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Joint Webinar on

Green Chemistry and Euro pharmaceutics

March 13-14, 2023

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Joint Webinar on
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Angela Allen
North Carolina State University, USA

Title: Pollution prevention and control

Investigating the changes in water quality over time as area's surroundings are becoming more urbanized or infrastructure alterations occurring is one of the many issues that America faces today. There are many challenges to solving the issues of constant growth that lead to contamination and eventually unsafe water systems. Previous studies on the effects of urbanization have found significant impacts on water quality parameters like conductivity, pH, and dissolved oxygen. Along these same parameters, we monitor the water quality of the waterway that is known to be identified for improvement projects to restore the area from the issues that occur based on stormwater runoff. In addition, these studies will expand into more investigation with contaminants using more green chemistry techniques, such as using hemp to assist in the removal of pollutants in the waterways. Continuous monitoring will allow us to analyze the water sample and compare their respective parameters over an extended period for better understanding of how to restore and remediate for future use.

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Olha Storchylo

Odessa National Medical University, Ukraine

Title:Green chemistry as an organic medicine

Civilizational processes are accompanied by pollution of the environment. Emissions of combustion products of fuel, technology of production and processing of materials and even preservation of food lead to the recipiency of a certain amount of xenobiotics into the human body, which are not metabolized and, as a result, accumulate in the body. This leads to various violations of its functioning - from intoxication to stimulation of tumor processes. Therefore, more and more attention has recently been paid to organic products - both food and medicines. Officinal preparations obtained by the production method are an extract of plant raw materials (or its synthetic analogue). However, when preparing the drug, the interactions between the released substance and the accompanying components in the original plant material are damaged, which affect the overall effect of the herbal preparation as a whole. It leads to a violation of the integrity of the complex of biologically active substances that provide the final effect of phyto preparation - and, as a consequence, to impoverishment or distortion of the effect in comparison with the expected one. Thus, in our experiments in vitro and in vivo the advantage of the total extract of the milk thistle fruits in the realization of the radio protective effect in comparison with their water and fat-soluble fractions was proved.Unfortunately, there is no medicine acting on the principle of "magic bullet" and the side effect is quite real with both synthetic and natural phyto preparations, but the latter have a broader spectrum of action, lower toxicity and a mild prolonged effect. Therefore, along with the use of patented drugs, the use of "green chemistry" will facilitate the solution of the problem and improve the quality of human life.

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Hiba Natsheh
The Hebrew University of Jerusalem., Isreal

Title: Pomegranate Seed Oil Nasal Delivery System for ImprovingCognition

Pomegranate seed oil (PSO) is currently administrated orally as a food supplement for improving memory. However, the efficiency of the oral dosage forms for such a purpose is low, mainly due to the blood brain barrier impeding a good delivery to brain. We propose here a nasal formulation we have designed and investigated for improved efficacy of PSO. In multiphoton microscopy and near infrared imaging studies, the nasal administration of fluorescent probes, fluorescein isothiocyanate (FITC), and indocyanine green (ICG) incorporated in the PSO system showed enhanced delivery to the brain.Results of in vivo studies on animal models of impaired locomotor activity and memory have shown more than 1.5 folds improvement in the behavior of animals treated nasally with this new formulation, in comparison with the orally administrated oil. Histopathologic examination of the nasal cavity and mucosa, as carried out by a pathologist, indicated the safety of the PSO system.In conclusion, our nasal PSO system possesses many advantages vs. oral treatment, including direct delivery of the active ingredients to brain leading to enhanced activity.

Biography

Hiba Natsheh is currently a postdoctoral researcher in Prof. Elka Touitou's laboratory at the Institute for Drug Research, The Hebrew University of Jerusalem. Prof. Touitou (elka.touitou@mail.huji.ac.il) is an internationally recognized authority in the field of drug delivery and design of novel and advanced technologies for cannabinoids and for nasal and transdermal products.

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Fabrice Martin

Fresenius Kabi SwissBioSim GmbH, Switzerland

Title: Biosimilar combination products in EU: path to notified body opinion process under new MDR rules

On 05 April 2017, the new Medical Device Regulation 2017/745 (aka MDR) was adopted in EU after years of community negotiation, replacing the outdated Directive 93/42/EEC (aka MDD) with the objective to clean the EU market from outperforming devices and to reinforce safety for patients. The COVID outbreak delayed the application of the regulation,maintaining application in May 2024 though. Recent conversations may give more time to the industry before MDR fully applies.

