeine Phosphate Sesquihydrate Utilizing Gas Chromatography with Flame Ionization Detection</b>	44
AEC P-28	<u>Monika Organdjieva</u> , Bisera Janeska Trajkovska, Metodi Trajcev and Gjorgji Petrushevski <b>The Non-Aqueous Titrimetric Assay of API Using Perchloric Acid as Titrant</b>	45
AEC P-29	<u>Sara Petreska</u> , Bisera Janeska Trajkovska, Nenad.Dimitrovski and Gjorgji Petrushevski <b>Practical Performance of a Volumetric Karl Fischer Titration for Water Content Determination in Pharmaceuticals</b>	46
AEC P-30	<u>Viktorija Petrovska</u> , Marija Kostadinovska, Bojana Vulovska Trifunovska, Ana Atanasova, Packa Antovska and Jelena Lazova <b>Quality by Design (QbD) Approach in Development, Optimization and Validation of Analytical Method for Determination of Content in Drug Product</b>	47

AEC P-31	Vojkan Miljković, Aleksandra Pavlović, Katarina Milenković and <u>Milena Miljković</u> <b>The Microelements Content in Mustard Seeds (Semen Sinapsis)</b>	48
AEC P-32	<u>Ivana Gjorgjevska</u> , Boris Trifunovski, Bisera Janeska Trajkovska, Mena Ivanoska Zdravkovska and Gjorgji Petrushevski <b>Method Verification for Particle Size Distribution for Ibuprofen Lysine Using Mechanical Sieving</b>	49
AEC P-33	<u>Filip Dimkovski</u> , Elena T. Kovachovska, Natasa A. Stojanovska, Jelena Lazova and Jasmina Petreska Stanoeva <b>Development of Liquid Chromatographic Method for Codeine Related Compounds in Tablets: Optimization and Validation Using DoE and Computational Tools</b>	50
AEC P-34	<u>Anastasija Angelovska</u> , Natasa Anevska – Stojanovska, Jelena Lazova and Marina Stefova <b>HPLC Method Development for Simultaneous Determination of Four Structurally Diverse Compounds in a Combined Dosage Form</b>	51
AEC P-35	<u>Marinela Cvetanoska</u> , Vlado Matevski, Marina Stefova and Jasmina Petreska Stanoeva <b>HS-GC-MS Analysis of Biogenic Volatile Organic Compounds in Macedonian Endemic Stachys Species</b>	52
AEC P-36	<u>Filip Andreevski</u> , Marina Chachorovska and Marina Stefova <b>Determination of a Nitrosamine Drug Substance-Related Impurity in Antiarrhythmics by LC-HRMS</b>	53
AEC P-37	<u>Emilija Minevska</u> , Paulina Apostolova, Dino Karpicarov, Petre Vitanov, Anita Grozdanov, Perica Paunovic and Zorica Arsova Sarafinovska <b>A Simple and Sensitive HPLC Method For Determination of Tacrolimus in Pharmaceutical Dosage Forms</b>	54
AEC P-38	<u>Bojana Dimovska Gonovska</u> , Marina Stefova, Trajče Stafilov, Biljana Jordanoska Shishkoska and Krste Tašev <b>Optimizing Experimental Conditions for Accurate Mancozeb Detection in Soil Via HS-GC-MS</b>	55
AEC P-39	<u>Dragana Živojinović</u> , Dušan Trajković, Andrija Janković, Jelena Božović and Aleksandra Perić Grujić <b>Chemometric Approach to Modeling the Extraction Method Parameters for Toxic and Strategic Elements from Fly Ash Samples</b>	56
AEC P-40	<u>Elena Veljanoska</u> , Marina Chachorovska and Jelena Lazova <b>Identification of Essential Oils Carried Out by Gas Ghromatography (GC)-FID Method</b>	57
AEC P-42	<u>Ivana Trajkovic</u> , Milica Sentić, Andrijana Miletić and Antonije Onjia <b>Occurrence, Identification and Distribution Characteristics of BTEX In Urban Shallow Lake Sediment</b>	58
AEC P-43	<u>Milica Sentić</u> , Ivana Trajkovic, Andrijana Miletić, Jelena Vesković, Milica Lučić and Antonije Onjia <b>A Comprehensive Analysis, Source Apportionment and Health Risk Assessment of Polycyclic Aromatic Hydrocarbons in Urban Shallow Lake Sediment</b>	59
AEC P-44	<u>Hristina Trisheska</u> , Dushko Nedelkovski and Marina Stefova <b>Optimization of GC-MS Methods for Characterization of the Volatile Compounds in Macedonian White Wines</b>	60
AEC P-45	<u>Arzu Kamber</u> , Emilija Anevska, Nade Jandrievska Ilieva, and Marina Stefova <b>Optimization and Validation of Gas-Chromatographic Methods for Determination of Chlorination By-Products in Drinking Water</b>	61

