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Tenth Conference

with international participation

24.09.2021. Kragujevac, Serbia

“Biochemical Insights into Molecular Mechanisms”

PROGRAMME

- 10:00-10:15 Opening ceremony
- 10:15-10:50 Samo Kreft
Faculty of Pharmacy, University of Ljubljana, Slovenia
Phytochemical, pharmacological and clinical investigations of the extract from the branches of *Abies alba*
(FEBS3+ Lecture)
- 10:50-11:10 Dragica Selaković
Faculty of Medical Sciences, University of Kragujevac
Molecular mechanisms of platinum-based chemotherapeutics-induced behavioral manifestations of neurotoxicity – a beneficial role of antioxidant supplementation
- 11:10-11:30 Simeon Minić
University of Belgrade - Faculty of Chemistry
Bioactive properties of Spirulina-derived phycobiliproteins and phycobilins
- 11:30-12:00 Coffee break
- 12:00-12:20 Nikola Gligorijević
Institute for Application of Nuclear Energy, University of Belgrade
Ligand binding to fibrinogen influences its structure and function
- 12:20-12:40 Ivan Čapo
Faculty of Medicine, University of Novi Sad
New aspects of vitamin C during prenatal period of development

- 12:40-13:00 Milan Dragičević
Institute for Biological Research "Siniša Stanković", University of Belgrade
Arabinogalactan protein mining and diversity - the case of *Centaurium erythraea*
- 13.00-14.00 **Poster session**
- 14.00-15.00 Cocktail / Lunch break
- 15:00-15:20 Miloš Prokopijević
University of Belgrade - Institute for Multidisciplinary Research
Natural polymers: suitable carriers for enzyme immobilization
- 15:20-15:40 Ana Ninić
University of Belgrade - Faculty of Pharmacy
Link between resistin, low-grade systemic inflammation and obstructive sleep apnea
- 15:40-16:00 Branka Đorđević
Faculty of Medicine, University of Niš
Blood-retinal barrier breakdown in diabetic retinopathy – the protective role of melatonin
- 16:00-16:30 Coffee break
- 16:30-17:00 Poster awards and closing ceremony

Poster Session

Tamara Antonić

Faculty of Pharmacy, University of Belgrade

Prognostic capability of uric acid on the development of hypertensive complications during pregnancy

Miloš Avramov

Faculty of Sciences, University of Novi Sad

Protein disorder determination and expression of hsp genes during diapause and cold acclimation in the European corn borer *Ostrinia nubilalis* (Hbn.)

Dejana Bajić

Faculty of Medicine, University of Novi Sad

Levothyroxine: biochemical aspects and consumption in Serbia

Ana Marija Balaž

Institute of Chemistry, Technology and Metallurgy, University of Belgrade

Horseradish peroxidase C1A wild type gene and its variants expressed in *Pichia pastoris* KM71H strain

Vedrana Bazović

Faculty of Chemistry, University of Belgrade

Screening of potential inhibitors of recombinant S-adenosyl-L-homocysteine hydrolase from banana

Sofija Bekić

Faculty of Sciences, University of Novi Sad

Heterologous expression, purification and enzymatic activity of aldo-keto reductase 1D1

Stefan Blagojević

Faculty of Science, University of Kragujevac,

Impact of gold(III) and ruthenium(II) complexes on miRNA expression involved in metastasis on primary ovarian cell culture isolated from ascites

Dragica Bulajić

Faculty of Medicine, University of Novi Sad

Cytotoxicity of pulp-capping materials NeoMTA Plus, ProRoot MTA, and Biodentine on human deciduous dental pulp stem cells

Sunčica Buljević

Faculty of Medicine, University of Rijeka

The impact of CD26 deficiency on peptide YY and substance P expression patterns in Crohn's disease

Marina Crnković

Faculty of Agriculture, University of Novi Sad

Effect of soil liming on phenolic compounds in soybean

Jelena Danilović Luković

University of Belgrade - Institute for Multidisciplinary Research

The effect of increased nickel concentrations on *Chlorella sorokiniana* culture

Srdana Đorđević

Faculty of Sciences, University of Novi Sad

The effect of spermidine on the malondialdehyde levels in honey bees (*Apis mellifera* L.)