MDR Article 117with Annex I echoes MDD Annex I, Part II, sections 7.3 and 7.4 on products including a medicinal product integral to a device component, both texts referring Directive 2001/83/EC (medicinal products for human use). In this sense, attention brought to the device component of drug-deviceproduct (aka combination) is not new. However, MDR re-enforces the demonstration of performance and safety for the device component with an assessment of the device file by a Notified Body prior, and as a condition, to the submission to the European Medicine Agency (EMA). This supplementary step towards the marketing of drug-device combination products in EU is a real challenge from various perspectives.

Solid on its foundations and its mission, Fresenius-Kabi SwissBiosim is on its pathto deliver patient-centric affordable medicines. The presentation will give insights and lessons learnt of the full NBO process for two presentations of one of its Biosimilar (prefilled syringe with safety system and for a spring-loaded auto-injector), including file preparation, submission, Q&A rounds and final report.

Biography

Fabrice has completed his PhDin Physics in 2002 from Nottingham Trent University and postdoctoral studies from Ecole Polytechnique Fédérale de Lausanne (EPFL) (CH).In 2008, he pivoted to medical devices and quality management, holding various positions in quality engineering, quality assurance, quality management and quality systems in the medical devices industry (Johnson & Johnson, Allergan, Medtronic) and in the biopharma industry (Merck kgaA, Fresenius Kabi). He is the currently Senior Manager Quality Management Medical Devices and Combination Products at Fresenius Kabi SwissBiosim, a business Unit of Fresenius Kabi active in the development and manufacturing of Biosimilars, founded in 2012 with its headquarters in Eysins, Switzerland.

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Hiba Zalloum
The University of Jordan,Jordan

Title: Anti-Proliferative effect of potential LSD1/CoREST inhibitors based on molecular dynamics model for treatment of SH-SY5Y neuroblastoma cancer cell line

Background: Lysine-specific demethylase is expressed in many cancers, where it impedes differentiation and contributes to cancer cell proliferation, cell metastasis and invasiveness, and is associated with inferior prognosis. LSD1 is associated with its corepressor protein CoREST, and utilizes tetrahydrofolate as a cofactor to accept CH2 from the demethylation process. The fact that the cofactor is best bound to the active site inspired us to explore its interactions to LSD1/CoREST enzyme complex utilizing molecular dynamics simulation, which aids designing novel and potent inhibitors.

Objective: In this study we minted to identify a new potential LSD1/CoREST inhibitors and test the potency and the safety of such inhibitors against human neuroblastoma and fibroblast cells lines.

Methods: We have implemented a previously derived model from the molecular dynamics simulation study and the key contacts to the active site in a subsequent structure based drug design and in-silico screening, which revealed a number of potential inhibitors toward LSD1/CoREST complex. The anti-proliferative activities of the identified compounds will be tested against neuroblastoma SH-SY5Y cancer cell line which known to highly express LSD1/CoREST complex.

Results: In-silico mining on National Cancer Institute (NCI) database identified 55 promising and structurally diverse inhibitors. Applying the abovementioned molecular modeling procedure yielded four compounds of LSD1/CoREST inhibiters with IC50 < 2μM. The four lead compounds were tested against SH-SY5Y neuroblastoma cell line that known to express high level of LSD1 and illustrated a potent activity with an IC50 ranging from 0.195 to 1.52μM. To estimate the toxicity of the selective leads, they were tested against normal fibroblast cells and scored a relatively high IC50 ranging from 0.303 to ≥ 100μM.

Conclusion: Our model revealed promising inhibitors that can be used in treating cancers that overexpress the LSD1 enzyme such as the SH-SY5Y neuroblastoma.

