



Scientific Tracks & Abstracts



Sessions

Plasma physics | Nanoscience and Nanotechnology

Session Introduction

Title: A Proteomic Approach To Identify Zeins Upon Eco-friendly Ultrasound-based Extraction

Laura Darie-Ion | Alexandru Ioan Cuza University of Iasi | Romania

Title: Animal Modelling Advances

Utkarsh Uttamrao Bhamare | Ahinsa Institute of Pharmacy college | India

Title: Opportunities And Challenges Of Online Anatomy Teaching And Learning For Pre-Clinical Students

H M F J Nazeefa | Eastern University | Sri Lanka

Title: Do Ascorbate, Acetate, and Citrate Anionic Compounds Apply Anti-inflammatory Properties in Influenza Infection?

Hadiseh Shokouhi Targhi | University of Tehran | Iran

Title: Evaluation Of The Antiviral Potential of Gemini Surfactants Against Influenza Virus H1N1

Mehrnaz Khodsiani | Islamic Azad University | Iran

Title: Ethiopian Medicinal Plants Traditionally Used for the Treatment of Cancer, Part 2: A Review on Cytotoxic, Antiproliferative, and Antitumor Phytochemicals, and Future Perspective

Yonatan Alebachew | Addis Ababa University | Ethiopia

15th International Conference on DRUG DISCOVERY AND DEVELOPMENT

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A proteomic approach to identify zeins upon eco-friendly ultrasound-based extraction

Laura Darie-Ion

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In this study we present an enhanced eco-friendly extraction method, including grinding and sieving corn seeds, for prolamin proteins using an ultrasonic extraction methodology. Zein is a type of prolamin storage protein that has a variety of biomedical and industrial applications. Due to the considerable genetic variability and polyploidy of the starting material, as well as the extraction methods used, characterization of the protein composition of zein, requires a combination of different analytical processes. Therefore, we combined modern analytical methods such as mass spectrometry (MS), Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE), atomic force microscopy (AFM) or infrared spectroscopy (FTIR-ATR) for a better characterization of the extracted zein. In our studies, the use of ultrasonic homogenizer, 65% ethanol extraction buffer and 710 μm maize granulation yielded the highest protein extraction. MS and SDS-PAGE analysis revealed as main component the α -zein proteins in the maize flour extract. Moreover, fundamental studies based on AFM and FTIR-ATR approaches were applied to investigate the effect of different ethanol solutions on the self-assembled structures of zein protein. This research leads to a better understanding of zeins content, critical for developing new applications of zein in food and pharmaceutical industries, such as biocompatible medical vehicles based on polyplexes complex nanoparticles of zein with antimicrobial or drug delivery properties.

Biography

Laura Darie Ion has completed her PhD in 2015 at Chemistry Department, Alexandru Ioan Cuza University of Iasi, Romania and currently, she is postdoctoral researcher at the same University. During the PhD and postdoctoral studies, she has completed several research internships at University of Konstanz, Germany and published more than 13 papers in reputed international journals.

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Animal Modelling Advances

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Animal models have provided an important tool to help make the decision to take potential therapies from preclinical studies to humans. The use of animal models in research resulted in the advancement of knowledge for how diseases affect animals and humans. Comparative medicine is founded on the concept that other animal species share physiological, behavioural, or other characteristics with humans. There are wide variety of animal models used in drug discovery including, but not limited to *Drosophila*, *C. elegans*, mice, rats, rabbits, dogs, cats, hamsters, and non-human primates. Over the past century these and other species have been used to advance our knowledge of disease, to test new drugs, and to assure their safety before moving into the clinical phase with human subjects. Animal models are a foundational tool for scientists studying basic biological processes, disease pathogenesis and toxicologic research. Animals have been used for screening for drugs, in bioassay and for preclinical testing. They also essential feature of vaccine design toolkit. Large animals such as pigs have become increasingly studied for their immune response. Guinea pig used to evaluate bronchodilators. The use of horses as a useful model to study the spontaneous occurrence and lung remodelling of asthma in humans. The use of these models not only advances research in human diseases but also improves the health of companion and food production animals.

Biography

Utkarsh U Bhamare is studying Pharmacy (medicine studies). He is in final year of B. Pharmacy at Ahinsa Institute of Pharmacy College. He has published 2 Articles in "Research Journal of Pharmacognosy and Phytochemistry". He received an award from his college for being a "Best Journal of the year". His interest in Pharmacy began as a teenager. He has quick adaptability to emerging technology. He always ready to learn the new development or advancement in drug. He has excellent organizational planning and coordination skills and always ready to accept challenges.

