II. International

ISCMP

ALBANIA 2018

Joint Science Congress of Materials and Polymers

Book of Abstracts

9-12 November - Albanian Star Hotel - DURRES

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14:10 – 14:30 Coffee Break

14:30 – 14:50 **İhsan Başaran**, Ph.D., *"Covalent Attachment of Poly(ε-caprolactone) to the Gelatin/Collagen/Elastin Surface by In-Situ Polymerization"*

14:50 – 15:10 **Yordan Nikolaev Georgiev**, Ph.D., *"Pectic Polysaccharides from the Leaves of the Thracian Resurrection Glacial Relic Haberlea Rhodopensis Friv"*

15:10 – 15:30 **İsmail Taş**, Ph.D., *"Effects of Different Irrigation Water Salinity Levels On Germination of Guar Gum (Cyamopsis tetraganoloba)"*

November 11, 2018 (Sunday)

09:00 – 09:30 **Kaan Cebesoy Emregül**, Ph.D., *"Computational Chemistry and Corrosion Inhibition"* ***(KEYNOTE SPEAKER)***

09:30 – 09:50 **Avni Riza Berisha**, Ph.D., *"Aryldiazonium Chemistry Meets Surfaces - Formation of the Covalently Bonded Nano-Polymeric Films"*

09:50 – 10:10 **Yusuf Dilgin**, Ph.D., *"Electrochemical Sensors/Biosensors Using Nanomaterials/Polymer Modied Pencil Graphite Electrodes"*

10:10 – 10:30 Coffee Break

10:30 – 10:50 **Elif Ayşe Boyukbayram**, Ph.D., "*Enzyme Immobilized Cholesterol Biosensor Prepared By Conducting Polymer Composites"*

10:50 – 11:10 **Hern Kim**, Ph.D., *"Ionene-based Polyelectrolytes and Their Electrochemical Application in Smart Windows"*

11:10 – 11:30 **Volkan Eskizeybek**, Ph.D., "*Impact of Seawater Aging on Interlaminar Fracture Perfomance of Halloysite Nanotube Modified Epoxy/Basalt Fiber Hybrid Composites"*

11:30 – 11:50 **Gülen Türker**, Ph.D., *"Extraction of Polysaccharide from the Green Algae Codium tomentosum"*

11:50 – 13:00 Lunch

13:00 – 13:30 **Turgay Seçkin**, Ph.D., *"Electromagnetic Interference Shielding and Dielectric Properties of Multi-walled Carbon Nanotube/Polyimide Composites"* ***(KEYNOTE SPEAKER)***

13:30 – 13:50 **Jane Bogdan Bogdanov,** Ph.D., *" Exploiting Spiroconjugation in the Desing of Building Blocks for Organic Magnetic Materials"*

13:50 – 14:10 **Metin Hayri Acar,** Ph.D., *"Synthesis and application of amphiphilic graft copolymers"*

14:10 – 14:20 Coffee Break

14:20 – 14:50 **Altin Gjevori** , Ph.D *" Incorporation of carbon and nitrogen into photoactive TiO2 thin films "* ***(KEYNOTE SPEAKER)***

14:50 – 15:10 **Nurettin Yalçın** Ph.D *"Ropes Reinforced Wood Plastic Composites"*

15:10 – 15:30 **Begüm Barış**, Medical Doctor, *"Probiotics at Clinical Practice"*

15:30 – 15:50 **Yasemin İspirli Doğaç**, Ph.D., *"Optimization and Characterization of Magnetic Nanogels for Enhanced Stability Properties of Immobilized Enzyme"*

15:50 – 16:05 **Fatma Moncer**, Ph.D. Student, *"3D molecularly imprinted sponge: New generation of transducer for highly sensitive electrochemical detection of cancer biomarkers"*

16:05 – 16:20 **Merve Danişman**, Ph.D. Student, *"Surface Modification of Hydroxyapatite with Enzyme Catalyzed Reaction and Effect of Temperature on the Modification Reaction"*

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PECTIC POLYSACCHARIDES FROM THE LEAVES OF THE THRACIAN RESURRECTION GLACIAL RELIC HABERLEA RHODOPENSIS FRIV.

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The main focus of research for understanding the resurrection ability from desiccation of the Balkan endemic plant H. rhodopensis and its immune-related activities are concentrated on lipophilic and polyphenolic compounds, as from the water-soluble molecules predominantly antioxidant enzymes are studied. Thus, the aim of the present study was to investigate the chemical diversity of water-soluble polysaccharides in the leaves of H. rhodopensis, which might be involved in its biological activities. After removal of most of the lipophilic compounds and pigments, the leaves were extracted twice with boiling water and as a result a water-extractable polysaccharide complex (WEPSC) with 73.7±2.5% total sugar content was isolated. WEPSC was obtained with yield of 5.4% on dry leaf basis and it contained high-methoxylated and low-acetylated pectins (anhydrouronic acid content of 49.1±0.5%). It was fractionated on a DEAE-Sepharose CL-6B column, as one neutral (WEPS-1) and two pectic fractions (WEPS-2 and -3) were obtained. The highest in yield WEPS-2 was further purified and fractionated on a Sephacryl S-300 column, as two sub-fractions were recovered (WEPS-2.1 and -2.2). The

homogalacturonan fragment in WEPS-2.2 was digested by a combination of pectin methylesterase (PME) and endo-polygalacturonase (EPG), as the enzyme digest was fractionated on a Sephacryl S-300 column into 3 sub-fractions (WEPS-2.2-EM1-1, -2 and -3). In parallel, a simultaneous release of the homogalacturonan fragment and some arabinose-containing side chains in the pectic rhamnogalacturonan I of WEPS-2.2 was done by combining PME and EPG with arabinose-releasing enzymes. Similarly, the hydrolyzate was fractionated into WEPS-2.2-EM2-1, -2 and -3 fractions. The monosaccharide composition and Mw of all native pectins and enzyme-obtained rhamnogalacturonan regions were studied. The glycosidic linkage composition and the main structural fragments of mother and enzyme-modified fractions were also analyzed by GC-MS, FT-IR and 2D NMR. In vitro NO production of murine macrophages treated with respective fractions was also evaluated.

Keywords: Haberlea rhodopensis, pectic polysaccharides, enzyme modification, GC-MS, NMR, macrophages

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