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International Conference on

# ANALYTICAL CHEMISTRY

**August 20-21, 2018 | Madrid, Spain**

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International Conference on

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# KEYNOTE FOURM

International Conference on  
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YONG-XI LI  
USA

## CHALLENGES AND CONSIDERATIONS FOR QUANTITATIVE ANALYSIS OF CHOLESTEROL PRECURSORS AND METABOLITES IN HUMAN PLASMA BY LC-MS/MS METHODOLOGY

### BIOGRAPHY

Yong-Xi Li has completed his Postdoctoral trainings at Kansas State University, Cornell University, USA. Currently he is Executive Director at Medpace Bioanalytical Laboratories after he served as vice presidents at Xenobiotic Labs and Ricerca Bioscience. His experiences are focusing on bioanalysis: TK, PK, ADA, Nab (and Cell base Nab), PD markers including method developments, validations, sample analysis for small molecule, protein and antibody therapies. He and his group developed many such applications by using LC-MS/MS and immunoassays (ELISA, ECL and Flow cytometry.....). He is author, co-author of more than 150 papers, book, presentations in reputed journals, and conferences. He is also serving as an organizing committee member for one of biotech conferences.

Concentrations of Cholesterol Precursors and Metabolites in human body are very closely related to human cognitive performance and human heart health as well. Many new drugs are developed to improve the rations of among the precursors or metabolites in human body for human health needs. Because they are so important biomarkers that sensitive and accurate determinations of all concentrations of the precursors and metabolites are critical during the drug developments and studies. For such purpose, Bioanalytical methods were developed and fully validated following US FDA and European EMA guidance for Cholesterol three precursors: Lathosterol, Lanosterol and Desmosterol, and four Cholesterol metabolites: 4-Hydroxycholesterol, 24S-Hydroxycholesterol, 25-Hydroxycholesterol and 27-Hydroxycholesterol by LCMS/MS methods at our laboratories. Since such marker molecule structures and polarities are very similar or the same with only a double bond position different, the bioanalytical methodology faced extremely challenge during our method development stage, which include all extraction procedures, HPLC conditions and Mass Spectrometer parameters. Especially in human plasma samples, Cholesterol is dominate marker that had significant interference with the analysis. During the method validations, we have considered that the methods need to be conducted from regulatory point of view, that is, "method validation for biomarker assays should address the same questions as method validation for PK assays....." so that the method accuracy, precision and all stabilities were completed for all assessments to meet acceptance criteria from the regulatory agencies, instead, not reference methods "fit-for-purpose" for diagnostic. In this presentation, all above scientific challenges and regulatory considerations are introduced and discussed. All methods were successfully applied to our several clinical studies, and with later on the methods for phytosterol have provided very useful insights for the drug developments.

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**SERGEY SUCHKOV**

Russia

## **ANTIBODY-PROTEASES AS A NOVEL BIOMARKER AND A UNIQUE TARGET TO SUIT TRANSLATIONAL TOOLS TO BE APPLIED FOR BIODESIGN, BIOENGINEERING AND REGENERATIVE MEDICINE**

### **BIOGRAPHY**

Sergey Suchkov graduated from Astrakhan State Medical University and awarded with MD, then in 1985 maintained his PhD at the I.M. Sechenov Moscow Medical Academy and in 2001, maintained his Doctorship Degree at the Nat Inst of Immunology, Russia. From 1987 through 1989, he was a senior Researcher, Koltzov Inst of Developmental Biology. From 1989 through 1995, he was a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004, a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). Dr Suchkov has been trained at: NIH; Wills Eye Hospital, PA, USA; Univ of Florida in Gainesville; UCSF, S-F, CA, USA; Johns Hopkins University, Baltimore, MD, USA. He was an Exe Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK. At present, Dr Sergey Suchkov is a Chair, Dept for Personalized and Translational Medicine, I.M. Sechenov First Moscow State Medical University. He is a member of the: New York Academy of Sciences, USA; American Chemical Society (ACS), USA; American Heart Association (AHA), USA; EPMA (European Association for Predictive, Preventive and Personalized Medicine), Brussels, EU; ARVO (American Association for Research in Vision and Ophthalmology); ISER (International Society for Eye Research); PMC (Personalized Medicine Coalition), Washington, USA.

Catalytic Abs (catAbs) are multivalent immunoglobulins (Igs) with a capacity to hydrolyze the antigenic (Ag) substrate. In this sense, proteolytic Abs (Ab-proteases) represent Abs to provide proteolytic effects.

Abs against myelin basic protein/MBP with proteolytic activity exhibiting sequence-specific cleavage of MBP are of great value to monitor demyelination whilst in MS. The activity of Ab-proteases was first registered at the subclinical stages 1-2 years prior to the clinical illness. And the activity of the Ab-proteases revealed significant correlation with scales of demyelination and the disability of the patients as well. So, the activity of Ab-proteases and its dynamics tested would confirm a high subclinical and predictive (translational) value of the tools as applicable for personalized monitoring protocols.

Of tremendous value are Ab-proteases directly affecting remodeling of tissues with multilevel architectonics (for instance, myelin). By changing sequence specificity one may reach reduction of a density of the negative proteolytic effects within the myelin sheath and thus minimizing scales of demyelination. Ab-proteases can be programmed and re-programmed to suit the needs of the body metabolism or could be designed for the development of new catalysts with no natural counterparts. Further studies are needed to secure artificial or edited Ab-proteases as translational tools of the newest generation to diagnose, to monitor, to control and to treat and rehabilitate MS patients at clinical stages and to prevent the disorder at subclinical stages in persons-at-risks to secure the efficacy of regenerative manipulations.