Biography:

Hiba Zalloum currently works at the Hamdi Mango Center for Scientific Research , University of Jordan. Their most recent publication is 'Exploring the Active Centre of LSD1/CoREST Complex by Molecular Dynamics Simulation Utilizing its Co-Crystallized Cofactor Tetrahydrofolate as a Probe

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Marija Egerić
University of Belgrade, Belgrade, Serbia

Title: Synthesis of metal organic framework - activated carbon composites for a photocatalytic degradation of congo red dye

Wastewater produced from textile, leather, paper, and plastics industries, containing dyes needs a proper treatment in order to be safely discharged into the environment, which is why new methods are being developed. Degradation of an azo-type dye Congo Red (CR) from water solution by using powdered UiO-66 type MOF (Metal Organic Framework), activated carbon (AC) and their composite powder mixtures made with different MOF/AC ratios was investigated.Analysis of renewability of used materials was analysiedin several cycles. Experiments were performed in batch conditions and samples were exposed to solar light irradiation. Prior to solution analysis by UV-ViS spectrophotometry,in order to determine the concentration of the remaining dye, samples were centrifuged to remove solid particles. Results have shown that pure MOF has excellent and almost identical photocatalytical efficiency in every cycle, compared to all MOF/AC composites and pure AC, which dye removal efficiencydeclined, probably due to the saturation of available adsorption sites in AC. CR removal efficiency and renewability of various composites depends on MOF/AC ratio, therefore, the most efficient composites are the ones where MOF content varies from 25 wt. % up to 100 wt. %. Samples with MOF content 50 - 100 wt. % have shown excellent renewability, while composites where AC is more dominant (95 - 100 wt. %) have shown almost none. Among the composites examined in this paper, the one with MOF/AC ratio of 50/50 has shown the best cost/performance ratio in removal of Congo red dye from aqueous solution.

Biography

MarijaEgerić graduated as a biologist for environmental protection (equivalent to a M.Sc.) from the Faculty of Biology, University of Belgrade, Serbia. In addition, she obtained a M.Sc. and Ph.D. in Environmental Engineering at the Faculty of Technology and Metallurgy, University of Belgrade, Serbia. Her research areas are Materials Science and Environmental Protection. She investigates different kinds of materials, i.e. physicochemical and sorption properties of various waste and carbon materials, and the possibilities of their application in the treatment of heavy metals, radionuclides and pesticides contaminated water and soil.

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Mia Omerasevic Bucevac
University of Belgrade, Belgrade, Serbia

Title: Fabrication of porous anorthite ceramics using solid-wastes for thermal insulation

This work aims to evaluate the feasibility of using seashell as a sorce of CaO, kaolin as a sorce of Al2O3 and SiO2, and banana peel as a pore former, as ingredients for fabrication of the sustainable anorthite ceramics for thermal insulation. Several characterizations such as X-ray diffraction (XRD), scanning electron microscope (SEM), open porosity, flexural strength, and thermal conductivity of the samples were performed. The obtained results show that the addition of different percent of pore former and sintering temperature influence all the properties of obtained anorthite ceramics. High porosity (53–81%), good flexural strength (>15 MPa) and low thermal conductivity (0.022–0.14 W/m K) were obtained after sintering samples with different percent of banana peel additions at 1100–1300 ◦C. It suggests that these materials can be used for the internal lining of the building for thermal insulation or for insulation parts of near space hypersonic speed aircraft.

Biography

Mia Omerašević Bučevachas been employed by Vinča Institute of Nuclear Sciences since 2011. She is currently holding position of Research Associate in the Department of Materials Science.

She has completed her PhD at the Faculty of Physical Chemistry, University of Belgrade, Serbia, in 2017. She was visiting researcher in the Department of Mechanical and Materials Engineering at Queen's University, Kingston, Ontario, Canada (January - May 2018; June - September 2016).Her research is focused mainly on porous aluminosilicate ceramics.

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Mahmoud F. Mubarak

Egyptian Petroleum Research Institute, Egypt

Title: Investigating the adsorption of phenol onto activated carbon thin film hybrid carbon nanostructures in aqueous solutions

Activated Carbon Thin Film (ACTF) was synthesized through a single-step thermal fabrication method and characterized using various analytical techniques. The batch adsorption experiments revealed that ACTF showed a maximum removal efficiency of 96.5% for phenol in aqueous media under optimal conditions. The adsorption data was modeled using four isotherm models and three kinetic models, and the results showed that the Freundlich isotherm and pseudo-second order kinetics were the best fit. The thermodynamic results indicated that the adsorption of phenol onto ACTF was spontaneous and exothermic. The ACTF was found to have good regeneration capacity using 0.1 M NaOH as the eluent, making it an effective adsorbent for phenol elimination. This study confirms the potential of ACTF as an effective phenol adsorbent.

