BOOK OF ABSTRACTS

International Summer School
FOOD SAFETY AND HEALTHY LIVING
FSHL – 2024

ON SITE and ONLINE

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FOOD SAFETY AND HEALTHY LIVING – FSHL 2024

C1 HEALTHY LIVING CONSIDERING FOOD SAFETY

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Healthy living includes good principles for a healthy lifestyle and introducing and maintaining habits that improve people`s quality of life and health. The main directions for a healthy living are related to eating a well-balanced diet, food safety, mental wellbeing, exercising, practicing hobbies, immunisation or live a happier life.

The 7th edition of the International Summer School - FOOD SAFETY AND HEALTHY LIVING – FSHL 2024 - brings together academic staff from different countries (Romania, Italy, Slovenia, Portugal, Albania, Serbia), with research interests in the field of healthy nutrition, methods used for food characterisation, microbiological aspects that impact food and health and other connected topics.

Starting as an objective of the CEEPUS project – "Food Safety for a Healthy Living" coordinated by Transilvania University of Brasov, the idea of organizing of an international summer school was continued every year since 2018.

The main objective of the summer school FSHL 2024 is to provide multi/trans-disciplinary knowledge on food quality and diversity for a safe and healthy life. Topics are dealing with important approaches about basic sensory processing – from chemical senses to different types of sensors and biosensors used in detection of food components and a weapon in the fight against antimicrobial resistance, nutrition benefits in patients with different chronic conditions, choosing the correct diet for different circumstances, medicine versus diet in medical conditions, importance of vitamin D in children and for healthy teeth and much more.

The undergraduate and postgraduate (master and PhD) students coming from different universities from Romania (Brasov, Bucharest, Galati, Targu Mures), Slovenia, Italy, Republic of North Macedonia, Albania, Croatia, Italy will join this summer school with high expectations and with avidity for identifying new approaches in the field of healthy nutrition and food safety.

Keywords: food safety, healthy living, nutrition, detection

Elena Laura GAMAN

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Relevant activities in the field of the thematic area

She successfully coordinated conferences and International Scientific Committees - New Trends on Sensing-Monitoring - Telediagnosis for Life Sciences - NT SMT-LS 2022, NT SMT-LS 2020, NT SMT-LS 2018, NT SMT-LS 2017. Dr. Gaman was chairing the organisation of International Summer Schools - Food Safety and Healthy Living –FSHL 2018-2022 (every year).

Research interests
Main research interest is the oxidative stress associated with different diseases: mitochondrial disease in children, atherosclerosis and cardiovascular disease, neurological disease like schizophrenia and Alzheimer's, diabetes, chronic renal disease.

REASEARCHER ID: U-1700-038N-9874
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SELECTED PUBLICATIONS

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- **Gaman L,** Radoi MP, Delia CE, Luzardo OP, Zumbado M, Rodríguez-Hernández Á, Stoian I, Gilca M, Boada LD, Henríquez-Hernández LA. Concentration of heavy metals and rare earth elements in patients with brain tumours: Analysis in tumour tissue, non-tumour tissue, and blood. Int J Environ Health Res. 2021 Nov;31(7):741-754. doi: 10.1080/09603123.2019.1685079
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- **Gaman L**, Dragos D, Vlad A, Robu G C, Radoi M P, Stroica L, Badea M, Gilca M., Phytoceuticals in acute pancreatitis: targeting the balance between apoptosis and necrosis, Evidence-Based Complementary and Alternative Medicine, 2018, Article ID 5264592, 27 pages

Mihaela BADEA

- Professor of Biochemistry, Laboratory techniques, Organic chemistry, Analytical chemistry, Methodology of scientific research at Faculty of Medicine, Transilvania University of Brasov, Romania
- Habilitation in Medicine (2017) - University of Medicine and Pharmacy Carol Davila from Bucharest
- PhD in Chemistry (2005) - Babes-Bolyai University of Cluj-Napoca
- PhD in Medicine (2021) – Transilvania University of Brasov
- Member of the Academic Nutritional Science PhD's staff of the University of Milan (Italy)

(since 2019).
- Nov. 2019 – Coordinator Research Center for Fundamental Research and Preventive Strategies in Medicine -ICDT UNITBV
- Coordinator of Clinical Laboratory, undergraduate specialization (3 years), Faculty of Medicine, Transilvania University of Brasov

Relevant activities in the field of the thematic area

The senior researcher has previous managerial experience in coordinating national grants and acting as Romanian coordinator for an international FP7 project (PlantLIBRA - KBBE-2009 -245199), as well as team member in international projects (funded by Balkan Environmental Associations- COSMOTE) and national projects.
She successfully coordinated conferences and International Scientific Committees - EnvEdu2005, New Trends on Sensing-Monitoring- Telediagnosis for Life Sciences - NT SMT-LS 2022, NT SMT-LS 2020, NT SMT-LS 2018, NT SMT-LS 2017, NT SMT-LS 2015, NT SMT-LS 2014; Healthy Nutrition and Public Health - IC-HNPH 2011; Analytical and Nanoanalytical Methods for Biomedical and Environmental Sciences-ICANMBES 2010. Dr Badea was chairing the organisation of International Summer Schools - Food Safety and Healthy Living – FSHL 2018-2022 (every year); Telemonitoring and Telediagnostic for Life Sciences – TTLS 2013; Bioanalytical Methods for Life Sciences – BMLS 2011.

Research interests

- Development and optimization of bioanalytical methods with applications in the life sciences
- Studies on the involvement of antioxidant systems in different biochemical mechanisms
- Correlation of environmental factors with chronic diseases
- Toxicological studies for the detection of contaminants in different environments
- Studies of herbal dietary supplements – composition, safety, beneficial effects, consumer profile
- Telemonitoring-telediagnosis in life sciences
- Biocompatibility studies for new biomaterials

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SELECTED PUBLICATIONS

- **Badea M**, Gaman L, Delia C, Ilea A, Leașu F, Henríquez-Hernández LA, Luzardo OP, Rădoi M, Rogozea L., (2019), Trends of lipophilic, antioxidant and hematological parameters associated with conventional and electronic smoking habits in middle-age Romanians., J Clin Med.;8(5). pii: E665
- Majdinasab M, **Badea M**, Marty JL. (2022), Aptamer-Based Lateral Flow Assays: Current Trends in Clinical Diagnostic Rapid Tests. Pharmaceuticals (Basel). 15(1):90. doi: 10.3390/ph15010090.
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- **Badea M**, Luzardo OP, González-Antuña A, Zumbado M, Rogozea L, Floroian L, Alexandrescu D, Moga M, Gaman L, Radoi M, Boada LD, Henríquez-Hernández LA., Body burden of toxic metals and rare earth elements in non-smokers, cigarette smokers and electronic cigarette users., Environ Res. 2018;166:269-275.

C2 RAPID DETECTION OF DIFFERENT COMPOUNDS FROM WATER, FOOD AND BIOLOGICAL FLUIDS

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Despite the abundance of methods for the detection and quantification of compounds from different sources, none is as rapid and cost-effective as the electrochemical sensors. Sensors are devices that, depending on their configuration, can rapidly quantify large categories of compounds. In the past ten years, it has been an abrupt interest, from researchers, for developing and optimising sensors for applications in environment monitoring, physical science, industry and the medical field.
Sensors's configurations influence their sensitivity, stability and applicability. Also, sensors can be modified to enhance the stability and sensitivity in detection. Consequently, for best results, the optimisation method is essential.
This presentation aims to focus on the optimisation steps of an electrochemical sensor and biosensor for the detection of different compounds from real samples.
In addition to that, the presentation highlights personal experience in working with electrochemical sensors and different compounds.

