



GOCE DELCEV UNIVERSITY - STIP
FACULTY OF MEDICAL SCIENCES



International symposium at
Faculty of medical sciences

CURRENT ACHIEVEMENTS AND FUTURE PERSPECTIVES IN MEDICAL AND BIOMEDICAL RESEARCH



STIP, 24 NOVEMBER 2015
MULTIMEDIA CENTRE – UGD, STIP

INTERNATIONAL SYMPOSIUM AT FACULTY OF MEDICAL SCIENCES
“Current achievements and future perspectives in medical and biomedical research”

SCIENTIFIC PROGRAM

November 24, 2015 - Stip

8:30 – 9:00

Registration

9:00 – 9:15

Rector / Vice rector/Dean

SESSION 1

Chair: Prof. Emilija Janevik Ivanovska

Co-chair: Ass. Prof. Elena Drakalska

9:15 – 9:35

Ass. Marija Darkovska Serafimovska
Macedonian agency of drug and medical
devices, Director
University Goce Delcev Stip
Republic of Macedonia

Step forward of Macedonian agency for medicines and medical devices, establishment and strategic plan for development

9:35 – 9:55

Assoc. Prof. Zorica Arsovska Sarafinovska
Institute of Public Health of the
Republic of Macedonia, Skopje,
University Goce Delcev Stip
Republic of Macedonia

Adherence to Therapy: A Modern Pharmacotherapeutic Approach

9:55 – 10:15

Prof. Biljana Gjorgjeska
University Goce Delcev Stip
Republic of Macedonia

Use of disinfectants and antiseptics in selected health institutions in Republic of Macedonia

10:15 – 10:35

Assoc. Prof. Bistra Angelovska
University Goce Delcev Stip
President of Pharmaceutical Chamber
of Macedonia. Republic of Macedonia

Code of Ethics for Pharmacists – Pharmaceutical Chamber of Macedonia

10:40 – 11:10

Coffee break

Poster presentation

Chair: Prof. Milka Zdravkovska
Co-chair: Ass. Prof. Darinka Gjorgieva Ackova

10:10 – 11:50

Prof. Neven Zarkovic
Rudjer Boskovic Institute, Croatia

4-Hydroxynonenal – major bioactive marker of lipid peroxidation

11:50 – 12:10

Assoc. Prof. Tatjana Ruskovska University
Goce Delcev Stip Republic of Macedonia

Nicotinamide adenine dinucleotide biosynthesis and consumption in dysfunctional white adipocytes

12:10 – 12:30

Prof. Rubin Gulaboski University
Goce Delcev Stip Republic of Macedonia

New insights into the chemistry and functions of Coenzyme Q

12:30 – 12:50

Assoc. Prof. Darko Bosnakovski
University Goce Delcev Stip
Republic of Macedonia

Genetically modified systems to study muscular dystrophies

12:50 – 14:00

Coffee break

Poster presentation

Chair: Assoc. Prof. Cena Dimova
Co-chair: Ass. Prof. Nevenka Velickova

- 14:00 – 14:40 Prof. Lia Rimondini**
Università del Piemonte Orientale,
Novara, Italy
Counteracting microbial biofilm formation onto dental materials
- 14:40 – 15:00 Prof. Elizabeta Zisovska**
Agency for Quality and Accreditation of
Healthcare Institutions, Skopje,
Republic of Macedonia
The endless potential of the umbilical cord blood for investigation, research and treatment
- 15:00 – 15:20 Ass. Misko Milev**
University Goce Delcev Stip
Republic of Macedonia
The cytokinesis-blocked micronucleus assay: Good choice for detection and evaluation of genotoxicity in human cells
- 15:20 – 15:40 Prof. Lence Miloseva**
University Goce Delcev Stip
Republic of Macedonia
Multiple predictive model for clinical and subclinical depression in adolescence
- 15:40 – 16:00 Coffee break** **Poster presentation**