Biography

Dr. Mahmoud Fathy Mubarak, B.Sc. (2009), M.Sc. (2014) and Ph.D. (2018). PI, CO-PI, Consultant and Members of, 7 STDF water treatment and desalination projects. Editorial Board Member of Many Well-Respected of 7 national and International Journals. Published More Than 80 Papers. Published 6 books/ chapters in the field of water treatment technology, the challenges of the century in water resources, and quantum dots and their various environmental uses. Recipient of Federation of Arab Scientific Research Council's Awarded in water invitation filed (2020). Have patent with no.1085/2015 – in nanotechnology- STDF – Egypt. Member of the Board Directors of the Core Lab Center . Scientific research consultant in National Youth Council, Delegated Economic and Social Development

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Mirjana Radenkovic
University of Belgrade, Belgrade, Serbia

Title: Biomass and biofuel contribution to fine atmospheric particulate matter (PM2.5)

Development and use of the renewable energy resources, such as biomass and biofuels, are becoming crucial for global efforts in mitigation of the climate changes effects. In this work we study the influence of these energy sources on the atmospheric particulate matter in urban environment. A biomass burning contribution to the aerosol fraction with particles less than 2.5μmin diameter (PM2.5)was assessed inthe heating and non-heating season in the Belgrade residential area. Therefore, daily PM2.5 aerosol samples were collected on membrane filters and analyzed by EDFRFand multi-wavelenght(405-1050 nm) attenuation measurements.Results have indicated presence of several biomass and biofuel related tracer elements like Cu, Zn, Ti, Mn, Ni, V, Cr including significant Pb and Cd content. Black carbon values have shown strong seasonality, being much higher during the winter. Receptor modeling using positive matrix factorization has revealed up to 40% contributions to PM2.5 mass coming from the biomass-related emission sources in the energy sector. Besides the black carbon measured at lower wavelengths, potassium was present as a tracer for biomass burning coming from wood, while therecent use of theindividual biofuels (biochar, bio-oil, crude glycerol etc) was not distinguished from the mixed ones (bio-oil/methanol/ biochar, etc.). Characteristic heavy oil V/Ni ratio was noticed in both seasons indicating contribution of industrial emission sources during the summer. As PM2.5 was assigned by WHO as hazardous for human health, obtained results support the importance of the biofuel combustion products control.

Biography

Mirjana Radenković has completed herPhD from Belgrade University Faculty of Physical Chemistry. She is a Senior Research Associate in the Radiation and Environmental Protection Department of the Vinca Institute of Nuclear Sciences, National Institute of the Republic of Serbia, University of Belgrade.She has published more than 30 papers and was a reviewer in reputed international journals. Her research interest is predominantly in Environmental Physical Chemistry, Radiochemistry, Nuclear Analytical Techniques and Environmental Processes.

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Sanja Krstic

University of Belgrade, Belgrade, Serbia

Title: Synthesis and characterization of Sio2 obtained from TEOS and Carbon Support

The main objective of this research is to obtain SiO2 nanomaterialusing biomass as a starting material. The first step is to obtain carbon active material support from biomass. Carbon solid residue. obtained by carbonization process of biomass in an inert atmosphere was subjected to physical activation and chemical treatment (by TEOS - tetraethyl orthosilicate) to create highly porous and spatially distinct ordered bio-SiO2 ceramics. Results of carbonization experiments at several highly operating temperatures and activation of carbons with multiple-cycle actions by TEOS clearly showed the possibility of obtaining SiO2 nano-structures. Increase of activation temperature and duration time initiates developing the SiO2 particles inside the porous structure. The X-ray powder diffraction (XRPD) analysis showed that the major structurewas SiO2. Fourier transform infrared spectroscopy (FT-IR) was used for surface properties analysis and functional groups determination. Applied procedure allows obtaining a high yield of ultra-long SiO2 nanowires. A possible nanowires growth mechanism was proposed. These findings provide value and guidance for studying and understanding the properties of SiO2and for expanding their possible applications.

Biography

Sanja Krstićstarted PhD studies atthe University of Belgrade, Serbia (2010), Faculty of Technology and Metalurgy, where she obtained Ph.D.degree in Materials Science. In Februry 2011 she started working at Institute for Nuclear Sciences Vinča inBelgrade as a young researcher at Materials Science laboratory at the project“Functional, functionalized and advanced nanomaterials”, by Ministry of education,science and technological development of the Republic of Serbia (project number III45005).Her research areasaremainlyfocused on active carbon nano and micoro materials synthesis and application in environmental protection areas.