Keywords: *sensors, rapid quantification, optimisation, real samples.*

Ligia CHELMEA

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- PhD student (2021-present) in Medicine, „Transilvania " University of Brasov.
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Research interests

- medicine, infectious diseases
- prevention of infectious diseases

- treatment and antibiotherapy optimisation
- microbiology
- analytical chemistry: electrochemistry, sensors, biosensors, spectral analysis.
- cell cultures

SELECTED PUBLICATIONS

- **Chelmea L.**; Badea M.; Scarneciu I.; Moga M.A.; Dima L.; Restani P.; Murdaca C.; Ciurescu D.; Gaman L.E. New Trends in Uric Acid Electroanalysis. *Chemosensors* 2023, *11*, 341. https://doi.org/10.3390/chemosensors11060341
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C3 GREEN NANOPARTICLES - SYNTHESIS AND BIOMEDICAL APPLICATIONS

Cristina Ștefania GĂLBĂU (1,2), Mihaela BADEA (1,2)

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2-Research and Development Institute of Transilvania University of Brașov, Brașov, Romania

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Introduction: For the production of metal and metal oxide nanoparticles, green synthesis provides an excellent substitute to conventional techniques. This method works under ambient circumstances and is not only safe and benign but also economical, scalable, and simple.
Materials and method: Only sources published in the last 10 years, written in English from databases such as PubMed and Science Direct, were consulted.
Results and discussions: It has proven possible to create notable metals and metal oxide nanoparticles, including gold, silver, and iron oxides, by using a variety of bio-reductants made from plant extracts. These biological agents play the twin functions of capping and reducing agents by stabilizing the nanoparticles and accelerating the reduction process. In recent years, there has been a significant increase in the demand for safe and affordable materials that can be used for a wide range of applications, including energy storage devices, biomedicine, drug delivery, cancer therapies, the medical field, biosensors, textiles, water treatment, cosmetics, and dye degradation.
Conclusions: Many physical and chemical procedures may be used to generate nanoparticles, but these methods have disadvantages such as high costs and the need for high temperatures and pressures. These days, a lot of attention is focused on recent developments in nanotechnology and the ecologically friendly production of nanomaterials from plants and microorganism. The processes involved in the biosynthesis of nanoparticles are quick, easy, affordable, safe, and effective in imparting great stability. Because green nanoparticles are readily recycled and can be made from renewable resources, they may aid in sustainable development by lowering the environmental effect of waste generation and nanoparticle synthesis.

Cristina-Ștefania (ADOCHIȚE) GĂLBĂU

- Bachelor degree in Clinical Laboratory, Faculty of Medicine, Transilvania University of Brasov, 2019
- Master degree in Health' Management and Policies, Faculty of Medicine, Transilvania University of Brasov, 2021
- PhD student in Medicine field, 2022-ongoing
- In present: Assistant university at Faculty of Medicine, UnitBV

Relevant activities in the field of the thematic area

Evaluation of the toxicological and therapeutic properties of biocompounds in normal and malignant cell cultures. Research disciplines that use optimization techniques include electrochemical detections using screen-printed sensors, plant extracts' antioxidant capacity, antimicrobial testing for coatings, and the connection of data and outcomes with the effects on the environment and human health.

Research interests

- Effects of bioactive compound on cell culture
- Antioxidants (plants extracts)
- Electrochemical methods
- Characterisation of extracts (HPLC, sensors, antioxidants capacity)
- Antibacterial tests
- Public health

SELECTED PUBLICATIONS

- **Adochiţe C.Ș.**, Vițelaru C., Parau A.C., Kiss A.E., Pană I., Vlădescu A., Costinaș S., Moga M., Muntean R., Badea M., Idomir M. (2022) Synthesis and Investigation of Antibacterial Activity of Thin Films Based on TiO2-Ag and SiO2-Ag with Potential Applications in Medical Environment. Nanomaterials.; 12(6):902, https://doi.org/10.3390/nano12060902.
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C4 ACTIVE BIOPOLYMERS APPLICATIONS AS SUSTAINABLE FOOD SAFETY STRATEGIES

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Bio-based biopolymers directly extracted from natural raw substances- class I (polysaccharides, proteins or lipids), synthetized from bio-derived monomers- class II (i.e. polylactic acid (PLA), bacterial cellulose) or from bio-fermentation processes- class III are sustainable packaging alternatives to currently used materials in the food industry. Functionalized biobased packaging with active essential oils (EO) provide a strategy for the replacement of conventional plastic packaging while ensuring antimicrobial and antioxidant properties. The advantages of using EOs is the presence of small target molecules able to permeate the bacterial cell walls/membranes, evading efflux pumps and avoiding mutational resistance, the major molecular determinants of antimicrobial resistance. Technologies such as encapsulation and electrospinning are employed to ensure a controlled release of the bioactive substances throughout food shelf-life. The prospects of development new active bio-composite biopolymers compatible with certain food matrices, able to protect food from environmental factors, and deliver food safety *via* synergic hurdles, will be critically assessed.

Daniela BORDA

1993- BSc, Faculty of Food Technlogy & Chemistry, “Dunarea de Jos” University of Galati
2002-2003 – Marie Curie Fellowship, Laboratory of Food Science and technology, KULeuven, Belgium
2005- PhD in Food science, Faculty of Food Science and Engineering, “Dunarea de Jos” University of Galati, Romania
2006 - Norman Bourlaug Fellowship, Iowa State University, Ames, USA
2008-2014 – ViceDean of the Faculty of Food Science and Engineering, “Dunarea de Jos” University of Galati, Romania
2013- Professor at the Faculty of Food Science and Engineering, “Dunarea de Jos” University of Galati Galaţi, Romania
2019- Habilitation thesis, Faculty of Food Science and Engineering, “Dunarea de Jos” University of Galati Galaţi, Romania

Research interests

Food safety, high pressure processing, dairy technology, food packaging, risk assessment & Monte Carlo Simulation.

SELECTED PUBLICATIONS

- Lanciu Dorofte, A., Dima, C., Bleoanca, I., Aprodu, I., Alexe, P., Kharazmi, M. S., Jafari, S.M., Dima, Ș, **Borda, D.*,** 2024, *Mechanism of β–cyclodextrin - thyme nanocomplex formation and release: In silico behavior, structural and functional properties*,Carbohydrate Polymer Technologies and Applications,Volume 7, 100422
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- **Borda, D.***, Mihalache, A.O., Dumitraşcu, L., Gafițianu, D., Nicolau, A.I., 2021, *Romanian consumers' food safety knowledge, awareness on certified labelled food and trust in information sources*, Food Control,120,107544, ISSN 0956-7135, https://doi.org/10.1016/j.foodcont.2020.10754.
- Mihalache, A.O., Dumitraşcu, L., Nicolau, A.I., **Borda,D.***, 2021, F*ood safety knowledge, food shopping attitude and safety kitchen practices among Romanian consumers: A structural modelling approach*, Food Control, 120,107545, ISSN 0956-7135, https://doi.org/10.1016/j.foodcont.2020.107545.
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C5 CIRCULAR ECONOMY IN THE FOOD INDUSTRY: BUSINESS PERSPECTIVE

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Current economic growth model, based on the use of natural resources, has put humanity in a position to use as many resources in just seven months as all ecological systems on the planet can renew in a year. In other words, future generations' "Earth capital" has been used by current generations. The main paradigm in "linear economy" is take - make/use – dispose. Linear models are ecologically, socially, and economically unsustainable in the long term. We are consuming more and much faster than the Earth can regenerate. Linearity implies that by 2060 we will need at least two planets to meet the demand for materials.

A circular economy could be a promising way to meet the demands of an expanding population and address present and future environmental issues. Embracing CE principles, materials and products are designed to minimize waste through reuse, recycling, or recovery, contributing to global sustainability goals. Growing numbers of consumers are giving sustainability the highest priority when making purchases, choosing eco-friendly options, and sharing economy solutions.

The UN's Sustainable Development Goals aim to reduce poverty, inequality, and environmental impact, including a target to reduce food waste by 2030. Considering the size of the food business, which employs over a billion people in a variety of areas, the resources needed highlight the potential significance and necessity of putting circular economy principles into practice. Reducing food waste and adopting the concepts of the circular economy creates chances for positive effects on the environment and community, as well as for the creation of new business models. The aim is to point out the importance of the circular economy in the food industry, with a focus on case studies of companies from the food sector that apply circular principles.