AEC P-46	<u>Ivona Sofronievska, Ágnes Dörnyei, Viktor Sándor, Ferenc Kilár, Jasmina Petreska Stanoeva and Marina Stefova</u> <b>Optimization of a RP-HPLC Method For Trace Analysis of Pharmaceutical Compounds in Waters Using UV and ESI QTOF MS Detection</b>	62
AEC P-47	<u>Aleksandar Sokolovski and Bojan Zlatanovski</u> <b>Vapor Recovery Unit – Process principles</b>	63
AEC P-48	<u>Velika-Viktorija Juntev and Viktorija Spasova</u> <b>Determination of Polycyclic Aromatic Hydrocarbon Types in Diesel fuel by HPLC Method with Refractive Index Detector and Operational Experiences</b>	64
AEC P-49	<u>Biljana Balabanova, Trajče Stafilov and Robert Šajn</u> <b>Improvements of Precise Modeling Vs. Screening Models for Metals Depositions in Environment: Case Study Bregalnica River Basin</b>	65
AEC P-50	<u>Marija Srbinoska, Jana Klopchevska, Zoran Kavrakovski and Vesna Rafajlovska</u> <b>Cellulose Recovery from Cigarette Butts</b>	66
AEC P-51	<u>Marija Srbinoska, Jana Klopchevska, Zoran Kavrakovski and Vesna Rafajlovska</u> <b>Waste Stalks of Hot Red Pepper Fruits Potential Source of Nutritional and Bioactive Compounds</b>	67

## BIOTECHNOLOGY AND FOOD TECHNOLOGY

### ORAL PRESENTATIONS

BFT O-1	<u>Rok Ambrožič, Rok Mravljak and Aleš Podgornik</u> <b>Novel Non-Invasive Method for Determination of Immobilized Macromolecules</b>	68
BFT O-2	<u>Viktor Cicimov and Darko Dimitrovski</u> <b>Isolation Media for Purple Phototrophic Bacteria</b>	69

### POSTER PRESENTATIONS

BFT P-1	<u>Jovana Krstić, Dušan Paunović, Jelena Mrmošanin and Danica Dimitrijević</u> <b>Production technology of chocolate prunes</b>	70
BFT P-2	<u>Jelena Mitrović, Nada Nikolić, Ivana Karabegović and Mirjana Pešić</u> <b>Nutritional Values of Products Obtained by Incorporation of Nettle (<i>Urtica Dioica L.</i>) Seeds</b>	71
BFT P-3	<u>Jelena Mitrović, Bojana Danilović, Ivana Karabegović, Ljubica Živković and Kristina Cvetković</u> <b>Antioxidant Properties of Edible Chitosan Films Obtained by Incorporation of Iva (<i>Teucrium Montanum L.</i>) Grass Extract</b>	72
BFT P-4	<u>Bojana Veljković and Enisa Selimović</u> <b>Phytochemical Potential of Wild Berries from the Area of the Pešter Plateau (Serbia)</b>	73
BFT P-5	<u>Bojana Veljković and Enisa Selimović</u> <b>Phytochemical Potential of Cultivated Berries from the Area of the Pešter Plateau (Serbia)</b>	74
BFT P-6	<u>Gabriella Kanižai Šarić, Marija Martić, Vesna Rastija, Dejan Agić, Maja Karnoš and Ivana Majić</u> <b>Evaluation of the Antifungal Potential of <i>Streptomyces</i> sp.</b>	75