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Radojka Vujasin
University of Belgrade, Belgrade, Serbia

Title: Removal of Re (VII) from aqueous solutions using zirconium-based MOF UiO-66 as adsorbent

Intensive industrial development has resulted in increased and widespread pollution of the environment with hazardous metals and metalloids which are harmful to living matter due to their toxicity, nondegradibility, and mobility in aquatic environments. Most of these elements are redox sensitive and some of their oxidation states can form oxyanions in solution.Among a variety of water treatment techniques, adsorption represents one of the simplest, cheapest, and most effective technique. Porous nanomaterials such as metal–organic frameworks (MOFs), consisted of a metal–oxygen cluster and organic molecules, are becoming an alternative to traditional inorganic porous materials capable for effective entrapment of these species.Among different oxianions, special concerns regard to the radioactive highly mobile 99Tc isotope with half-life (t1/2 = 213 000 y) which was generated in huge amounts during Cold War activities, nuclear fuel reprocessing, as well as in nuclear reactors. So, the ability of UiO-66 to remove radioactive pertechenetate [TcO4-] and its nonradioactive analogue perrhenate [ReO4-] was investigated. These results indicated that up to 90% of the maximum adsorption capacity was reached within initially rapid stage, suggesting fast kinetics and surface mechanism of adsorption of Re(VII)/99mTc(VII) by UiO-66 xerogel. Sorption of Re(VII)/99mTc(VII) best fitted Langmuir isotherm indicating uniform monolayer adsorption of Re(VII)/99mTc(VII) onto surface of UiO-66 within a finite number of identical surface sites.It was proposed that mechanism of adsorption was governed by the electrostatic forces between positively charged surface MOF particles and negatively charged oxyanion species.

Biography

Radojka Vujasin has completed her PhD at the Faculty of Physical Chemistry, University of Belgrade, Serbia. She is employed at the Department of Materials Science, “Vinča” Institute of Nuclear Sciences, Serbia. She is working as a Researcher in the field of materials science dealing with the synthesis, characterizationand modification of carbon materials and metal-organic frameworks. She has experience in theoretical research using different computer programs based on density functional theory.

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Aleksandar Devecerski
University of Belgrade, Belgrade, Serbia

Title: Photocatalytic removal of the Congo red dye from aqueous solutions using UiO-66/AC composite powders

Demand for the pure water is increasing with continuous human population growth and rapid industrialization. Organic pollutants, especially organic dyes, are toxic, persistent and have significant impacts on human health. Since about 70% of commercially used dyes are azo-type dyes, the need for their removal or catalytic degradation arises.In this study, removal of the azo-type dye Congo Red (CR) from aqueous solutionsby using powdered UiO-66 type MOF (Metal Organic Framework), activated carbon (AC) and their composite powder mixtures made with different MOF/AC ratioswas investigated. Experiments were performed in both dark and light conditions for the two different initial pH values of the CR solution.Samples were exposed to solar light irradiation, centrifuged to remove solid particles, and the concentration of the remaining dye in the solutions was determined by UV-ViS spectrophotometry.Several problems arising from the experimental conditions has been pointed out, as well as the ways to overcome them in order to obtain reliable results. Catalysts are active in both dark and light conditions, clearly indicating the existence of the photocatalytic effect also.By optimizing the MOF/AC ratio, it is possible to find a best composition of the catalyst for a given condition (dark, light, pH) considering the cost/performance ratio also.

Biography

Aleksandar Devečerski was born on 30.04.1966. He graduated in 1995, got his M.Sc. degree in 2004 and Ph.D. degree in 2009 at Faculty of Physical Chemistry, University of Belgrade. From 2000 to the present day, he works in Vinča Institute of Nuclear Sciences, currently as an Associate Research Professor. His research interests are materials science, carbon materials, ceramics, composite materials. Author of 43 scientific papers, invited reviewer for more than 50 scientific papers submitted to several highly respected international scientific journals.