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Opportunities and challenges of online anatomy teaching and learning for pre-clinical students

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Teaching techniques should ensure the knowledge retention and development of specific skills along with different learning styles. Teaching and learning of anatomy commenced in a traditional approach preliminarily and supplemented with computer-assisted methods at present to increase engagement and interaction through learner-centered approaches. The recent crisis, caused by the SARS-CoV-2, has tremendously affected face-to-face teaching and learning of anatomy education globally. Implementation of e-learning methods became more popular among the educationist after the COVID 19 pandemic to ensure the continuity of teaching and learning. Use of scheduled online video lectures, pre-recorded lectures, pre-recorded laboratory dissections videos, web-based 3D virtual techniques and high-quality microscopic images through the learning management system (LMS) suited the commonest practice to teach the anatomy. In addition to above techniques, online assessment tools or Moodle quizzes in LMS used to ensure the attainment of the learning objectives after the online sessions. These techniques enhanced the duration of self-directed learning, knowledge retention and better understanding as a consequence of repeated listening to the recorded sessions and attempt to the formative assessments. Hence, online sessions show beneficial impact on theoretical aspect of teaching and learning of anatomy. However, network interruptions were the significant constraints for online learners. Cadaveric dissection plays a crucial role in practical-based learning of the gross anatomy with relations and variations in the structures. In addition, the practical sessions enable to develop specific skills such as experiencing the texture, and exploring tissue planes by handling tissues and organs of the human body. Therefore, blended learning using conventional offline methods and online platforms would be a valuable tool in the perspectives of teachers and learners to teach anatomy in future.

Biography

H M F J Nazeefa has her expertise in evaluation and passion for improving the Anatomy teaching and learning process. Her open and contextual evaluation model creates path to identify the opportunities and challenges in online Anatomy Teaching for pre-clinical students during the COVID 19 outbreak. She has done the evaluation to overcome the interruption in the learning environment caused by the prevailing situation in teaching anatomy with the physical presence of students in her educational institution. This review might give an opportunity to the anatomist to focus on designing the curriculum in teaching and learning of anatomy for the virtual platform.

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Evaluation of the antiviral potential of gemini surfactants against influenza virus H1N1

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Influenza infection is still a high risk disease affecting human health worldwide and current vaccines and drugs cannot promisingly control this infection. Gemini Surfactants have shown antioxidant, antibacterial, antifungal and antiviral properties. They include two hydrophobic chains and two polar heads which are covalently connected by a rigid or flexible linker. With any variation in their structure, they may demonstrate different hydrophobicity characteristics. In this study, the antiviral capacity of Gemini Surfactants with varying degrees of hydrophobicity was investigated. The non-cytotoxic concentration (NCTC) of the compounds was determined by MTT assay. They were used for antiviral activity against influenza A virus (IAV) in simultaneous, pre-, and post-penetration combination treatments for 1 hr incubation on MDCK cells. The virus titer and cell viabilities were determined using HA and MTT assays. The HA titer decreased between 1-5 logs in simultaneous combination treatment, between 1-4 logs in pre-penetration treatment and between 1-3 logs in post-penetration treatment. The cell viabilities were favorable in all combination treatments. Gemini Surfactants were more generally effective in simultaneous combination treatment. They exert their antiviral effects on the H1N1 influenza virus by reducing the HA titer and keeping cell survival which might be related to their hydrophobic properties. More studies on apoptotic activity of these compounds are under examination.

Biography

Mehrnaz khodsiani is a Master student at the Islamic Azad University-Tehran North Branch. She is currently doing her master project on Gemini Surfactants.

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Ethiopian medicinal plants traditionally used for the treatment of cancer, Part 2: A review on cytotoxic, antiproliferative, and antitumor phytochemicals, and future perspective

Yonatan Alebachew

Addis Ababa University, Ethiopia

This review provides an overview on the active phytochemical constituents of medicinal plants that are traditionally used to manage cancer in Ethiopia. A total of 119 articles published between 1968 and 2020 have been reviewed, using scientific search engines such as ScienceDirect, PubMed, and Google Scholar. Twenty-seven medicinal plant species that belong to eighteen families are documented along with their botanical sources, potential active constituents, and in vitro and in vivo activities against various cancer cells. The review is compiled and discusses the potential anticancer, antiproliferative, and cytotoxic agents based on the types of secondary metabolites, such as terpenoids, phenolic compounds, alkaloids, steroids, and lignans. Among the anticancer secondary metabolites reported in this review, only few have been isolated from plants that are originated and collected in Ethiopia, and the majority of compounds are reported from plants belonging to different areas of the world. Thus, based on the available bioactivity reports, extensive and more elaborate ethnopharmacology-based bioassay-guided studies have to be conducted on selected traditionally claimed Ethiopian anticancer plants, which inherited from a unique and diverse landscape, with the aim of opening a way forward to conduct anticancer drug discovery program.

Biography

Yonatan Alebachew has received his MSc in Pharmacognosy from Addis Ababa University, Ethiopia in 2021. He has great experience in the isolation and in vivo antimalarial evaluation of compounds from medicinal plants. His expertise includes isolating bioactive constituents from active extracts and fractions, molecular docking of compounds and other computational skills to design and optimize better leads, and preparing semisynthetic derivatives of potential leads.

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