<b>BFT P-7</b>	<u>Marija Tasić</u> , Jelena Zvezdanović, Ljiljana Stanojević, Jelena S. Stanojević, Sanja M. Petrović and Dragan J. Cvetković <b>Characterization of Silver Nanoparticles Biosynthesized by Aqueous Extracts <i>Rubus Spp.</i> Leaves</b>	76
<b>BFT P-8</b>	<u>Ivana Danilov</u> , Jovana Grahovac, Bojan Miljević, Vesna Miljić and Snežana Vučetić <b>Implementation of the Circular Economy Principles in Production of Denitrifying Agent Microbial Biomass</b>	77
<b>BFT P-9</b>	<u>Leposava Pavun</u> , Sofija Doganjić, Ivana Lautarević, Ana Gledović, Marina Milenković, Snežana Uskoković-Markovića and Aleksandra Janošević Ležaić <b>Determination of Total Phenolic Content, Antioxidant, and Antimicrobial Activities of Green Vegetables</b>	78
<b>BFT P-10</b>	<u>Biljana Damjanović-Vratnica</u> , Ivana Kasalica, Svetlana Perović and Slađana Krivokapić <b>Effect of Extraction Process Parameters on The Recovery of Bioactive Phenolic Compounds from Blueberry Pomace</b>	79
<b>BFT P-11</b>	<u>Vanya Bogoeva</u> , Gabriela Radulova, Antonio Varriale, Alexandra Kapogianni, Ginka Cholakova, Sabato D`Auria, Els J. M. Van Damme and Ivanka Tsacheva <b>Future of Lectins: Plant Lectin Jacalin and Human Lectin Galectin 3 Interact with Biologically Important Molecules</b>	80
<b>BFT P-12</b>	<u>Despina Kostadinova</u> , Cristina González-Fernández, Elia Tomás-Pejó and Donka Doneva-Shapceska <b>Utilization of SCFA-Rich Effluents from Brewery Spent Grains for Lipid Production by <i>Yarrowia lipolytica</i>: A Sustainable Approach</b>	81
<b>BFT P-13</b>	<u>Krastena Nikolova</u> , Anelia Gerasimova, Ivaylo Minchev, Nikolay Penov, Iliana Milkova, Dragomira Buhalova and Lubomir Makedonski <b>Study on the Kinetic Parameters of Drying Fruit Bars from Blue Plums with an Addition of Freshwater Algae</b>	82

## CHEMICAL ENGINEERING

### ORAL PRESENTATIONS

<b>CE O-1</b>	<u>Flamur Sopaj</u> <b>Solid Iron Dissolution in Acid Media to Support Fenton Process for Methyl Orange Oxidation</b>	83
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### POSTER PRESENTATIONS

<b>CE P-1</b>	<u>Jelena Lubura Stošić</u> , Bojana Ikonić, Jelena Pavličević, Dario Balaban, Predrag Kojić and Oskar Bera <b>The Influence of the Activation Function within Deep Learning on Predicting Natural Rubber Rheological Properties</b>	84
<b>CE P-2</b>	<u>Katarina Šučurović</u> , Darko Jaćimovski, Mihal Đuriš, Zorana Arsenijević, Tatjana Kaluđerović-Radoičić, Danica Brzić and Nevenka Bošković-Vragolović <b>Experimental Investigation of the Solids Circulation Rate and the Minimum Spouting Velocity in the Modified Spouted Bed</b>	85
<b>CE P-3</b>	Darko Jaćimovski, Katarina S. Šučurović, Jelena Živković and Katarina Šavikin <b>Extraction Gallic Acid, Punicalin, Punicalagin I Ellagic Acid from Pomegranate Peel in Packed Bed Systems and by Recirculation of The Liquid Phase</b>	86

CE P-5	<u>Nina Jovović</u> , Željko Jaćimović and Milica Kosović Perutović <b>Solvent-Free Synthesis of Cu(II) Complex with 3,5-Pyrazoledicarboxylic Acid as Ligand</b>	87
CE P-6	<u>Biljana Damjanović-Vratnica</u> , Bojana Đurišić, Svetlana Perović, Andrej Perović and Slađana Krivokapić <b>Extraction Techniques Impact on Oregano Post-Distillation Waste Biomass Valorization</b>	88

## EDUCATION

### ORAL PRESENTATIONS

EDU O-1	<u>Aysel Beydullayeva</u> <b>The Role Self-Esteem Plays in Academic Achievement</b>	89
---------	--	----

### POSTER PRESENTATION

EDU P-1	<u>Bojan Bogatinovski</u> , Elena Cvetkovska Bogatinovska, Mladen Stojanovikj and Filip Godjo <b>Implementation of Lean Management Approaches into Optimization of Processes Used in Quality Control Laboratories in Alkaloid AD Skopje</b>	90
EDU P-2	<u>Daniel Nikolovski</u> and Marina Stojanovska <b>Evaluating Green Chemistry Education through Student Interventions</b>	91
EDU P-3	<u>Aleksandra Naumoska</u> and Slobotka Aleksovska <b>The Presence of Organic Stereochemistry Issues at the International Level Competition</b>	92