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Research interests

- Economics
- International economics
- Circular economy
- Sustainable development
- Franchising
- Entrepreneurship
- Digital marketing

SELECTED PUBLICATIONS

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C6 THE ROLE OF VITAMINS IN PERIODONTAL HEALTH MAINTENANCE – LET'S TAKE A LOOK BEHIND THE CURTAIN

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Periodontal disease (periodontitis) represents a relevant public health problem worldwide. Presently, there is a general agreement which outlines the nutritional status as an important player in both periodontal tissue health and periodontitis progression. Vitamins have long been recommended as nutraceuticals for the prevention and treatment of several pathological conditions, such as obesity, cardiovascular diseases and even cancer. Consequently, a systematic approach to clarify the roles played by different vitamins in the periodontal risks landscape is necessary in order to further establish the potential benefits and possible risks of vitamin supplementation use. The studies carried out so far revealed that the antioxidant vitamins and those involved in the immune system regulation seem to be useful for the prevention and improvement of periodontitis.

Alexandra TOTAN – RIPSZKY

Prof. Dr. Alexandra Ripszky Totan is the head of the Biochemistry Department – Dental Medicine Faculty, University of Medicine and Pharmacy Carol Davila and the coordinator of the Interdisciplinary Center for Dental Research and Development. The Interdisciplinary Center for Dental Research and Development within the University of Medicine and Pharmacy Carol Davila provides *in vitro* biocompatibility and immunology tests for new materials used in dental medicine and implantology. Prof. Dr. Alexandra Ripszky Totan has 20 years of experience studying the molecular bases of oral diseases & materials biocompatibility. She has **HI 16**, 1037 citations and 74 publications (Web of Science).

C7 MANAGEMENT OF FOOD ALLERGIES VERSUS INTOLERANCES

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Food allergy is an important public health problem that affects children and adults, and it has been increasing in prevalence in the last decades opening concern for proper management protocols.

The difference between a food allergy and a food intolerance is how your body reacts to a foreign factor. The immune system causes an allergic reaction, while the digestive system causes an intolerance. The terms "allergy" and "intolerance" both refer to the body's reaction to a foreign substance.

Food allergies occur when your immune system identifies an invader in what you eat and reacts by producing antibodies to fight it. About 8% of children and 11% of adults worldwide have a food allergy. The eight most common food allergens are eggs, milk, peanuts, tree nuts, soy, wheat, crustacean shellfish, and fish. Symptoms of food allergies can range from mild to life-threatening and may include: dizziness, hives, rash or itching, swelling of the face, lips, or eyes, coughing, difficulty breathing, sneezing, abdominal pain, or diarrhea. Anaphylaxis is a severe, life-threatening reaction to an allergen. It is essential to seek immediate medical attention if any of the above symptoms occur after eating the specific food.

Food intolerance occurs when your digestive tract has difficulty processing or digesting certain foods. This is usually due to the lack of a certain digestive enzyme or pharmacological factors such as certain food sensitivities. Common examples of food intolerances include lactose, histamine, gluten, and/or sulfites. Food intolerances are estimated to affect up to 20% of the population. These are generally not life-threatening but can cause several unpleasant digestive symptoms such as bloating, diarrhea, constipation, abdominal pain, fatigue and/or nausea.

If a reaction occurs after eating a food, consult your doctor to determine if it is a food intolerance or a food allergy, because the management of these conditions is different: if it is an allergy you have to avoid foods that activate the specific symptoms, but if it's a food intolerance, your doctor or dietitian may recommend steps to help digest certain foods or treat the underlying condition causing the intolerance reaction.

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Monica TARCEA

Monica Tarcea is a Professor at the "George Emil Palade" University of Medicine, Pharmacy, Science, and Technology in Târgu Mureș, the Head of the Community Nutrition and Food Safety Department of the Faculty of Medicine. She was for 10 years the coordinator of the bachelor's programs in Nutrition and Dietetics and master's degree in Clinical and Community Nutrition at UMPhST of Targu Mures and initiator of the Romanian Dietitian Law (promulgated in 2015). She started research in the field of prevention over 28 years ago, focusing on topics such as smoking, community nutrition, obesity, and lifestyle management, prevention of non-communicable diseases, dietetics and education in schools, etc. being involved in over 20 national and international projects. Monica Tarcea has published 24 books for specialists and students, and 9 practical guides, and in the field of publications he has so far 185 articles published. She was Dean of the Faculty of Medicine during 2013-2016, with expertise in Public Health, Auditor, and Manager in the quality management system, also Adult Trainer and Evidence-Based Nutrition Trainer.

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C8 CURRENT TRENDS IN DIETARY THERAPY FOR PSORIASIS PATIENTS: IMPLICATIONS OF THE GUT MICROBIOME

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Psoriasis, a chronic inflammatory skin condition marked by irregular proliferation of epidermal cells, significantly impacts individuals' quality of life due to its associated complications. Recent research has identified imbalances in the gut microbiota among patients with psoriasis, with correlations observed between dysregulated bacterial species and disease severity. These findings offer new insights into understanding and therapeutically approaching psoriasis. The aim of this study was to provide a current perspective on the relationship between the gut microbiota and psoriasis, while also identifying dietary components that may improve the quality of life for psoriasis patients by modulating the gut microbiota and alleviating disease symptoms. Additionally, correlations between the gut microbiota profile and anthropometric, dermatological, immunological, and metabolic data were investigated in a sample of *psoriasis vulgaris* patients from Romania (n=15). Correlations between different bacteria at the phylum, genus, and species levels, and analyzed parameters were identified within this study.

Rareș CANDREA

Professional experience

Licensed Nutritionist-Dietitian at www.lauragavrilas.ro (February 2024 - present)

- Counseling patients with cardio-metabolic, autoimmune, gastrointestinal pathologies, including therapeutic modulation of the intestinal microbiome.

Active Member of the Romanian Dietetics Association (December 2022 - present)

- Organizing and conducting workshops on nutritional education for both children and adults as a member of the Community Nutrition Education Department
- Developing a learning plan including educational objectives, topics covered, and teaching methods
- Promoting association events as a member of the Marketing and PR Department
- Member of the organizing committee of the first accredited Conference for Continuing Education for Dietitians – The Dietitian Conference, as part of the Continuous Medical Education Department for Dietitians

Education and professional training

- *Nutritionist-Dietitian* - "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca [09/30/2018 – 09/15/2021]
- Erasmus Research Mobility - San Jorge University, Zaragoza, Spain [02/14/2023 – 04/15/2023]
- Master's Degree in "Nutrition and Quality of Life" - "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca [10/01/2021 – 10/01/2023]
- PhD student, Faculty of Pharmacy - "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca (October 2023 - present)

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C9 PERSONALIZED DIET

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There are many cases that need different nutritional treatment. In the first place the largest group that needs nutritional treatment is the one that is composed by people that need to lose weight because of obesity problems. Many of this 'patients' want rapid and drastic results not knowing that the lose of large amount of weight leads to other health problems. The optimal amount of weight to lose is 2kg per month. Another large group is composed by young mothers that have gained too much weight during the pregnancy and want to obtain the optimal weight in rapid time. In this case we must not forget that these mothers will breastfeed the babies so drastic diets may lead to baby malnutrition. There is another category of patients that have clinical problems like diabetes or the removal of gallbladder that have needs not linked to the number of calories but to the quality/quantity of food consumed. My lecture aims to present a method for determining a personalized diet based on the characteristics of the "patient". This lecture/presentation will be divided in three parts. The first part consists in the assessing the conditions of the patient determining if he needs to lose or gain weight or if he has specific needs such as breastfeeding. The second part will be focused on gathering information; about personal data of the patient like age, sex, weight etc. about the nutrition habits like how many meals does consume, the frequence of consuming the different groups of food;, the consumption of alcohol, coffee, tea or if is there any food that the patient refuses to consume; information about personal and family (both parents) health like allergies or diseases (diabetes, hypertension, arteriosclerosis, obesity, high levels of cholesterol etc.) that may lead to problematic metabolism or other disorders linked to the food and nutrition. The data will be used to determine the exact number of calories that the patient must consume daily. The second part will be concluded after assessing the percentage of calories that the patient must obtain by the different nutrients like carbohydrates (with high or low glycemic index) fats (both animal and vegetal) and proteins (of animal and plant origin). In the third part will be presented a specific recipe of the meals that the patient will need to consume in order to acquire the necessary calories. This recipe will contain some suggestion about the preparation of different dishes.