SESSION 4

Chair: Assoc. Prof. Darko Bosnakovski
Co-chair: Ass. Prof. Katarina Smilkov

- 16:00 – 16:40 Prof. Adriano Duatti**
University of Ferrara, Ferrara, Italy
Molecular imaging and radionuclide therapy of prostate cancer
- 16:40 – 17:00 Assoc. Prof. Vaso Taleski**
University Goce Delcev Stip
Republic of Macedonia
Where Nanotechnology and Nanomedicine meet – Applications and Potential Risks
- 17:00 – 17:20 Dr. Aleksandar Cvetkovski**
University Goce Delcev Stip
Republic of Macedonia
The role of molecular cocrystals in drug development
- 17:20 – 17:40 Prof. Emilija Janevik Ivanovska**
University Goce Delcev Stip
Republic of Macedonia
Drug development based on radiolabeled antibodies
- 17:40 – 18:00 Closing remarks**

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INTERNATIONAL SYMPOSIUM AT FACULTY OF MEDICAL SCIENCES

“Current achievements and future perspectives in medical and biomedical research”

November 24, 2015 – Stip

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- 2. Adherence to Therapy: A Modern Pharmacotherapeutic Approach**
Author: Zorica Arsovska Sarafinovska
- 3. Use of disinfectants and antiseptics in selected health institutions in Republic of Macedonia**
Author: Biljana Gjorgjeska
- 4. Code of Ethics for Pharmacists – Pharmaceutical Chamber of Macedonia**
Author: Bistra Angelovska
- 5. 4-Hydroxynonenal – major bioactive marker of lipid peroxidation**
Authors: Neven Zarkovic, Kamelija Zarkovic
- 6. Nicotinamide adenine dinucleotide biosynthesis and consumption in dysfunctional white adipocytes**
Authors: Prof. Tatjana Ruskovska, David Bernlohr
- 7. New insights into the chemistry and functions of Coenzyme Q**
Authors: Rubin Gulaboski, Valentin Mirceski, Ivan Bogeski, Sasa Mitrev, Kokoskarova Pavlinka, Velo Markovski, Reinhard Kappl, Markus Hoth
- 8. Genetically modified systems to study muscular dystrophies**
Author: Darko Bosnakovski
- 9. Counteracting microbial biofilm formation onto dental material**
Author: Lia Rimondini
- 10. The endless potential of the umbilical cord blood for investigation, research and treatment**
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- 11. The cytokinesis-blocked micronucleus assay: Good choice for detection and evaluation of genotoxicity in human cells**
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- 12. Multiple predictive model for clinical and subclinical depression in adolescence**
Authors: Lence Miloseva, Tatjana Vukosavljevic-Gvozden
- 13. Molecular Imaging and therapy with radionuclides of prostate cancer**
Author: Adriano Duatti
- 14. Where Nanotechnology and Nanomedicine meet – Applications and Potential Risks**
Authors: Vaso Taleski, Darko Bosnakovski, Milka Zdravkovska, Velo Markoski, Zdenka Stojanovska, Svetlana Jovevska
- 15. The role of molecular cocrystals in drug development**
Author: Aleksandar Cvetkovski
- 16. Drug development based on radiolabeled antibodies**
Author: Emilija Janevik-Ivanovska