## INORGANIC CHEMISTRY AND TECHNOLOGY, INORGANIC MATERIALS AND METALLURGY

### ORAL PRESENTATIONS

ICTM O-1	<u>Jasminka Alijagić</u> and Robert Šajn <b>Mining and Metallurgical Waste as Potential Secondary Sources of Metals in the West Balkan</b>	93
----------	---	----

### POSTER PRESENTATIONS

ICTM P-1	<u>Andrijana Chankulovska Tenovska</u> , Tajana Shishkova, Boshko Boshkovski and Slobodan Bogoevski <b>Optical Microscopy Control and Sieve Analysis of Milled Diatomaceous Earth Sample After the Elutriation Process</b>	94
ICTM P-2	<u>Tajana Shishkova</u> , Andrijana Chankulovska Tenovska, Gordana Ruseska, Boshko Boshkovski and Slobodan Bogoevski <b>Preparation Of Separate Fraction from Selected Non-metallic Raw Materials According to Granulometric Composition, Suitable for the Elutriation Process</b>	95
ICTM P-3	<u>Aleksandra Dapčević</u> , Natalija Milojković, Bojana Simović, Lidija Radovanović and Jelena Rogan <b>Reactive Orange 16 Photodegradation Mechanism in Presence of the TiO<sub>2</sub>/Polypyrrole Nanocomposite</b>	96
ICTM P-4	<u>Ivana Cvijović-Alagić</u> , Gizo Bokuchava, Yulia Gorshkova and Vesna Maksimović <b>Microstructural Alterations of Ti-Based Implant Alloy Induced by High Pressure Torsion</b>	97

ICTM P-5	<u>Sanja Knežević</u> , Marija Ivanović, Snežana Nenadović, Nemanja Marjanović, Nataša Mladenović Nikolić, Marijan Nečemer and Miloš Nenadović <b>Physico-Chemical and Structural Analysis of Sm<sub>2</sub>O<sub>3</sub>-Doped Geopolymers for Advanced Material Applications</b>	98
ICTM P-6	<u>Aneta Srbinovska Simeonovska</u> , Bojan Bogatinovski, Mladen Stojanovikj and Filip Godjo <b>Method Development for In-House Determination of Heavy Metals in Talk Powder</b>	99
ICTM P-7	<u>Vesna Maksimović</u> , Jelena Maletaškić, Vladimir Pavkov, Aleksa Luković and Ivana Cvijović-Alagić <b>Aluminum-Based Composites Reinforced with Waste Basalt Fiber</b>	100
ICTM P-8	<u>George A. Mousdis</u> , Vasilis Psycharis, Caterina P. Raptopoulou, Nektarios N. Lathiotakis, Christina Kolokytha and Ektoras Apostolou <b>Synthesis and study of 2-dimensional hybride lead based materials</b>	101
ICTM P-9	<u>Teodora Petkoska, Marina Gjoshevska, Natasha Anevaska Stojanovska, Marina Chachorovska and Jelena Lazova</u> <b>Development and Validation of ICP-OES Method for Determination of Elemental Impurities in Topical Antiseptic</b>	102
ICTM P-10	<u>Darko Stojchev</u> , Mihail Trajkov, Miha Bukleski, Sandra Dimitrovska-Lazova and Slobotka Aleksovska <b>Synthesis and Characterization of Hybrid Organic-Inorganic Perovskites With Gadolinium(III) in the B Position</b>	103
ICTM P-11	Houceme Bendriss, Said Boudebane, Samia Lemboub, Aissa Bensehou and <u>Stefano Bellucci</u> <b>Superalloy Development by Combustion of Aluminothermic Mixtures - Characterization</b>	104
ICTM P-12	<u>Milica Kosović Perutović</u> , Slađana Kovačević, Marija Ristić, Jana Mišurović and Zorica Leka <b>Mechanochemical Synthesis of Cu(II) dithiocarbamate complex: Advantages Over Traditional Solution-Based Methods</b>	105
ICTM P-13	<u>Slađana Kovačević</u> , Marija Ristić, Jana Mišurović, Zorica Leka and Milica Kosović Perutović <b>Efficient Solvent-Free Synthesis of Ni(II)- Dithiocarbamate Complexes using Mechanochemistry</b>	106
ICTM P-14	<u>Miloš Nenadović</u> , Sanja Knežević, Nemanja Marjanović, Tijana Stamenković, Nemanja Latas and Danilo Kisić <b>Thermally Treated Low Carbon Geopolymer Foams Doped with Nd<sub>2</sub>O<sub>3</sub> and Sm<sub>2</sub>O<sub>3</sub></b>	107
ICTM P-15	<u>Biljana Angjusheva</u> , Vojo Jovanov and Emilija Fidancevski <b>Development of Porous Ceramics from Clay and Coal Fly Ash Using Various Pore Creators: A Study on Microstructure and Mechanical Properties</b>	108
ICTM P-16	<u>Vancho Adjiski</u> and Biljana Angjusheva <b>Enhancing Environmental Management of Mining Legacies: Database, Mapping, and Monitoring Insights from COST Action REMINDNET</b>	109
ICTM P-17	<u>Irina Stefanovska</u> , Vojo Jovanov, Aleksandar Zurevski, Aleksandar Zlatevski, Dime Jancev, Toni Arangelovski and Emilija Fidanchevski <b>Use Of Waste Glass and Dolomite as Cement Substitutes in Mortars with a Lower Environmental Impact</b>	110
ICTM P-18	<u>Neli Mintcheva</u> , Gospodinka Gicheva, Alexander Chanachev and Marinela Panayotova	111