Ilir LLOHA

- Ilir Lloha a professor of Food Chemistry, Food Biochemistry, Human Nutrition at the Biotechnology and Food Faculty, Agricultural University of Tirana, Tirana Albania.
- Graduated in Molecular Biology (2006) at the, Mathematical, Physical and Natural Sciences Faculty at the Florence University, Florence, Italy.

- PhD studies in Food Sciences and Biotechnology (2014) at the Agricultural University of Tirana, Tirana, Albania
- Member of the scientific committee at the National Food Authority (2022)
- From 2017 Vice dean for the Academic Affair at the Biotechnology and Food Faculty PhD studies in Food Sciences and Biotechnology (2014) at the Agricultural University of Tirana, Tirana, Albania.
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Research interests

Research interests are focused on the different topics regarding the food safety, nutritional value of local food, human nutrition as demonstrated by various Scientific articles. Research interest has changed from the molecular biology as a student to human nutrition as a senior researcher.
Because of the student studies on the cancer manifestation and growth he decided to study the effects of unhealthy food in human health.
He has also assessed the different studies on how the behavior of people has changed during and after the pandemic. He is involved on different projects national and international as a member.
Apart from his scientific work from 2017 he is the Vice dean for Academic Affairs at his faculty coordinating the entire process. The position as member of the committee of the National Authority of Food has strengthened his cooperation with national institution.

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C10 THE AGING PROCESS - WHERE IS THE SCIENCE TODAY?

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The aging processes are presented in the lecture. What are the causes of accelerated aging, how can we slow down aging with a healthy lifestyle, and we will also discuss the possibility that aging is reversible. The important difference between biological and chronological age will be discussed. What have we learned from societies with long life expectancy, what from twin studies and what from people with accelerated aging. How healthy aging is influenced by genetic predisposition, the environment in which we live and lifestyle habits.

Borut POLJSAK

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Research interests

His research interests include the study of oxidative stress, the formation of free radicals and the activity of antioxidants, especially the area of how free radicals adversely affect the aging process, such as the protection against free radicals provided by antioxidants. He is interested in the safety and effectiveness of antioxidants, with special focus on vitamin C and E (tocopherol/Trolox) and vitamin B3 form. Research is focusing also on risk assessment of heavy metals and added phosphorous in drinking water supply systems. The candidate has published 92 important works in the form of scientific articles, monographs and chapters in monographs. He presented his research at 75 scientific conferences. It has a total of 2635 clean citations in the last 10 years.

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C11 POLYPHARMACY AND THERAPEUTIC OPTIMIZATION: SENIOR HEALTH CARE IN THE CONTEXT OF FOOD SAFETY AND HEALTHY LIFESTYLE

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The growing elderly population presents unique challenges in healthcare delivery, particularly concerning medication administration and overall health management. Polypharmacy, the concurrent use of multiple medications, is increasingly prevalent among seniors due to the high prevalence of chronic diseases and comorbidities. While these medications effectively manage illnesses, they also pose risks of harmful drug interactions, side effects, and prescription errors. Therefore, optimizing therapeutic regimens for seniors involves not only prescribing appropriate medications but also considering dietary safety and promoting healthy lifestyle choices.

Polypharmacy among seniors can lead to adverse outcomes, including medication non-adherence, increased risk of falls, cognitive impairment, and hospitalizations. The use of multiple medications also elevates the likelihood of drug-drug interactions, potentially diminishing the effectiveness of treatment or causing harmful side effects. Moreover, older adults may experience changes in drug metabolism and elimination, making them more susceptible to medication-related problems.

To address the challenges associated with polypharmacy, healthcare providers must adopt therapeutic optimization strategies tailored to the unique needs of seniors. This involves comprehensive medication reviews to identify unnecessary or duplicate medications, deprescribing where appropriate, and simplifying medication regimens to improve adherence.

In senior healthcare, ensuring food safety during medication administration is essential to avoid potential interactions that may affect medication efficacy. Healthy lifestyle habits including frequent exercise, balanced eating, hydration, and sleep complement pharmaceutical treatments and improve well-being. Health plans that include social prescribing target social determinants of health including social isolation and community services to enhance seniors' quality of life.

A comprehensive approach to senior healthcare encompasses medication management, food safety, and healthy lifestyle promotion to mitigate risks, improve medication adherence, and enhance the quality of life for older adults.

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- MD, Transilvania University of Brasov, 2018
- In the present is doctoral candidate at Transilvania University of Brasov
- Teaching assistant at the Department of Clinical, Fundamental and Prophylactic Sciences at Transilvania University of Brasov

Research interests

Primary healthcare and clinical pharmacology are something that interests her. Her doctoral work focuses on elderly polypharmacy, adherence, and medication beliefs. She covers primary care-related subjects as a teaching assistant, including end-of-life care, chronic illnesses, preventative care, and general pharmacology.

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Research interests

Main research interests are in the areas of neuropsychopharmacology and pharmacology of plant compounds. The topics studied include inflammatory processes and oxidative stress inthepathophysiology of psychiatric disorders and / or the adverse effects of psychiatric drugs, mainlythe antipsychotics, the anti-inflammatory or antioxidant effects of some active compounds inplants, and the exploration of the therapeutic potential of active compounds fromplants inneuropsychiatric disorders. Another area of interest, as a teacher of pharmacology and as a member of Education Sub-Committee of the European Association for Clinical Pharmacologyand Therapeutics.

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C12 FOOD TREATMENT IN SOME METABOLIC DISEASES

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Metabolic diseases, such as diabetes, obesity, and cardiovascular disorders, present significant health challenges worldwide. The role of diet in the prevention and management of these conditions has gained increasing attention in recent years. This abstract explores the potential of food treatment in addressing metabolic diseases, with a focus on the integration of patient therapeutic education. Various studies have shown that dietary interventions, including personalized nutrition plans, can have a profound impact on metabolic health outcomes. By focusing on nutrient-dense, whole foods and incorporating specific dietary components such as fiber, healthy fats, and antioxidants, individuals can improve their metabolic profiles and reduce the risk of developing chronic diseases. Patient therapeutic education plays a crucial role in empowering them to make informed decisions about their dietary choices and lifestyle habits. Educating patients about the importance of nutrition in managing metabolic diseases can lead to improved treatment adherence, better health outcomes, and enhanced quality of life. Through tailored educational programs, patients can learn how to make healthier food choices, understand the impact of different nutrients on their condition, and develop sustainable habits for long-term health maintenance. Additionally, latest researches suggest that certain dietary patterns, such as the Mediterranean diet or plant-based diets, may offer protective effects against metabolic disorders. The integration of patient therapeutic education into dietary interventions can further enhance the effectiveness of food treatment strategies in managing metabolic diseases.

Overall, the combination of food treatment approaches with patient therapeutic education holds promise for optimizing metabolic health, promoting behavior change, and improving patient outcomes. Further research and implementation of personalized dietary and educational approaches are essential for advancing the field of food treatment for metabolic diseases and empowering individuals to take control of their health.

Rozarta NEZAJ

- Lecturer and Scientific Researcher at the Agricultural University of Tirana (UBT), Faculty of Biotechnology and Food, Department of Scientific Research and Food Sciences Full Time Staff Academic
- 2015 - PhD Graduation - Biotechnology Department Faculty of Natural Sciences, University of Tirana,
- 2005 - Master on Public Health by Ministry of Health, Faculty of Medicine, Institute of Public Health in Tirana, Albania

- 2004 – Graduated on Special Biology, Faculty of Natural Sciences, University of Tirana

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Research interests

- Quality and Food Safety, nutrition, metabolic diseases and food treatment, water sanitation.
- Molecular biology, biotechnology applications, molecular diagnostic, genetic.
- Health quality and safety issues, accreditation, health management, organization and promotion.