Nevena Đukić

Faculty of Science, University of Kragujevac

Accumulation of malondialdehyde in different varieties of *Triticum aestivum* L. under conditions of heat stress

Jovana Drljača

Faculty of Medicine, University of Novi Sad

Glioblastoma-associated microglia as a new target and strategy to fight with

Yaraslau U. Dzichenka

Institute of Bioorganic Chemistry of National Academy of Sciences, Minsk

Modified steroids as modulators of cholesterol level in humans by acting on CYP7A1 and CYP7B1

Sonja Filipović

Faculty of Sciences and Mathematics, University of Niš

The unanticipated monoterpene quantities variation in the Montenegro *J. oxycedrus* essential oil specimens

Sonja Filipović

Faculty of Sciences and Mathematics, University of Niš

The first antifungal activity assessment of *M. juliana* essential oil against crop pathogen *Colletotrichum acutatum* J.H. Simmonds

Azra Guzonjić

Faculty of Pharmacy, University of Belgrade

Relative telomere length and oxidative stress in patients with idiopathic pulmonary fibrosis, mesothelioma and non-small cell lung cancer

Jasmina Ivanišević

Faculty of Pharmacy, University of Belgrade

Redox status in patients with obstructive sleep apnea

Anđelka M. Isaković

Institute of Medical and Clinical Biochemistry, Faculty of Medicine, University of Belgrade

ADAM10, CEA, and CA19-9 as triad biomarkers of colorectal cancer response to neoadjuvant chemoradiotherapy

Jovana D. Jagodić

Faculty of Chemistry, University of Belgrade

Elemental composition of healthy adrenals and adrenal adenomas: whole blood and solid tissue analysis

Natalija Jonić

Institute for Biological Research "Siniša Stanković, University of Belgrade

Promoting the pro-inflammatory phenotype in macrophages by blocking the aryl hydrocarbon receptor

Jelena S. Katanić Stanković

Institute for Information Technologies Kragujevac, University of Kragujevac

Meadowsweet extract-mediated green synthesis of silver nanoparticles: A promising bioactive tool

Teodora Knežić

Biosense Institute, University of Novi Sad

Expression of *cs*, *ast*, *alt* and *ldh* genes during diapause of the European corn borer *Ostrinia nubilalis* (Hbn.)

Milica Kojadinović

Institute for Medical Research, University of Belgrade

The supplementation with fish and evening primrose oils improves fatty acid status in breast cancer patients receiving aromatase inhibitors

Jelena Korać Jačić

University of Belgrade - Institute for Multidisciplinary Research

The impact of pH on coordination chemistry of tetracycline and Fe(III) in water

Lela Korićanac

Vinča Institute of Nuclear Sciences, University of Belgrade

Antitumor effect of Ru(II) complexon A375 and HeLa cell growth, migration and adhesion ability

Ana Kostić

Institute for Biological Research "Siniša Stanković", University of Belgrade

Sclareol, a natural compound, inhibits P-glycoprotein activity in cancer cells

Iva Lakić

Faculty of Biology, University of Belgrade

Rat brown adipose tissue thermogenic markers are modulated by estrus cycle phases and short term fasting

Milica Lazarević

Institute for Biological Research „Siniša Stanković“, University of Belgrade

The effect of novel rosmarinic acid derivative on the pathogenesis of experimental autoimmune encephalomyelitis in rats