	<b>Photocatalytic Activity of Zeolite-Based Nanocomposites for Reduction of Organic Pollutants in Solution</b>	
ICTM P-19	<u>Vojo Jovanov</u> , Snežana Vučetić, Biljana Angjusheva, Jonjaua Ranogajec and Emilija Fidanchevski	112
	<b>Photocatalytic Coating Based on Illite Clay Impregnated with TiO<sub>2</sub></b>	
ICTM P-20	<u>Biljana Jankulovska Peeva</u> , Marija Kovac, Vesna Miljić, Vojo Jovanov, Snežana Vučetić and Emilija Fidanchevski	113
	<b>Characterization of Fragments from Archeological Site Stobi by Non-Destructive Testing Methods</b>	
ICTM P-21	<u>Katerina Zaharieva</u> , Borislav Barbov and Petya Karakashkova	114
	<b>Green Synthesis of CeO<sub>2</sub>-ZnO Using Veronica Officinalis L. Extract: Photocatalytic Ability</b>	
ICTM P-22	<u>Katerina Zaharieva</u> , Rumyana Eneva, Daniela Stoyanova, Irina Stambolova, Simona Mitova	115
	<b>Effect of Mixed-Phase ZnO Nanoparticles on The Animal Pathogens Erysipelothrix Rhusiopathiae and Aeromonas Caviae</b>	

## ORGANIC CHEMISTRY, BIOCHEMISTRY AND PHARMACEUTICAL CHEMISTRY

### ORAL PRESENTATIONS

OBPC O-1	<u>Ivo Crnolatac</u>	116
	<b>Monitoring Lipid Phase Transitions with Fluorescent Dyes</b>	

### POSTER PRESENTATIONS

OBPC P-1	<u>Marijana Radić Stojković</u> , Atanas Kurutos, Iva Zonjić, Ivo Crnolatac, Lidija-Marija Tumir, Ana Tomašić Paić, Vanja Tadić and Anamaria Brozovic	117
	<b>Recognition of Double-Stranded and Multi-Stranded DNA and RNA Structures by Cyanine Dyes</b>	
OBPC P-2	<u>Ranko Stojković</u> , Marija Paurević, Aleksandra Maršavelski and Rosana Ribić	118
	<b>Synthesis And Immunomodulating Properties of Mono- And Di-Mannosylated Desmuramyl Peptides</b>	
OBPC P-3	<u>Jelena Đorović Jovanović</u> , Marijana Stanojević Pirković and Žiko Milanović	119
	<b>Examining the Inhibitory Activity of Furanocoumarin Derivatives from Kampo Extract Medicines on Beta-Secretase 1 Enzyme Involved in Alzheimer's Disease Pathogenesis</b>	
OBPC P-4	<u>Fatjonë Krasniqi</u> , Emil Popovski and Ahmed Jashari	120
	<b>Design and Synthesis of Some Novel Compounds Derived from Hybrid Coumarin-Thiazole Structures</b>	
OBPC P-5	<u>Jovica Tomović</u> , Perica Vasiljević, Aleksandar Kočović, Miroslav Sovrlić and Nedeljko Manojlović	121
	<b>Chemical Profiling and Antioxidant Capacity of Lichen Extracts from Genus Physcia</b>	
OBPC P-6	<u>Vesna Rastija</u> , Domagoj Šubarić, Gabriella Kanižai Šarić and Tatjana Gazivoda Kraljević	122
	<b>QSAR study for the antiproliferative activity of 2-aryl benzothiazole derivatives</b>	
OBPC P-7	<u>Vesna Rastija</u> , Dejan Agić, Maja Karnaš and Tatjana Gazivoda Kraljević	123
	<b>Molecular Docking Study for the Antiproliferative Activity of 2-Aryl Benzothiazole Derivatives</b>	