SELECTED PUBLICATIONS

- **Nezaj R.**, Merkaj E., Zyka E., Qorri E., Dama A. (2023): "Evaluation of the academic staff 's job satisfaction as an important component for the progress of the AU", published at Albanian University Optime Magazine XV Year of Publication, No. 2, December 2023 (39), ISSN 2220 - 461X
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- **Nezaj R.**, Puto K., Vuka D., (2014): "Drinking Water Quality and Its' Effect on Public Health" The journal of The Bulletin of Medical Sciences (ISSN: 2304-2354), a peer-reviewed journal published on behalf of the Faculty of Medicine, University of Medicine, Tirana.http://umed.edu.al/bulletin-of-medical-sciences-number-3-volume-44-2013/
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- **Nezaj R.**, Puto K., (2011): "The quality of potable water for Lezha Region", International Conference on Biotechnological Developments, Buletin of Natural Science, Proceedings (ISSN 224-1779), 20 November 2011, Pg 122-128, Buletini i Shkencave të Natyrës, Enti Botues: FSHN, Buletin Shkencor, ISSN: 2305-882X 1954 www.fshn.edu.al
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C13 OBESITY AND EATING DISORDERS - A MEDICAL AND HUMANITIES APPROACH

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Global obesity levels have been on the rise over the past decades. There is often a stigma attached to obesity, especially in the modern thin-obsessed culture, which challenges adolescents to communicate and thus benefit from social and medical support. On the other hand, severe body image dissatisfaction and body weight and shape preoccupation are the most robust predictors of the development of eating disorders.
I will present the results of the Erasmus+ project: *Connected for Health – A Medical and Humanities-based Approach to navigating obesity and Eating Disorders (EDs) in Young People*: https://connected4health.pixel-online.org/index.php. that proposes an integrated medical and humanities-based approach to obesity and eating disorders. Nutrition is just one component in the treatment of obesity and EDs, its effectiveness being temporary unless these conditions are approached from a multitude of perspectives including empathetic communication, counselling, motivational therapy, and customised physical activity/ fitness, besides medication. Project partners from seven European universities and institutions: GEP UMPhST of Targu Mures (Romania), Palacký University, Olomouc (Czech Republic), Klaipeda University (Lithuania), University of Belgrade (Serbia), Pixel (Italy), Instituto Politécnico de Bragança (Portugal), and Autonomous University of Madrid (Spain) have collaborated to produce teaching and self-learning materials based on an interdisciplinary, team-based approach to the treatment of obesity and eating disorders.
Although all project results are free (based on initial registration), the participants will be guided during this presentation, especially to the ONLINE TRAINING PACKAGE (PR 3 of the project), entitled *Effective Communication and Management of Teenagers with Obesity and EDs*, designed for autonomous study. By listening to interviews with specialists in the partner countries and solving the proposed tasks and final quizzes, students can enhance their knowledge and practical skills autonomously.

Anișoara POP

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- Habilitation in Philology, OMEC order no. 5433/04.12.2019
- PhD in Philology (English) Babes Bolyai University, Cluj-Napoca, Romania, Order of Ministry of Education and Research no.3824 of 03.05.2006

- Undergraduate studies, English-Romanian - Babes Bolyai University, Faculty of Philology, Cluj Napoca, Romania
- Coordinator of the CEEPUS network – Healthcare communication – UMPHST as partner - M-HU-1704-2324-172292

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Research interests

My research activity focuses on the broader scope of the humanities, more precisely linguistics, ESP, specialized communication, and pedagogy applied to medicine.

SELECTED PUBLICATIONS

- Anișoara Pop (2020) *English for Nutrition and Dietetics*, University Press, ISBN 978-973-169-649-2, 184 pag. https://universitypress.umfst.ro/18-english-for-nutrition/.
- Anișoara Pop, (2019) *Basic English Grammar for Medical Professionals*, Lambert Academic Publishing, 2019, 101 pag, ISBN: 978-613-9-95160-4. https://www.worldcat.org/title/basic-english-grammar-for-medical-professionals/oclc/1189256205&referer=brief_results.
- *Cultural and Historical Perspectives on Body Image, Obesity, and Eating Disorders*, eds. Anisoara Pop, Carlo Rais, MonicaTarcea, University Press ISBN 978-606-581-182-9, pp.127-133. https://librarie.umfst.ro/ebooks/connected4health-project (e-book available for free).
- Anișoara Pop, Adrian Năznean (2021) *Nutrition and Dietetics*, module 12, în vol. Healthcare Language Learning Programme 2 (HELP2), Ed. Palacký University Olomouc, Czech Republic, ISBN 978-80-244-5999-8 (print) ISBN 978-80-244-6000-0 (online: ipdf), 2021 pp. 233-257.

PROJECTS

- 2022-2024 Connected4Health - A Medical and Humanities-based Approach to Navigating Obesity and Eating Disorders (EDs) in Young People, position: project manager, contract no: 2021-1-RO01-KA220-HED-000032108, UMPhST coordinator, partners from Spain, Italy, Lithuania, Czech Republic, Serbia, and Portugal. Value: 269,057.00 EUR. Project site: https://connected4health.pixel-online.org/index.php; position: https://connected4health.pixel - online.org/files/partners/RO_UniTarguMures_Partner%20Form.pdf
- 2018-2021 „HEALTHCARE LANGUAGE LEARNING PROGRAMME 2" (HELP2) Erasmus + Strategic Partnerships (UMPhST partner) 2018-1-CZ01-KA203-048150 Project site: http://help2project.eu , https://help2project.eu/?page_id=67 , project manager – responsible project implementation; value 328.982,00 €.
- 2019 PN-III-P1-1.1-MC-2019-1281 Programme 1 1.1 – Human Resources, projects of mobility for researchers. *Doctor-patient communication: The case of giving bad news in Medical English*, A. Pop, 4th English for Healthcare Conference, EALTHY, Castellon de la

Plana, Spain, 3-4 Oct 2019 (https://www.brainmap.ro/anisoara-pop), contract no. 341/14.11.2019 Budget 4,005.09 Ron, project manager.

- 2016-2018 „Softisped – Softskills for Children's Health", Erasmus + partnership, responsible for project implementation, project site: https://softis-ped.pixel-online.org/index.php , position: https://softis-ped.pixel-online.org/files/01%20RO.pdf , UMF coordinator, value 203.077,00 €, contract no. 4087/14.11.2016.

C14 CORRELATION BETWEEN OBESITY AND VITAMIN D DEFICIENCY IN CHILDREN AND ADOLESCENTS

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Vitamin D deficiency and obesity, nowadays are considered epidemic all over the world in population and especially in childhood and represent one of the most common and severe medical issues among the pediatric population. Lack of a healthy style of life including diet and sedentary, lack of educational program and poverty are strong risk factors very difficult to influence in a positive direction. Clinical studies demonstrate an interaction between obesity and low serum levels of vitamin D in children even if we don t know yet if deficiency of vitamin D has a role in the determination of obesity or it is a consequence of it. Moreover, it looks like the association between obesity and low status of body vitamin D has a negative influence on blood pressure, insulin resistance, and inflammation and increases the future risk of cardiovascular disease and type 2 diabetes in adulthood. Despite the consensus of the medical authorities regarding the need for vitamin D supplementation in the pediatric population especially in obese one is generally accepted, it looks like the results are not as good as expected, there is not yet a common point of view on the dosage and duration of vitamin D administration. High doses of vitamin D supplementation might be helpful and safe but positive effects on weight loss, insulin resistance and blood pressure are still disappointing.