Ivana Lukić

Institute of Virology, Vaccines and Sera – Torlak, Belgrade

***Lactobacillus reuteri* alleviate the severity of chemically-induced colitis in mice**

Jovan Luković

Faculty of Medical Sciences, University of Kragujevac

Cytotoxic effect of chalcone analogue on tumor cells of murine and human origin

Tatjana Majkić

Faculty of Sciences, University of Novi Sad

Hypoglycemic effect of Cabernet Sauvignon wine

Aleksandra Margetić

University of Belgrade – Institute of Chemistry, Technology and Metallurgy

Antibacterial activity of polypyridinearene ruthenium(II) complexes

Marija Marin

Faculty of Biology, University of Belgrade

Effect of the *Thymus lykæ* Degen et Jav. methanol extract on the erythrocyte membrane

Stefan Marković

Faculty of Science, University of Kragujevac

Heat-induced accumulation of proline and yield components in different cereal varieties

Miloš Matić

Faculty of Science, University of Kragujevac

Effects of cadmium on oxidative metabolism and motility of human placental cells in chemically-induced hypoxia

Nenad Mićanović

Faculty of Agriculture, University of Belgrade

Antioxidant and antidiabetic potential of hawthorn (*Crataegus mopsogyna* Jacq. L.) fruits originating from Serbia

Tijana Mićović

Institute for Medicines and Medical Devices of Montenegro, Podgorica

Promising anti-inflammatory potential of methanol extracts of *Hyssopus officinalis* L. subsp. *aristatus* (Godr.) Nyman (*Lamiaceae*)

Vladimir Mihailović

Faculty of Science, University of Kragujevac

Selected medicinal plant extracts as a potential preservative in cosmetic products

Marija Mihajlović

Faculty of Pharmacy, University of Belgrade

Relationship between single nucleotide polymorphism TNF- α -308 G>A (rs1800629) and TNF- α gene expression levels in colorectal cancer patients

Nemanja Mijin

Faculty of Chemistry, University of Belgrade

Amyloid fibril formation of ovalbumin in the presence of heavy metal ions, lead and cadmium

Marijana Milanović

Medical Faculty of the Military Medical Academy, University of Defense, Belgrade

Exogenous alpha-ketoglutarate impair differentiation and maturation of human dendritic cells

Sonja Milić Komić

Institute for Multidisciplinary Research, University of Belgrade

Efficient production of highly purified Late Embryogenesis Abundant (LEA) protein from *Arabidopsis thaliana* by recombinant DNA technology

Milorad Miljić

Faculty of Sciences, University of Novi Sad

The profile of carotenoids and phenolic compounds in 20 different varieties of pumpkin pulp cultivated in Serbia

Sara Milojević

Faculty of Science, University of Kragujevac

Evaluation of pathophysiological effects of clinical concentrations of proinflammatory interleukin-6 detected in patients with COVID-19 on homeostasis of human trophoblast cells

Jelica Milošević

Faculty of Chemistry, University of Belgrade

Bioinformatic analysis of ovalbumin and HEWL amyloidogenic peptides

Maja Milošević

Faculty of Technology, University of Novi Sad

Use of acid-extracted fiber from butternut squash pulp for complex coacervate preparation

Marija Milošević

Faculty of Science, University of Kragujevac

Testicular toxicity induced by chlorpyrifos and imidacloprid: Comparative study

Tamara Milošević

Clinical Hospital Center „Zvezdara“, Belgrade

High lactate dehydrogenase activity is significant mortality predictor in a 6 months study on end stage renal disease patients

Milan Mišić

Faculty of Chemistry, University of Belgrade

Antioxidant potential and protein interactions of four tea plant extracts

Maja Mladenović

University of Belgrade – Faculty of Chemistry

Optimization of expression, purification and HRMS characterization of recombinant N-protein fragment from SARS-CoV-2

Jovana Muškinja

Institute for Information Technologies, University of Kragujevac

Synthesis of ferrocenyl-based pyrazoline derivatives and their biological evaluation

Aleksandra Nikezić

Faculty of Science, University of Kragujevac

Anticancer potential of *Alchemilla vulgaris* L. on triple negative breast cancer cell lines