OBPC P-8	<u>Miroslav Sovrlić</u> , Jovica Tomović, Slađana Pirić, Aleksandar Kočović and Sandra Konstantinović <b>Impact of Deep Eutectic Solvent Pretreatment on the Extraction of Polyphenolic Compounds and Antioxidant Activity from Wild Apple (<i>Malus Sylvestris</i>) Waste</b>	124
OBPC P-9	<u>Dejan Agić</u> , Boris M. Popović, Bojana Blagojević, Vesna Rastija, Maja Karnaš and Domagoj Šubarić <b>Insight into the Interactions of Cornelian Cherry Anthocyanins with Dipeptidyl Peptidase III</b>	125
OBPC P-10	Maja Karnaš, <u>Dejan Agić</u> , Domagoj Šubarić, Karolina Vrandečić and Vesna Rastija <b>Molecular Docking Study on the Potential Mechanism of Coumarin-1,2,4-Triazoles Antifungal Activity</b>	126
OBPC P-11	Monika Mutovska, Natali Simeonova, Denitsa Anastasova and <u>Yulian Zagranjarski</u> <b>New Powerful Building Block Molecules in 1,8-Naphthalimide Chemistry</b>	127
OBPC P-12	<u>Konstantin Konstantinov</u> , Monika Mutovska, Natali Simeonova, Stanimir Stoyanov and Yulian Zagranjarski <b>Design Of Peri-Disubstituted Tellurolo-1,8-Naphthalimides</b>	128
OBPC P-13	<u>Monika Mutovska</u> , Konstantin Konstantinov, Tina Kostadinova, Stanimir Stoyanov and Yulian Zagranjarski <b>Heterocyclic Fused 1,8-Naphthalimides as Anticancer Agents</b>	129
OBPC P-14	<u>Denitsa Anastasova</u> , Monika Mutovska, Silvia Angelova and Yulian Zagranjarski <b>Synthesis and Optical Properties of PEG Alkoxyated 1,8-Naphthalimides</b>	130
OBPC P-15	<u>Natali Georgieva</u> , Monika Mutovska and Yulian Zagranjarski <b>Peri-Substituted Dichalcogenides of Ryleneimides</b>	131
OBPC P-16	<u>Elena Cvetkovska Bogatinovska</u> , Nikola Geskovski, Gjorgi Petrushevski and Viktor Stefov <b>Implementation of Supervised and Unsupervised Machine Learning Techniques in the Development of Pharmaceutical Dosage Forms</b>	132
OBPC P-17	<u>Samira A. Plojović</u> , Milan S. Dekić, Niko S. Radulović, Enisa Selimović and Fabio Boylan <b>A Series of Esters of Regioisomeric Furanmethanols: Mass Spectral Libraries and Gas Chromatographic Data</b>	133
OBPC P-18	<u>Alma Ramić</u> and Ines Primožič <b>Evaluating Cinchona-9-amines as Butyrylcholinesterase Inhibitors</b>	134
OBPC P-19	<u>Aleksandra Milenković</u> , Jelena Stanojević, Dragan Cvetković, Vesna Nikolić and Ljiljana Stanojević <b>The Reducing Power of Black Pepper (<i>Piper Nigrum</i> L.) Essential Oil and Hydrolate</b>	135
OBPC P-20	Ljiljana Stanojević, <u>Aleksandra Milenković</u> , Milena Stanković, Jelena Zvezdanović and Jelena Stanojević <b>Chemical Composition and Antioxidant Activity of Geranium <i>Robertianum</i> L. Leaves Hydrolate</b>	136