INTERNATIONAL SYMPOSIUM AT FACULTY OF MEDICAL SCIENCES

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POSTER PRESENTATIONS

- 1. Correlation between dynamic balance and gait parameters in patients with ischemic stroke in the chronic period**
Authors: Danche Vasileva, Daniela Lubenova, Marija Mihova, Ivan Maznev, Lence Nikolovska, Zhu Jihe;
- 2. Effect of kinesitherapy on physical activity in patient with Guillain-Barré syndrome**
Authors: Antoaneta Dimitrova, Kristin Petrova Grigorova, Daniela Lubenova, Danche Vasileva, Milena Nikolova;
- 3. Case Report :
Oligoasthenoteratozoospermia, treatment with acupuncture**
Authors: Jihe Zhu, Blagica Arsovska, Dance Vasileva, Andrijana Sterjovska-Aleksovska, Kristina Kozovska;
- 4. Treatment of cervical spondylosis with acupuncture**
Authors: Kristina Kozovska, Jihe Zhu, Blagica Arsovska, Andrijana Sterjovska-Aleksovska;
- 5. Effect of kinesitherapy on static and dynamic balance in patient after vertebro-basilar system stroke**
Authors: Milena Nikolova, Antoaneta Dimitrova, Danche Vasileva, Daniela Lubenova, Kristin Petrova Grigorova;
- 6. Malignant pleural effusions in lung cancer: the condition during the disease**
Authors: Marija Karakolevska-Ilova, Elena Simeonovska Joveva, Aleksandar Serafimov, Lidija Petrovska;
- 7. Systemic fungal infections in hematological malignancies**
Authors: Petar Kuzmanovski, Velo Markoski;
- 8. Morbidity and mortality of malignant neoplasms in Macedonia**
Authors: Viktorija Vukovikj, Velo Markoski;
- 9. Cognitive behavioral program in treating insomnia among elderly patients**
Authors: Kneginja Richter, Lence Miloseva, Guenter Niklewski, Anja Piehl;
- 10. Regulations and legal aspects in management of medical waste**
Authors: Biljana Shikoska, Cena Dimova, Gjorgji Schumanov;
- 11. Control of the psychiatric disorders in the Republic of Macedonia**
Authors: Leonid Ramov, Velo Markoski;
- 12. Monitoring of the renal function in Indometacin treated patients with rheumatoid arthritis**
Authors: Drita Yzeiri Havziu, M.Hiljadnikova-Bajro, T. Kadifkova Panovska;
- 13. Incidence of breast cancer in Macedonia**
Authors: Dijana Stojanova, Velo Markoski;
- 14. HPV virus as a cause of cancer of the cervix in R.Macedonia**
Authors: Stefanija Joveva, Velo Markoski, Vaso Taleski;
- 15. Analysis of the Pap test results by age groups in the area of Kriva Palanka**
Authors: Robert Nikolovski, Kristina Denchovska, Goran Mladenovski, Velo Markovski;
- 16. Giant rhinophyma treated by excision and full thickness skin grafting**
Author: Emilija Lozanovska Doneva;
- 17. Incidence of patients with chronic renal failure in Skopje**
Authors: Simona Kamceva, Velo Markoski;
- 18. Calculation of effective dose to family members of patients with thyroid diseases**
Authors: Marina Zdravevska Kochovska, Emilija Janjevik Ivanovska, Meri Angeleska, Sasho Nikolovski, Zlatko Filipovski;

- 19. Contemporary Microbiological Diagnostic Tests for Rapid Identification and Detection of Resistance of Mycobacterium tuberculosis**
Authors: Oliver Taleski, Vaso Taleski;
- 20. Analysis of clinical features and complications in patients with β -thalassemia in the region of Strumica**
Authors: Silvana Sinokapovska, Cena Dimova;
- 21. Lymphoepithelioma : A case report**
Authors: Vase Stojcheska, Rade Filipovski, Dobri Stoimenov, Nikica Atanasova, Goran Karaivanov, Ana Doneva, Irena Shulevska, Silvana Kraveva;
- 22. F-ra Capitulum Radii L.Dex. – A Case report**
Authors: Svetlana Jovevska, M.Idrizovikj;
- 23. Patient with intracranial hemorrhage and arteriovenous malformation detected with transcranial color duplex sonography – case report**
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- 24. Hereditary supracondylar spur of the humerus: Case report**
Authors: Strahil Todorov, Christian Lozanoski, George Zafirovski;
- 25. Prosthetic rehabilitation in patient with advanced degree of functional disorders (case report)**
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- 26. Marginal Implants Bone Loss – a Case Report**
Authors: Kiro Papakoca, Ana Radeska-Panovska, Katerina Zlatanovska;
- 27. Ectodermal Dysplasia, a Case Report: Challenge for Prosthodontic Solution**
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- 28. Alveolar socket preservation and shaping using temporary prosthetic construction – cases presentation**
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- 29. Porcelain veneers produced by refractory die method**
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- 30. Correlation of Two Different Local Hemostatic Modalities in Oral Surgery Patients with Oral Anticoagulants**
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- 31. Assessment of orthodontic treatment need among school children by using iotn (index of orthodontic treatment need)**
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- 35. Oral surgery treatment in the patients with combination syndrome**
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- 37. Evaluation of Different Preparation of Artificial Teeth and Acrylate Prosthetic Base**
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- 41. Determining normal tissue toxicity of non-radioactively Lu/Y-labeled rituximab-conjugates in rat animal model**
Authors: Darinka Gjorgieva Ackova, Katarina Smilkov, Icko Gjorgoski, Emilija Janevik-Ivanovska;
- 42. Genetically Engineered Mouse Models For Human Pancreatic Cancer: A Review Of The KC, KPC And iKRas*P53* Models**
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- 50. Determination of active pharmaceutical ingredient – chloropyramine in dragées**
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- 51. Comparison of volatile aroma compounds between cultivated and spontaneous flowering stems of Sideritis scardica Griseb. from R. Macedonia**
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- 52. Bioactive compounds of cold-pressed oil from the seeds of Gojy Berry (Lycium barbarum)**
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- 53. Development and validation of HPLC method for determination of flavonoids in herbal preparations**
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- 54. Atomic emission spectrometry with inductively coupled plasma (ICP-AES) analysis of trace elements in Camellia sinensis teas**
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- 55. Determination of trace elements analyzed by atomic emission spectrometry with inductively coupled plasma (ICP-AES) in Matricaria chamomilla L. teas present on macedonian market**
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- 56. Human health risks from heavy metals via consumption of contaminated food**
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- 57. Development of an ultrasonic method for effective extraction of capsaicin as a potent bioactive compound**
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- 63. Oxidative stress, oxidative DNA damage and prostate cancer**
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- 64. RNA interference (RNAi) mechanism as a basis for future successful treatment of chronic hepatitis B infection**
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- 66. Cancer specific conjugated monoclonal antibodies for anticancer therapy**
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- 67. Accreditation of the Laboratory of Radiopharmacy – requested requirements or need of challenge**
Authors: Apostolova Paulina, Delipetrev Katarina, Smilkov Katarina, Gjorgieva Ackova Darinka, Sterjova Marija, Janevik Ivanovska Emilija;
- 68. Quality control of PET radiopharmaceuticals, with reference to its specifics vs quality control of conventional pharmaceuticals**
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- 69. Production of [11C] Choline in The University Institute for PET – new perspective in diagnostics of prostate malignancy in R. of Macedonia**
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- 70. PET radiopharmaceuticals in the diagnosis of neurological diseases**
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- 71. Achievements and perspectives in formulation of stable immunoconjugate of the HER2-targeting trastuzumab – potential for rapid labelling with Gallium-68**
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Faculty of Medical Sciences