Ivana Nikolić

Faculty of Medical Sciences, University of Kragujevac

Biological effects of vanillin derivatives (enones) on HeLa cells in vitro

Ana Obradović

Faculty of Science, University of Kragujevac

Molecular mechanisms of antitumor activity 3-(4-chlorobenzyl)-5-isopropyl-5-phenylhydantoin in human breast cancer MDA-MB-231 cells

Miloš Opačić

Institute for Multidisciplinary Research, University of Belgrade

Distribution of high-affinity copper transporter CTR1 in sclerotic hippocampi of mTLE patients

Dejan Orčić

Faculty of Science, University of Novi Sad

A novel HPLC-DAD method for quantification of dominant lignans in cow parsley (*Anthriscus sylvestris* (L.) Hofm.)

Ana Pantelić

Faculty of Chemistry, University of Belgrade

Characterization of the late embryogenesis abundant (LEA) proteins family in hydrated and desiccated *Ramonda serbica* Panc. leaves

Jelena Pantović

Faculty of Chemistry, University of Belgrade

Expression, purification and characterization of recombinant L-phenylalanine dehydrogenase

Milica G. Paunović

Faculty of Science, University of Kragujevac

Estimation of redox potential of novel Pt(IV) complexes in the blood of rats

Kasja Pavlović

Clinic for Endocrinology, Diabetes and Metabolic Diseases, University Clinical Center of Serbia

Response of muscle cells to metformin depends on glucose availability in cell culture medium

Marija Pavlović

Vinča Institute of Nuclear Sciences, University of Belgrade

Highly active pectinases from newly isolated *Aspergillus tubingensis* strain

Milica Pavlović

Faculty of Science, University of Kragujevac

Bioaccumulation coefficient as an indicator of the ability to accumulate heavy metals of plant species on tailings

Milica Perović

Faculty of Technology, University of Novi Sad

Preparation and characterization of protein nanoparticles from chickpea protein isolates

Nevena Planojević

Faculty of Science, University of Kragujevac

The influence of newly synthesized Au(III) and Ru(II) complexes on gene expression on primary ovarian cancer cell culture from ascites

Lena Platanić Arizanović

University of Belgrade - Faculty of Chemistry

Atypical antipsychotics clozapine, sertindole, ziprasidone, and erythrocytes: Friends or foes?

Dušica J. Popović

Faculty of Medicine, University of Novi Sad

Inhibition of tumor vasculature production by metformin treatment of cancer inoculated to hamsters

Kosta J. Popović
Faculty of Medicine, University of Novi Sad
Nitroglycerin reduces no production in hamster fibrosarcomas

Aleksandra Popović
Faculty of Medicine, University of Novi Sad
The effects of Karnozin EXTRA® on mitochondrial bioenergetics in healthy fibroblasts

Iva Potočnjak
Faculty of Medicine, University of Rijeka
Oleanolic acid induces mitophagy and chemosensitises human colon carcinoma cells

Tanja Radisavljević
Faculty of Science, University of Novi Sad
Chemical characterization and antioxidant capacity of decaffeinated coffee extracts

Milena Rašeta
Faculty of Sciences, University of Novi Sad
Phenolic profile and biological activity of fungal species *Volvopluteus gloiocephalus* (DC.) Vizzini, Contu & Justo 2011

Marina Ristović
Institute of Chemistry, Technology and Metallurgy, University of Belgrade
Diffusion screening method for estimation potential fungal producers of xylanase responsible for xylooligosaccharides production

Dragana Robajac
Institute for the Application of Nuclear Energy, University of Belgrade
Changes in serum glycans in pregnant women with gestational diabetes mellitus

Milena Simić
Faculty of Pharmacy, University of Belgrade
Activity and phenotype of paraoxonase 1 enzyme in pediatric patients on hemodialysis

Miron Sopić

Faculty of Pharmacy, University of Belgrade

Short telomeres in peripheral blood leukocytes are associated with the presence and the severity of lung cancer