Bianca Elena POPOVICI

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Research interests

Main research interests are cardiovascular diseases in children, hypertension, obesity, metabolic syndrome and the alimentation disorders connected.

SELECTED PUBLICATIONS

- Ioana Arbanas, Vlad Monescu, , Niculina Dragomir, Larisa Diana Sauciuc, Emanuela Cojocaru, Katalin Csutak, **Bianca Elena Popovici,** Pandaru Andreea, Spirea Elena-Daniela, Raluca-Ileana Lixandru 1, Laura Bleotu and Oana Falup-Pecurariu. A 7-Year Survey (2015–2021) in One Pediatric Hospital (Brasov, Romania) on Rotavirus Gastroenteritis Specified as Community- or Hospital-Acquired Infection in Young Children. Trop. Med. Infect. Dis. 2023, 8, 509. https://doi.org/10.3390/tropicalmed8120509
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- Rosana Manea, **Bianca Elena Popovici**, Carmen Daniela Neculoiu, Dan Minea, Alina Calin. Application of the Measurement of Carotid Intima-Media Thickness for Prediction of the Essential Hypertension in Children. REV.CHIM.(Bucharest) 2018; 69; no. 6.
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- **B.E. Popovici**, M. Mitrica, A. Cosor The influention of the alimentation pattern in adolescents' health in Brasov region. New Trends on Sensing- Monitoring-Telediagnosis for Life Sciences, Brasov, Romania - July 24-26, 2014
- **B.E.Popovici**, M. Mitrica, M. Moga. Cardiovascular risk factors impact in childhood. 54th Annual Meeting European Society for Paediatric Research October 10th-14th, 2013 –Porto, Portugal, Book of Abstract; 374

C15 FOOD SAFETY AND JUDICIAL PROTECTION

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In the area of guaranteed food safety, the decisions of judicial authorities are also increasingly important. Even in matters related to food safety, the individual is entitled to judicial protection, which is primarily provided by the regular courts, and subsidiarily by the Constitutional Court, the European Court of Human Rights (ECHR), when rights and fundamental freedoms from the European Convention are violated on human rights, and the Court of Justice of the European Union (CJEU). This article deals with some examples of decisions of Slovenian judicial authorities at different levels. From the decisions comes the great importance of judicial protection and the scope of legal responsibility of officials responsible for food safety control.

The results of the analysis of the case law of the Supreme Court of the Republic of Slovenia show that the court dealt with a relatively small number of cases in the area of ensuring food safety in the food chain. In terms of content, in the field of assessment in an administrative dispute, court decisions related to:

• adequacy of the documentation required to verify the health suitability of foods of animal origin.

• the obligation to establish and implement internal control based on the HACCP system at the provider of public drinking water supply.

• the correctness of imposing the inspection measure on the owner of the food and not on the person with whom the food is located if it is not located with the owner.

• action taken by the inspector if the taxpayer is not entered in the register.

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- **IVANC, Blaž**. Zagotavljanje varnosti živil v evropskem in slovenskem živilskem pravu - nekatere kritične pripombe k veljavni zakonodaji na področju varnosti živil = Ensuring food safety in European and Slovenian food law - some critical comments on the current legislation in the field of food safety. In: RUGELJ, Darja (ed.). Zbornik predavanj. Posvetovanje Varna in zdrava hrana na mizi potrošnika, v Ljubljani, 7. december 2007. Ljubljana: Visoka šola za zdravstvo, 2007. Str. 125-132. ISBN 978-961-6063-88-3. http://www2.zf.uni-lj.si/ri/publikacije/hrana2007/16_Ivanc.pdf. [COBISS.SI-ID 3067243]
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C16 USING THE KNOWLEDGE-ATTITUDES-PRACTICES (KAP) MODEL TO DESIGN INTERVENTIONS FOR MICROBIAL RISK REDUCTIONS

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In this paper, we identified the relationship between food safety knowledge, food shopping attitude, and self-reported kitchen practices among Romanian consumers, by using an online survey applied on 985 consumers. A knowledge, attitude and practice (KAP) model applied by structural equation modelling revealed significant correlations between knowledge and attitude. Moreover, knowledge and attitude exerted significant effects on self-reported safety kitchen practices and explained 30% of the variance of the food safety practices applied by Romanian consumers. The results indicates that higher levels of food safety knowledge than current ones may improve consumers attitude towards food shopping priorities while adopting adequate food safety practices during food purchasing in shops and food manipulation in their kitchens. Case-studies from real life situations supported the findings of this study highlighting the necessity of rapid interventions to improve consumers' food safety practices in their homes.

Loredana DUMITRAŞCU

Dr. Loredana Dumitrascu has a PhD in Industrial Engineering from Dunarea de Jos University of Galati and is an Associate professor at Faculty of Food Science and Engineering of Dunarea de Jos University of Galati. Her research interests include food quality and safety, value-added food ingredients, consumer behaviour, dairy processing.
She has experience in coordinating research and management activities. She participated as a member in 7 national and international projects and was the project manager of two national projects. She was a Fulbright Visiting Scholar, at Washington State University, department of Biological Systems Engineering. Dr. Dumitrascu is the author of 55 articles in ISI indexed journals (44% - as main author, 5% - as last author, 5% - as corresponding author). She serves as editor for the prestigious journal: Food Engineering Reviews and as reviewer for several international journals. Moreover, she had a very active participation as a member in the Horizon 2020 project (HORIZON 2020-EU.3.2.2.2.ID:727580), where she gained an important experience working in a trans-disciplinary, multi-actor environment that enabled her to establish good practices of cooperation with other international institutions and research teams.

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C17 ANTIBIOTIC FIGHT AGAINST ACINETOBACTER: BREAKING THE CODE OF ITS MECHANISMS OF RESISTANCE

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The *Acinetobacter* genus encompasses a group of Gram-negative bacteria that have attracted significant attention due to their remarkable resistance skills against a wide array of antibiotics (AB), rendering traditional treatment strategies ineffective. This microorganism may survive in harsh conditions and adjust to diverse ecological niches due to its genetic versatility.

Advances in genomics and molecular biology have provided valuable insights into the evolution and dissemination of resistance genes within this genus. *Acinetobacter* outstanding adaptability is a result of intrinsic resistance mechanisms and the potential to acquire exogenous resistance genes through horizontal gene transfer. Another factor shaping its resistance traits is the capability to form biofilms, diminishing the likelihood of eradication.

Based on a comprehensive review of the scientific literature regarding this opportunistic pathogen, we aim to offer a complex perspective on the intricate mechanisms underlying its resistance to AB, with a particular focus on genetics. Key genetic determinants of resistance include impermeability of the outer membrane mediated by porin alterations (CarO protein), ability to expel the AB in the presence of efflux pump systems (*AdeABC* gene). Resistant isolates may display enzymes capable of degrading various antimicrobials like beta-lactamases (AmpC, OXA enzymes), or aminoglycoside-modifying enzymes (AAC(6')-Ib). Additional mutations in target genes encoding for ribosomal proteins (*rpsL*) or DNA gyrase (*gyrA*) alter AB binding sites.

Ultimately, unraveling the genetic pathways behind antibiotic resistance in *Acinetobacter* lays the groundwork for precision therapies and improved antibiotic stewardship practices, aiming to ease the impact of these resilient microbes on public health.

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Research interests

Research activities are mainly focused on bacteriology, with special emphasis on antimicrobial susceptibility testing and mechanisms of antibiotic resistance.

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C18 KLEBSIELLA SPECIES IN GASTROINTESTINAL PATHOLOGIES. A REVIEW

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Klebsiella Species are Gram-negative, non-motile, rod-shaped bacteria frequently found in soil and water and are part of the normal flora of the gastrointestinal tract in humans and animals. Bacteria belonging to the Klebsiella Species group are of great importance regarding human pathology, being able to cause a wide spectrum of infections varying in location and severity.