OBPC P-21	<u>Jelena Stanojević</u> , Tamara Milosavljević, Marija Tasić, Nataša Simonović, Ljiljana Stanojević, Jelena Zvezdanović and Dragan Cvetković <b>Chemical Composition and Antioxidant Activity of Hydrodistillation Wastewater from Herniariae Herba (Herniaria Glabra L.)</b>	137
OBPC P-22	<u>Nikoleta Kircheva</u> , Stefan Dobrev, Lyibima Yocheva, Valya Nikolova, Silvia Angelova and Todor Dudev <b>Why Does Gallium Exert an Antibacterial Effect: Insights from a DFT Study</b>	138
OBPC P-23	Miha Drev, Helena Brodnik, Uroš Grošelj, Franc Perdih, Jurij Svete, Bogdan Štefane and <u>Franc Požgan</u> <b>Ru(II)-catalyzed Synthesis of Heteroarylated 2-Pyridones via Consecutive C–O/C–N/C–C Bond Formation Reactions</b>	139
OBPC P-24	<u>Uroš Grošelj</u> , Luka Ciber, Helena Brodnik, Franc Požgan, Jurij Svete and Bogdan Štefane <b>Tetramic and Tetronic Acids in Enantioselective Organocatalyzed Transformations</b>	140
OBPC P-25	<u>Renata Odžak</u> , Antonio Sabljic and Matilda Šprung <b>Quaternary 3-Quinuclidinone Compounds: Potent Antibacterial Agents Against Staphylococcus aureus and Listeria monocytogenes</b>	141
OBPC P-26	<u>Stefan Dobrev</u> , V. Petkova, Nikoleta Kircheva, D. Nazarova, Liam Nedelchev, Valya Nikolova, Todor Dudev and Silvia Angelov <b>DFT Prediction of Laser Dyes - Cucurbit[7]Uril Binding Affinities</b>	142
OBPC P-27	<u>Vladislava Petkova</u> , Nikoleta Kircheva, Stefan Dobrev, Monika Mutovska, Valya Nikolova, Spas Kolev, Yulian Zagranjarski, Todor Dudev and Silvia Angelova <b>Naphthalimide-Based Amphiphiles: Synthesis and DFT Studies of the Aggregation and Interactions with Water Molecules</b>	143
OBPC P-28	<u>Todor Dudev</u> , Silvia Angelova, Nikoleta Kircheva and Thomas Leonard <b>Elucidating the Metal Specificity in PHLPP2</b>	144
OBPC P-29	<u>Mihail Aleksandrov</u> and Viktorija Maksimova <b>Application of Voltammetric Methods in Electrochemical Analyzes of Cannabinoids</b>	145
OBPC P-30	<u>Nina Peneva</u> , Filip Andreevski, Tina Achkoska, Dejan Kuneski, Biljana Angelevska, Ana Atanasova, Packa Antovska, Jelena Lazova and Jasmina Petreska Stanoeva <b>Effects of Various Nitrite Scavengers on Mitigation Of N-Nitrosamine Formation in Pharmaceutical Drug Product</b>	146
OBPC P-31	<u>Vesna Dimova</u> , Mirjana Jankulovska and Maja Sencheva - Petrevska <b>QSAR Modeling of Substituted Hydrazones - Biological Activity and Selected Descriptors</b>	147
OBPC P-32	<u>Vesna Dimova</u> , Mirjana Jankulovska and Maja Sencheva - Petrevska <b>QSTR Study of Alkaloids</b>	148
OBPC P-33	<u>Ilija Pop Stefanija</u> , Igor Jordanov, Dejan Dimitrovski and Vesna Dimova <b>Evaluation of the Molecular Properties and Bioactivity Score of the Set of Herbicides</b>	149
OBPC P-34	<u>Ilija Pop Stefanija</u> , Dejan Dimitrovski, Igor Jordanov and Vesna Dimova <b>Brain or Intestinal Estimated Permeation Predictive Model of Herbicides</b>	150