Nikola Z. Srećković

Faculty of Science, University of Kragujevac

Green synthesis, characterization, and biological evaluation of silver nanoparticles synthesized using *Salvia pratensis* L. extracts

Ana Stančić

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Ferroptosis as a novel determinant of β -cell death in diabetic conditions

Marija Stanišić

Faculty of Chemistry, University of Belgrade

Biomimetic mineralisation of periodate oxidized glucose oxidase

Marijana Stanojević Pirković

Faculty of Medical Sciences, University of Kragujevac

Cytotoxicity of enone sodium salts on human colon cancer cells (HCT-116) *in vitro*

Aleksandra Stefanović

Institute for Oncology and Radology of Serbia, Beograd

Methylenetetrahydrofolate reductase C677T and A1298C polymorphic variants in rectal cancer: significance for cancer risk and response to chemoradiotherapy

Olgica Stefanović

Faculty of Science, University of Kragujevac

Phenolic compounds content and antibacterial activity of selected medicinal plants growing in Serbia

Olgica Stefanović

Faculty of Science, University of Kragujevac

Antibacterial and cytotoxic activity of *Tanacetum macrophyllum* extracts

Branko Subošić

University Children's Hospital, Belgrade

Childhood obesity: metabolic disorder and liver function

Emilija Svirčev

Faculty of Sciences, University of Novi Sad

Identification of compounds with antioxidative properties in alpine bistort (*Bistorta vivipara* (L.) Delarbre) ethanol extracts

Biljana Šmit

Institute for Information Technologies Kragujevac, University of Kragujevac

Synthesis and antimelanogenic activity of N3-arylidene-2-thiohydantoin derivatives

Marinela Šokarda Slavić

Faculty of Chemistry, University of Belgrade

Production of polyglutamic acid by *Bacillus* sp: strains selection, optimization, batch fermentation and characterization

Marinela Šokarda Slavić

Faculty of Chemistry, University of Belgrade

A search for nature's robust proteases with zein as a substrate

Filip Štrbac

Faculty of Agriculture, University of Novi Sad

Chemical composition of thyme essential oil and its anthelmintic properties

Jovana Šućur

Faculty of Agriculture, University of Novi Sad

Allelopathic effect of ragweed (*Ambrosia trifida* L.) on soybean phenolic compounds

Miloš Šunderić

Institute for the Application of Nuclear Energy, University of Belgrade

Interaction between alpha-2-macroglobulin and phycocyanobilin – structural and physiological implications

Marija Takić

Institute for Medical Research, University of Belgrade

Associations between zinc intake and status with biochemical and antropometric parameters in hemodialysis patients

Nada Tokodi

Faculty of Sciences, University of Novi Sad

Biochemical, molecular and histological insight into cyanobacterial effects on *Cyprinus carpio* from Kis-Balaton, Hungary

Jovana Tubić Vukajlović

Faculty of Science, University of Kragujevac

The effect of acetone extract of *Lenzites betulinus* mushroom on peripheral blood lymphocytes genome in patients with acute coronary syndrome *in vitro*

Mirela Ukropina

Faculty of Biology, University of Belgrade

Possible protective role of probiotic bacteria on intestinal epithelium after chronic CdCl₂ intake

Iva Uzelac

Faculty of Sciences, University of Novi Sad

Expression of heat shock protein genes in response to unusually high temperatures during winter diapause in the European corn borer *Ostrinia nubilalis* (Hbn.)