Klebsiella strains have been isolated from biological specimens such as urine, sputum, blood, cerebrospinal fluid, and pus or abscess fluid, respiratory tract specimens indicating their potential to cause infections in different parts of the body. Some studies have also indicated that Klebsiella Species can be incriminated in some gastrointestinal diseases such as enteric infections that occur through contaminated food or water, inflammatory bowel disease, biliary tract infections, antibiotic-associated diarrhea, etc. They affect especially immunocompromised patients, patients with multiple comorbidities, but hyper-virulent strains are known to cause infections even in immunocompetent hosts.

In recent years, these bacteria gained the attention of both clinicians and laboratory physicians alike due to it`s emerging role in infections associated with hospital settings. Another growing concern is that Klebsiella strains, especially those of Klebsiella pneumoniae, are showing elevated levels of antimicrobial resistance making these infections difficult to manage. This has determined The World Health Organization to classify these bacteria as critical level regarding the need for newer and more efficient treatments. Here stems the importance of more studies on the matter to understand how Klebsiella behaves and how it can be combated.

This presentation summarizes the importance of Klebsiella strains in the gastrointestinal pathology by reviewing the most recent published articles dealing with this topic.

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Research interests

The main research interest in the field of microbiology is the behavior of Klebsiella Species in relation to different antimicrobial treatments and the resistance genes responsible for the selection of multi-drug resistant strains in hospital environments. Other research interests consist of observing how different biochemical and hematological parameters vary in patients affected by infections produces by these bacterial strains.

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Mihaela Elena IDOMIR

- Associate professor (2007-present), Department of Fundamental, Prophylactic and Clinical Disciplines, Faculty of Medicine, ”Transilvania” University of Brasov, Brasov, Romania
- Primary physician in Laboratory Medicine (2002-present), Clinical Emergency County Hospital Brasov, Brasov, Romania
- Master`s Degree in healthcare management (2006), Faculty of Medicine, ”Lucian Blaga” University of Sibiu, Sibiu, Romania
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Research interest:

Dr. Mihaela Elena Idomir, MD, has an extensive academic experience, occupying the role of Associate Professor of Faculty of Medicine at ”Transilvania University” Brasov, since

2007, where she teaches Microbiology, Virology and Parazitology.

Over the years she published many articles in local and international journals touching on subjects such as antimicrobial resistance and the spectrum of infections generated by different microorganisms. Her work and an important contribution to better understanding the phenomenon of healthcare associated infections thus raising awareness amongst medical professionals on this subject matter to further improve patient care.

Teaching undergraduate and graduate students is also an important part of her activity, being the author of several books on the topic of microbiology, which serve as adjuvants during the process of medical training of students and resident doctors.

Least but not last, she participated in various clinical studies, and also coordinated a research project on improving the quality of work in the microbiology department of clinical laboratories.

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C19 EXTRACTION AND CHARACTERIZATION OF BIOACTIVITIES FROM INVASIVE KNOTWEED SPECIES

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Extraction techniques are usually the first step in the purification and fractionation of bioactive molecules from various plant sources. In order to study this complex process, a suitable extract must first be obtained. The most common method is solid-liquid extraction, where several crucial steps need to be optimised: i) the selection of the raw material, ii) the solvent, iii) the extraction device and iv) the conditions of the extraction process. The solubility of bioactive molecules in different solvents plays an important role in the selection of appropriate separation and purification procedures. Once the extraction conditions are established, the extracts must be analysed for the presence of specific molecules using various analytical techniques, namely TLC, HPLC with different detectors (e.g. MS, UV-Vis spectrophotometer, fluorimeter, refractometer) or NMR. In addition, the extracts are chemically characterised and investigated for their potential bioactivities, such as antioxidant, antimicrobial, anticancer, antidiabetic and neuroprotective. These can be tested using a variety of assays, preferably in combination, ranging from simple chemistry-based models to cell cultures *in vitro* or animal models *in vivo*. Ultimately, all bioactivities must be confirmed in human tests. The combination of all results obtained contributes to the final understanding of potential beneficial/toxic effects of the isolated molecules or their mixtures contained in the extracts.
In this presentation, the optimization of extraction procedures for bioactive molecules from invasive knotweed species (*Fallopia japonica*, *F. sachalinensis* and *F. x bohemica*) will be presented. The results of their bioactivity (antioxidant, antimicrobial, antidiabetic and neuroprotective) will be presented together with their potential applications.

Keywords: extraction, chemical characterisation, biological activities

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Teaching activities

- Chemistry, Biochemistry, Food Analytical Chemistry, Analytical Biotechnology for BSc and MSc students of Food Science and Nutrition, Biotechnology, Agronomy, Animal Sciences
- Mentor of 2 PhD thesis, 13 MSc thesis, 39 BSc thesis

Research interests

- preparation and evaluation of bioactivities in extracts of different tissues of alien knotweed species, namely Japanese knotweed (*Fallopia japonica*), Giant knotweed (*F. sachalinensis*) and their interspecific hybrid – Bohemian knotweed (*F. x bohemica*)
- preparation and characterisation of cianobacteria species *Arthrospira platensis* extracts before and after the lactic acid fermentation
- evaluation of brain accessibility and neuroprotection of different polyphenols, namely quercetin, epigallocatechin gallate (EGCG), cyanidin-3-glucoside (C3G), and nicotine
- simulation of digestion and evaluation of the stability of pomegranate juice anthocyanins

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C20 SIGNAL TRANSDUCTION IN THE CHEMICAL SENSES

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The sense of smell and the sense of taste belong to the so-called “chemical senses”, which are responsible for recognising chemicals in the environment. Together, these systems provide a wide range of information that makes it possible to recognise things such as the composition, taste and safety of food. They also allow us to recognise ourselves, animals and plants, and significantly influence eating habits and social interactions between individuals.
Odorants interact with the olfactory receptors in the nasal mucosa and generate action potentials that transmit information about the chemical stimulus to the central nervous system. Similarly, tastants bind to taste receptors located mainly in the taste buds of the tongue, resulting in an action potential that is transmitted to the insular taste cortex. Both systems recruit G protein-associated receptors that generate intracellular second messengers.
The development of artificial odour and taste sensors is a growing field with diverse applications, from studying the underlying mechanisms of these chemical senses to assessing and analysing the quality of food. Fluctuations in the perception of smell and taste are a normal feature of ageing. Recently, however, they have been considered important biomarkers for various pathological conditions, such as neurodegeneration and degenerative diseases.

Keywords: Olfaction, taste, signal transduction, new perspectives

Rui SILVA

Rui Silva is Professor of Histology & Embriology and of Neurobiology at Universidade de Lisboa, Faculdade de Farmácia, Portugal. He is an expert on cell biology, namely nerve cell cultures, cell signalling, cell death mechanisms and neurotoxicology. His main research interests are on the neurosciences area, in the topics of neurobiology, neurotoxicology, neurodevelopment and glial function associated to neurologic conditions and neurodegeneration. Neuroprotection mechanisms is the most relevant area of intervention, embracing the neuroprotective properties of food natural products and food-borne molecules, either introduced in the regular diet or as additives or medicines, by several cell and molecular mechanisms, beyond the traditional antioxidant properties described for food polyphenols. He has published more than 90 research articles, mentored over 30 post-graduate students, and given more than 150 communications in scientific meetings in several countries. He is an Editorial Board Member of scientific

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C21 ANALYSIS OF VITAMIN D LEVELS AMONG CHILDREN UNDER 2 YEARS, WITH AND WITHOUT COVID-19

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Vitamin D is a nutrient with an important role in regulating the innate and adaptive immune system. In this study, we aimed to analyze serum vitamin D levels among children under 2 years of age. We evaluated 55 children diagnosed with coronavirus disease 2019 (COVID-19) and 36 pediatric patients without COVID-19, enrolled between July 2022 and May 2023 in the Pediatric Clinical Hospital of Sibiu. Serum vitamin D levels and clinical and laboratory parameters have been measured. The median serum vitamin D levels of pediatric patients with COVID-19 (median=46.60, IQR: 35.20-61.80) were lower than the median levels of the group without COVID-19 (median=50.60, IQR: 38.95-59.10), but the difference was not statistically significant (p=0.842). Vitamin D deficiency (levels<30 ng/mL) was more common in the COVID-19 group versus NonCOVID-19 group (16.4% vs. 8.3%, p=0.268). Our results showed that serum vitamin D levels were lower in the COVID-19 group versus the group of pediatric patients without COVID-19 but the difference was not statistically significant and their clinical significance should be interpreted with caution. Further studies are needed to investigate the mechanisms/implications of vitamin D deficiency/supplementation on overall health/clinical outcomes of patients with/without COVID-19.