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Abdeen Mustafa Omer
Energy Research Institute, Nottingham NG7 4EU, United Kingdom

Title: Bioenergy, Environment and Sustainable Development

Sustainable energy is energy that, in its production or consumption, has minimal negative impacts on human health and the healthy functioning of vital ecological systems, including the global environment. It is an accepted fact that renewable energy is a sustainable form of energy, which has attracted more attention during recent years. A great amount of renewable energy potential, environmental interest, as well as economic consideration of fossil fuel consumption and high emphasis of sustainable development for the future will be needed.

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Anita Rakić

Nastavni zavod za javno zdravstvo Splitsko–dalmatinske županije, Vukovarska 46, 21000 Split, Hrvatska

Title: Impacts of covid-19 pandemic on the environment

Environmental protection is of great importance, and care is taken to protect against pollution in all components of the environment, as well as individually.

The COVID 19 pandemic was having a significant impact on people`s lives and the environment.

As a result of the global movement ban at one point in time, followed by several lockdowns in parts of the world where the COVID 19 pandemic was on the rise, a significant reduction in social and economic activity. If hazards on the environment are identified early enough, it is possible to take certain steps to prevent or reduce risk. Covid 19 pandemic has influenced on chemical, physical and biological environmental factors.

The changes caused by the introduction of various measures to reduce the spread of the coronavirus affected the recovery of the environment, and the following phenomena occurred: cleaner and better quality air, positive impact on surface water, reduction of carbon emissions, recovery of the ozone layer.

As the lockdown has come, consumers have increased their online shopping, resulting in an increase in waste. All food and other foodstuffs that were ordered online had to be delivered packaged, and therefore there was an increase in the amount of packaging and plastic waste and increse generation of municipal waste, but left and still leaves huge amounts of medical waste. It is important to point out the danger of medical waste, if not properly disposed of, to the environment as well as the consequences of exposure to harmful effects on human health.

Biography

Anita Rakić has completed Ph.D. of Chemical Engineering in Environmental Protection, and passed all the required examinations with excellent achievements of Faculty of Chemistry and Technology of the University of Split. Also, she takes part in scientific meetings, symposiums and workshops which are hers scientific interest. Her scientific interest is the field of culture media and sterilisation.

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Maryam Alhefeiti

Department of Chemistry, College of Science, United Arab Emirates University

Title: Dyeing Non-Recyclable Polyethylene Plastic with Photoacid Phycocyanobilin from Spirulina Algae: Ultrafast Photoluminescence Studies

Despite the enormous environmental damage caused by plastic waste, it makes up over one-third of globally produced plastics. Polyethylene (PE) wastes have low recycling but high production rates. Towards the construction of ionic solar cells from PE, the present work describes the loading of a bioactive photoacid phycocyanobilin (PCB) dye from the pigment of Spirulina blue–green algae (as a natural resource) on low-density polyethylene (LDPE) plastic film. Dyeing was confirmed by X-ray photoelectron spectroscopy (XPS). Upon excitation of the Soret-band (400 nm), the photoluminescence (PL) spectra of PCB in neat solvents revealed two prominent emission peaks at 450–550 and 600–700 nm. The first band assigned to bilirubin-like (PCBBR) species predominated the spectral profile in the highly rigid solvent glycerol and upon loading 0.45 % (w/w) of the dye on plastic. The photoluminescence excitation (PLE) spectra of PCB for the second region (Q-band) at 672 nm in the same solvents confirmed the ground state heterogenicity previously associated with the presence of PCBA (neutral), PCBB (cationic), and PCBC (anionic) conformers. Time-resolved photoluminescence (TRPL) measurements induced via excitation of all PCB species at 510 nm in methanol revealed three-lifetime components with $\tau 1$ = ~0.1 ns and $\tau 2$ = ~2 ns associated with PCBBR species and $\tau 3$ = ~5 ns pertinent to the long-living photoproduct X*. Decay-associated spectra (DAS) analysis of the photoluminescence transient spectra of the final dyed films in the solid-state confirmed the improved generation of the long-living photoproduct as manifested in a significant increase in the PL intensity (~100-fold) and lifetime value (~90 ns) in the Q-region upon loading 6.92 % (w/w) of the dye on plastic. The photoproduct species were presumably assigned to the deprotonated PCB species, suggesting improved ionic mobility. The potential implementation of the PCB-sensitized PE solid wastes for the fabrication of ionic solar cells is discussed.