Snežana Vojvodić

Institute for Multidisciplinary Research, University of Belgrade

Redox changes in microalga *Chlorella sorokiniana* exposed to high concentrations of Mn(II)

Sanja Vujčić

University of Belgrade - Faculty of Pharmacy

Triglyceride-glucose index and oxidative stress biomarkers in patients with type 2 diabetes mellitus

Srđan Vujinović

Faculty of Sciences, University of Novi Sad

Chemical composition and antioxidant activity of pomegranate (*Punica granatum* L.) peel and pulp

Iva Vukelić

Faculty of Medicine, University of Rijeka

Luteolin ameliorates experimental colitis in mice through ERK-mediated suppression of inflammation, apoptosis and autophagy

Anđela Vukojević

University of Belgrade - Institute for Biological Research “Siniša Stanković”,

Effects of fermented food on the body weight and behavior after repeated LPS administration in mice

Irina Vulin

Faculty of Sciences, University of Novi Sad

Effect of caffeine on cell proliferation and key elements of neurotransmitter pathways in human neuroblastoma SH-SY5Y cell line

Milan Zarić

Faculty of Medical Sciences, University of Kragujevac

Selective cytotoxicity of melittin against human cervical cancer cells

Gordana Zavišić

Faculty of Pharmacy, University of Academy Business, Novi Sad

Effect of probiotic consumption on serum glucose and lipid levels in mice

Milica Zeković

Institute for Medical Research, University of Belgrade

Omega-3 index and anthropometric indices among testicular cancer survivors

Milena Zlatanova

Faculty of Chemistry, University of Belgrade

Small molecules attenuate activation of the NF- κ B signaling in epithelial cells by Act d 1 kiwifruit allergen

Nenad Zlatic

Faculty of Science, University of Kragujevac

Monoterpenes variability in *Teucrium montanum* L. essential oils

Alma Zuković

Faculty of Pharmacy, University of Belgrade

Biomarkers of oxidative stress in pediatric patients with type 1 diabetes mellitus

Dragan Živančev

Institute of Field and Vegetable Crops, Novi Sad

The use of the handheld grain quality analyzer for determination protein content in wheat cultivars

Katarina Živić

Institute for Oncology and Radiology of Serbia, Belgrade

Prevalence of somatic *BRCA1* gene methylation in patients with ovarian cancer

Kristina Živić

Institute for Oncology and Radiology of Serbia, Belgrade

Anti-migratory properties of Nischarin agonist rilmenidine in pancreatic ductal adenocarcinoma

***Lactobacillus reuteri* alleviate the severity of chemically-induced colitis in mice**

Ivana Lukić^{1*}, Mina Popović², Ninoslava Injac¹, Ana Kovačević¹, Radmila Miljković¹, Marijana Stojanović¹

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Inflammatory bowel diseases (IBDs) are associated with reduced diversity and decreased contribution of probiotic bacteria within the comensal microbiota. A range of probiotic bacteria, including the genera *Lactobacillus*, could be protective in IBDs due to their capacity to trigger anti-inflammatory mechanisms¹. The aim of the study was to explore immunomodulatory impact of probiotic bacteria. *Lactobacillus reuteri* (LR) and its contribution to the alleviation of severity of a 2,4,6-trinitrobenzene sulfonic acid (TNBS)-induced colitis in mice. Colitis was induced in outbred Intor Swiss:Albino mice by a single administration of TNBS dissolved in 50% ethanol (day 0). LR in phosphate buffer solution (5×10^6 CFU/mL, p.o.) was given daily, 7 days prior and/or 7 days after day 0 (n=10 per treatment). Mice subjected to the induction of colitis without LR treatment were referent. A significant reduction in disease severity was noticed only in group treated by LR prior and upon colitis induction. The alleviation of disease severity correlated with lessening of local infiltration of leukocytes, a decrease in local inflammatory response (myeloperoxidase activity, production of superoxide ions, IL-6, and TNF α), and an increase in local production of IL-10. Presented results show that LR triggers a regulatory mechanism which alleviates severity of TNBS-induced colitis in mice, implying that it is worth further evaluation in prevention and treatment of IBDs.

Acknowledgements

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References

1. Popović M, et al. Characterization of potential probiotic strain, *L. reuteri* B2, and its microencapsulation using alginate-based biopolymers. *Int J Biol Macromol* 2021;183:423-34.