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Research interests

Main research interests are on Medical Biochemistry, Clinical Laboratory and Biological Environments Analisis, Spectrophotometric Methodsapplied in different aspects of day-to-day life.

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- **Totan M.,** Matacuta I.O., Hasegan A., Maniu I., Vitamin D Levels in COVID-19 and NonCOVID-19 Pediatric Patients and Its Relationship with Clinical and Laboratory Characteristics, Biomedicines, 2024, 12, 905. https://doi.org/10.3390/biomedicines12040905.
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Research interests

Her current research interests include Data Mining, Bioinformatics, Educational (HEI) Policy, Network analysis.

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C22 SCHOOL-BASED NUTRITION EDUCATION AS A POTENTIALLY EFFECTIVE TOOL TO COMBAT CHILDHOOD MALNUTRITION

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The World Health Organization (WHO) reports that numerous countries worldwide are dealing with the double burden of malnutrition, which is characterized by the co-existence of children undernutrition and overnutrition/obesity as nutritional status. The alarming situation right now is the continuous increase in the trend of childhood obesity. The WHO acknowledges that the rising rates of childhood obesity stem from societal shifts, unhealthy eating habits and behavior, and sedentary lifestyles.
Aside from lack of physical activity, it was proven in the research literature that the absence of breastfeeding during the infancy life stage, intake of high-caloric food, and sugar-sweetened beverages are the main dietary factors contributing to childhood obesity development.
Extensive research on the correlation between obesity and various diseases has provided substantial evidence regarding the importance of diet quantity as well as quality, and physical activity duration. As a result, the debate over their significance is no longer in question. At this stage, research should prioritize exploring and comprehending children's food preferences, eating behaviors, and the environments in which they exist. By gaining insights from these factors, researchers can develop a strategy grounded in theory for effectively educating children about nutrition.
Implementing nutrition education within schools is an effective approach to educating children about proper nutrition. Schools provide a conducive setting for implementing interventions aimed at preventing obesity. Educating both school children and their families about nutrition presents a valuable opportunity to instill lifelong healthy eating habits, ultimately enhancing their overall nutrition and well-being.
As part of school-based nutrition education, our research project “Educazione Alimentare” was designed to impart basic food education and nutrition to children through playful activities. Following different types of games, teacher involvement becomes crucial in facilitating discussions with students about their food choices and their impact on health. These activities are structured to operate in small groups, each equipped with a kit. This interactive and educational approach aims to equip children with the skills needed to make informed and healthy decisions, emphasizing the importance of nutritious foods. We aim to instigate moments of reflection during the school day, with activities being repeated throughout the year to allow students to incorporate healthier habits into their daily lives.
In this project, we are showing preliminary data obtained during the school year 2023-2024 collected in approximately 800 schools of Friuli Venezia Giulia (IFVG) Region.

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  - Chairperson, Teaching and Learning Resource Development Board, January 2021-Present
  - Full Time Faculty- Sept 2019-Present
  - Program Chairperson January 2022-December 2023 (on study leave until 2027)

Research interests

- Childhood Malnutrition
- Nutrition, Health, and Disease
- Public Health Nutrition and Prevention
- Natural Compounds and their role to human health
- NAFLD and Nutrition
- Sports Nutrition

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C23 ELECTROCHEMICAL BIOSENSORS BASED ON NANOSTRUCTURED MATERIALS FOR THE DETECTION OF PHENOLIC COMPOUNDS

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During the last decades, the development of electrochemical biosensors acquired relevance in scientific research due to the excellent characteristics that possess such devices, making them highly attractive options for compete in the industry with other technologies (chromatography, spectrophotometry, etc.). The biosensors based on nanomaterials and enzymes are of great interest in scientific research. The application of nanomaterials in the development of biosensors allows improving fundamental aspects such as their reliability, selectivity, sensitivity, precision and accuracy, as well as detection limits with a competitive cost and in a reasonable execution time. The enzymes as biological recognition elements have the important role to increase the selectivity related to the biocatalytical properties. In the development of a biosensor, the immobilization of the enzyme on a membrane or matrix, which in turn is fixed to the surface of the transducer, is a fundamental stage, since characteristics as significant as the life time or the sensitivity depends largely on the immobilization methodology used. In this work will be described the development of nanostructured electrochemical biosensors using the Layer-by-Layer and Langmuir Blodgett techniques for the detection of phenolic compounds.

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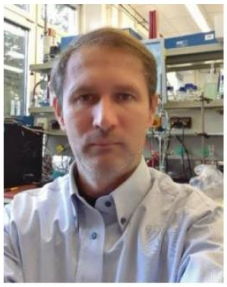

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Research interests

Development of novel sensors and biosensors, characterization of sensors and biosensors, electrochemistry, electronic sensory systems: e-tongue, e-nose, e-eye; chemometry, food chemistry, food analysis, synthesis and characterization of organic compounds, UV-Vis, FTIR, HPLC, TLC, GC-MS, deposition of sensitive materials onto substrates using

different methods: Langmuir-Blodgett, Layer-by-Layer, electrodeposition, high vacuum sublimation, spin-coating.

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C24 PATHWAYS OF BERBERINE ACTION IN NON-ALCOHOLIC FATTY LIVER DISEASE

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The influence of Berberine as a natural compound on the pathophysiological mechanisms of NAFLD, such as AMPK, gut dysbiosis, PPAR, Sirtuins, and inflammasome, has been proven in many clinical and experimental studies. Research involving human participants has demonstrated a noticeable decrease in liver fat alongside alleviation in serum lipid levels and hepatic enzymes. While existing medications are limited or undergoing developmental stages, Berberine emerges as a hopeful candidate.

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• Primary physician Gastroenterology,

• Competence Diagnostic and therapeutic digestive endoscopy and general ultrasound,

• PhD in medical sciences

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SELECTED PUBLICATIONS

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C25 SEMAGLUTIDE - FAST-ACTING MEDICINE OR SLOW-ACTING POISON?

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The glucagon-like peptide-1 receptor agonist (GLP-1RA) semaglutide is now used for the treatment of type 2 diabetes mellitus and obesity. Semaglutide can be found in both subcutaneous and oral formulation. While it helps with glycemic control and cause weight loss, the safety profile is not fully known. Today, more and more research is focused on finding the side effects in both diabetes and obesity. Adverse events like hypoglycemia, gastrointestinal side effects, cardiovascular effects, acute kidney injury, and allergy are researched in both conditions.
In conclusion, while semaglutide is effective in hyperglycemia and obesity, the full scope of adverse reactions is yet to be revealed.

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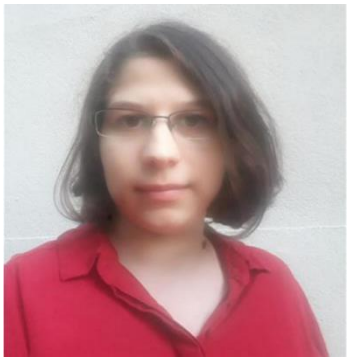

Research interests

- Amino acid metabolism in chronic liver diseases in diabetes mellitus.
- Amino acids as diagnostic biomarkers for liver disease and diabetes mellitus.
- Amino acids as treatment for different diseases.
- Amino acids supplementation as prevention for disease.

SELECTED PUBLICATIONS

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- **Elena Vasilica**, Laura Elena Gaman, Garlic - When Food Becomes Medicine, International Summer School Food Safety And Healthy Living - Fshl – 2022, September 2022, ISBN 978-606-19-1511-8