Biography

Maryam Alhefeiti has completed herbachelor's degree in biochemistry at the age of 22 years from UAE University. she is the science researcher, Fujairah research centre. she has published 1 paper in polymers journals and work on 2 papers. (Up to 100 words)

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Farah S. Daabool
College of biotechnology, Al-Qasim Green University, Hilla, Iraq

Title: Novel Analytical method for estimation of bilirubin in human blood

It is said that a novel method for measuring total bilirubin has been developed. Other aromatic amines can be used in place of sulfanilic acid to produce a very stable diazotized reagent that reacts fast with bilirubin in blood or plasma. Similar analytic results are achieved with this technique when compared to a sulfanilic acid approach, and brief quality control trials show that the accuracy was sufficient.

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Farah S. Daabool
College of biotechnology, Al-Qasim Green University, Hilla, Iraq

Title: By using extracted lemon peel production of selenium nanoparticles

The improper use of antibiotics has led to a rise of dangerous, multidrug-resistant microorganisms worldwide. Several researchers have recently employed metal nanoparticles to combat bacterial resistance to antibiotics. In this work, selenium nanoparticles (Se-NPs) were produced using a green, eco-friendly process from lemon peel waste (LPW), and they were then employed as antibacterial and antibiofilm agents. FTIR, XRD, SEM, and EDAX were used to analyze green biosynthesized Se-NPs. According to the results of their characterization, the biosynthesized Se-NPs were highly crystalline, spherical, and polydisperse, with diameters between 50 and 80 nm.

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Dimitris S. Argyropoulos

Departments of Chemistry & Forest Biomaterials, North Carolina, State University, Raleigh, NC, 27695-8005 , USA

Title: The Use of Cellulose Nanocrystals as Molecular Scaffolds; Supramolecular Chemistry Using Nature's Most Abundant Template

Over a number of years work in our laboratory has been exploring the use of cellulose nanocrystals (CNC) as scaffolds for the creation of novel nanomaterials with unique and stimuli responsive characteristics. The forces responsible for the spatial organization within cellulose, coupled with traditional chemistry are aimed at creating structures via molecular self assembly; These concepts have been the inspiration for our supramolecular research.

In this lecture we will report on our systematic efforts aimed at functionalizing CNCs by using both grafting from and grafting onto approaches. The selective creation and activation of a nano-pattern on CNC will be described and the chemical methods used to create the foundation for novel CNC based materials (including self-assembled Cellulose NanoPlatelet Gels), photo reversible light induced and novel antimicrobial assemblies will be described.

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Ljiljana Matović
Vinča" Institute of NuclearSciences - National Institute of the Republic of Serbia, University ofBelgrade, Belgrade, Serbia

Title: Electrospun Polyamide/UiO-66 Composites for Photocatalytic Degradation of Congo Red

A wide variety of materials, strategies, and methods have been proposed to face the challenge of wastewater pollution. One of the most innovative and promising approaches include synthesis of hybrid materials made of polymeric nanofibers and photocatalytic nanoparticles. Electrospun polyamide-MOFnanofiber membranes containing UiO-66 were synthesized forphotocatalytic degradation of azo type dye Congo red (CR)as a target molecule. A series polyamide/UiO-66 nanofibers were prepared by tailoring the content of UiO-66 from 0.5 wt%, 1wt%, 2 wt% to 10 wt%. The photocatalytic activity was evaluated by following the CRdegradation,which was present in concentrations of 10 mg/L, as a function of UV irradiation time. The fastest degradation was recorded for the electrospun membranes which contained smaller amounts of UiO-66, namely 1wt%, probably due to better i.e.more homogeneous distribution of UiO-66 particles on the surface of the PA nanofibers. The porosity of electrospun fibers facilitate easy access of CR molecules present in water to photocatalytically active sites of well dispersed UiO-66 enabling their subsequent photodegradation.

Biography

Ljiljana Matovićhas completed her PhD from Belgrade University Faculty of Physical Chemistry. She is working as a Researcher Professor in the field of MaterialScience, dealing with the synthesis, characterization, and modification of different kind of materials ranging from synthetic (carbon, metal hydrides) to natural (clay,zeolites) and their composites. Currently, her main field of interest are materials for (non)hazardous waste removal, conversion and stabilization. She has teaching experience as a Mentor of few Ph.D.and master thesis, more than 45 published papers in scientific journals, over 900 citation, as well as management experience of fewbilateral and national Science Projects.

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