University Goce Delcev – Stip, Macedonia

INTERNATIONAL SYMPOSIUM AT FACULTY OF MEDICAL SCIENCES

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Development of an ultrasonic method for effective extraction of capsaicin as a potent bioactive compound

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Abstract

Many recent studies concerning the medicinal use of capsaicin as a bioactive compound, justify the demands for new and effective methods of its extraction. Its pharmacological activity includes antihyperlipidemic, antiglycemic, anti-oxidative, antitumor properties. The majority of basic research studies suggest that capsaicin induces cell-cycle arrest or apoptosis or inhibits proliferation in different malignant cells including lung cancer, adeno carcinoma, pancreatic cancer, breast cancer. In many cases this activity of capsaicin is concentration dependent and that is one of the reasons for establishing a method for more effective extraction of capsaicin from hot peppers. Moreover synergistic effect of capsaicin with the effects of the other bioactive compounds of the peppers (vitamin C, vitamin E, quercetin, luteolin, carotene), makes these extracts more effective in potential antitumor therapy.

This method for capsaicin extraction was performed by using an ultrasonic bath with frequency of 35 kHz. We have used three different ratios of solid/liquid phase, different extraction times (20 to 60 min), and different temperatures (45 to 60°C). Concentration of capsaicin in the extracts was measured by HPLC-DAD.

Results obtained from liquid chromatography showed that capsaicin concentration was highest in the extract obtained with 1:25 (solid/liquid ratio), with ethanol (96% V/V). Results for time and temperature dependency on the efficiency of extraction of capsaicin showed that concentration of capsaicin in extracts from 50 and 60°C, is 0.406 mg/ml and 0.726 mg/ml, successively, and for the time of 60 minutes the highest concentration of capsaicin was obtained 0.685 mg/ml.

As a conclusion of this study we can propose that extraction time of 60 min on temperature of 60°C for 1/25 (solid/liquid ratio), gives the most efficient extraction of capsaicin. Optimization of the conditions for ultrasonic method of extraction is one of the key factors for obtaining an extract with high concentration of capsaicin, and protected pharmacological activity.

Keywords: capsaicin, chromatography, extraction, ultrasonic bath.