OBPC P-35	<u>Zorica Leka</u> , Kristina Sekulić, Milica Kosović Perutović and Nedeljko Latinović <b>The Influence of Synthesized Ni(II)-Dithiocarbamate Complex on the Phytopathogenic Fungus Botrytis Cinerea</b>	151
OBPC P-36	<u>Matea Kuzmanoska</u> , Krume Bogeovski and Viktorija Maksimova <b>Investigating the Methods for Obtaining Extracts from Two Types of Herbal Substances from Elderberry, Sambucus Nigra L.</b>	152
OBPC P-37	<u>Irena Dimitrova Jordanova</u> , Pece Sherovski, Jasmina Petreska Stanoeva and Natasa Ristovska <b>Optimization of a Method for The Isolation of Theobromine from Cocoa</b>	153
OBPC P-38	<u>Ana Stamkova</u> , Marina Chachorovska, Mirjana Bogdanoska Mircheska, Jana Klopchevska and Vesna Rafajlovska <b>Ultrasound-Assisted Extraction of Silymarin from Milk Thistle Seeds (Silybum marianum L.)</b>	154
OBPC P-39	<u>Mihail Trajkov</u> , Darko Stojchev, Miha Bukleski, Sandra Dimitrovska-Lazova and Slobotka Aleksovska <b>Synthesis and Characterization of Novel Fluorescent Quinacridone Derivatives</b>	155
OBPC P-40	<u>Ksenija Petković</u> , Milica Kosović Perutović, Zorica Leka and Nedeljko Latinović <b>Fungicidal Activity of The Zn(II) Complexes with Ethylenediamine and Dithiocarbamate Ligands on Phytopathogenic Fungus Phomopsis Viticola</b>	156
OBPC P-41	<u>Marija S. Ristić</u> , Maja B. Djukić and Milica Kosović Perutović <b>DNA Interactions of Palladium (II) Complex Containing a Thioamide-Type Ligand</b>	157
OBPC P-42	<u>Olivera Politeo</u> , Monika Bekan and Mirko Ruščić <b>Volatile Profile of Limonium Narbonense Mill. From Croatia</b>	158
OBPC P-43	<u>Jana Mišurović</u> , Sladana Kovačević, Ksenija Petković, Milica Kosović Perutović and Zorica Leka <b>The antioxidant capacity of ammonium-iminodiacetatedithiocarbamate and its transition metal complexes</b>	159
OBPC P-44	<u>Anamarija Risteska</u> , Pece Sherovski and Natasa Ristovska <b>Effective Caffeine Extraction from Cosmetics Containing Surface-Active Substances: An Optimization Study</b>	160
OBPC P-45	<u>Aygun Rustamova</u> , Rovshan Muradkhanov, Sevinj Osmanova, Sevil Khalilova and Etibar Ismailov <b>Thermal Decomposition of the Ferrocene Adsorbed on Boehmite</b>	161
OBPC P-46	<u>Afat Sardarly</u> , Aygun Rustamova, Sevinj Osmanova and Etibar Ismailov <b>Propane Dehydrogenation with Carbon Dioxide Over the VSbO/Al<sub>2</sub>O<sub>3</sub> Oxide Catalysts</b>	162
OBPC P-47	<u>Arjjan Ganji</u> , Ivana Todorovska, Katerina Dragarska and Jane Bogdanov <b>Synthesis of Acyclic and Cyclic C<sub>5</sub>-Curcuminoids and Comparison of Their Structural and Spectroscopic Properties</b>	163
OBPC P-48	<u>Milena S. Kolevska</u> , Ivana Todorovska, Katerina Dragarska and Jane Bogdanov <b>Spectrophotometric Assessment of Reactivity of Symmetrical Monocarbonyl Analogs of Curcumin Containing A 2-Fluorobenzylidene Moiety With N-Acetylcysteine</b>	164



## OBPC P-29

### Application of Voltammetric Methods in Electrochemical Analyzes of Cannabinoids

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The advantage of voltammetric analysis is rapid, sensitive and inexpensive methods contributed to their versatile applications: detection of cannabinoids in biological samples, quality control of cannabis product and analysis of their antioxidant properties.

A carbon-based electrode modified by initial electrodeposition of  $\Delta^9$ -tetrahydrocannabinol (THC) has been established to enhance the affinity of the examined THC molecules to the sensing electrode surface. Amplified square-wave voltammetry (SWV) signal contributed to its application in detection of THC in artificial or real saliva samples.<sup>1</sup> SWV method for detection of cannabinoids in food products has been developed based on voltammetry of immobilized microparticles of cannabinol (CBN) and cannabidiol (CBD) at paraffin-impregnated graphite electrode. Cannabinoids have exhibited net peak potentials at 0.538 V and 0.556 V, for CBN and CBD respectively, attributed to electro-oxidation of a phenolic group to a phenoxy radical.<sup>2</sup> Cyclic voltammetry and differential pulse voltammetry have been utilized in examination of the antioxidant properties of isolated cannabinoids or Cannabis extract.

Although there are some challenges in practical application of these methods, analysis in forensic purposes and development of electrochemical sensors for detection of THC in biological samples have been deeply investigated and improved, nowadays.

**Keywords:** cannabinoids, forensic analysis, sensors, voltammetric techniques.

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