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MEHMET YAMAN

Turkey

## VALIDATION OF A TANDEM MASS SPECTROMETRIC METHOD FOR DIRECT ANALYSIS OF FREE AMINO ACIDS IN RICE

### BIOGRAPHY

Prof. Dr. Mehmet Yaman has completed his Ph.D. in 1990 from the University of Inonu-Turkey. Since 2005, he is an Editor-in-Chief of, "International Journal of Pure and Applied Chemistry" journal. Between 2010-2013, he was selected as member of consultative committee of TÜBİTAK (the Scientific and Social Research Council of Turkey). Professor Yaman supervised and assisted more than thirty students 11 Ph.D. and 22 M.Sc.. Professor Yaman has over 120 publications that have been cited over 2000 times, and his publication H-index is 29 and has been serving as an editorial board member of reputed Journals (more than 10 journals.) He is an invited speaker on international lectures and has given more than 130 talks for national and international conferences.

He has managed two national and two international conferences. Professor Yaman have the International Book Chapter, Air Pollution-Monitoring, Modelling, Health and Control-978-953-51-0381-3, Hard cover, 254 pages.

After intensive studies on sorbents based different materials for preconcentration and removing of toxic metals, it is necessary to develop new adsorbents having high adsorption capacity and cheaper. The modified biowastes are candidate for these purposes.

In this work, the activated carbon obtained using chemically-modified orange peels were studied to be prepared nanosorbent using hydrothermal synthesizes procedure, specially produced in our university. The obtained nanosorbents were characterized using FTIR, SEM, nanoparticul sizer and BET methods. The characterized adsorbent was used for preconcentration and removal of toxic elements such as Cd, Co and Pb. The observed adsorption capacity was compared to the activated carbon without hydrothermal nanosorbent synthesis for the same biowaste, orange peel. The optimization of conditions was performed using parameters such as pH, contact time and final volume of elution. The measurements were carried out by both flame atomic absorption spectrophotometry and inductively coupled plasma-mass spectrometry (ICP-MS). The other results will be presented in conference.



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# SCIENTIFIC TRACKS & ABSTRACTS

# SESSIONS

August 20-21, 2018

Spectroscopy | NMR Spectroscopy | Therapeutic Science | Biosimilar Analytics  
| High Performance Liquid Chromatography | Polymer Science and Materials  
Science | Clinical science examination

## Session Introduction

### Session Chair

Yong-Xi Li  
USA

### Session Co-chair

Jim P. Zheng  
USA

- Title: **Challenges and Considerations for Quantitative Analysis of Cholesterol Precursors and Metabolites in Human Plasma by LC-MS/MS Methodology**  
Yong-Xi Li, USA
- Title: **In-situ NMR study of lithium-ion capacitors**  
Jim P. Zheng, USA
- Title: **Quantitative distinction of external and bulk hydroxyl groups in porous metal oxides by DFT modeling aided FTIR spectroscopy**  
Istvan Halasz, USA
- Title: **3-Phenylglyceric acid-derived polyether from medicinal plants, its basic monomeric moiety as prospective anticancer agents**  
Vakhtang Barbakadze, Georgia
- Title: **Application of Electroanalytical Techniques in the Analysis of Bioactive Compounds**  
Rodrigo de S. Melo, Brazil
- Title: **Enantiomeric separation of chiral pharmaceuticals using HPLC**  
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- Title: **Analysis and speciation of drinking water in some areas prevailing chronic kidney disease in Sri Lanka**  
Janitha A Liyanage, Sri Lanka
- Title: **Conductometric titration for analyzing exchange polymeric membranes**  
Maria Jose Lavorante, Argentina
- Title: **Application and Comparison of Analytical Hierarchy Process (AHP) and Network Methods in path finding of Pipeline Water Transmission System, from Taleghan's Dam to Hashtgerd New City, Tehran, Iran**  
S. Ghareh Hassanloo, Morocco
- Title: **Inhibitive action of 1,3,4-thiadiazole-2,5-dithiol towards copper corrosion in sulphate solution**  
Echihi Siham, Morocco
- Title: **Feasibility, accuracy of gas chromatographic system for OVI**  
Rahul Hajare, India

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### Title

**CHALLENGES AND CONSIDERATIONS FOR QUANTITATIVE ANALYSIS OF CHOLESTEROL PRECURSORS AND METABOLITES IN HUMAN PLASMA BY LC-MS/MS METHODOLOGY**

### Name & Country

**Yong-Xi Li**

USA

### Abstract

Concentrations of Cholesterol Precursors and Metabolites in human body are very closely related to human cognitive performance and human heart health as well. Many new drugs are developed to improve the rations of among the precursors or metabolites in human body for human health needs. Because they are so important biomarkers that sensitive and accurate determinations of all concentrations of the precursors and metabolites are critical during the drug developments and studies. For such purpose, Bioanalytical methods were developed and fully validated following US FDA and European EMA guidance for Cholesterol three precursors: Lathosterol, Lanosterol and Desmosterol, and four Cholesterol metabolites: 4 $\beta$ Hdroxycholesterol, 24S-Hdroxycholesterol, 25-Hdroxycholesterol and 27-Hdroxycholesterol by LCMS/MS methods at our laboratories. Since such marker molecule structures and polarities are very similar or the same with only a double bond position different, the bioanalytical methodology faced extremely challenge during our method development stage, which include all extraction procedures, HPLC conditions and Mass Spectrometer parameters. Especially in human plasma samples, Cholesterol is dominate marker that had significant interference with the analysis. During the method validations, we have considered that the methods need to be conducted from regulatory point of view, that is, "method validation for biomarker assays should address the same questions as method validation for PK assays....." so that the method accuracy, precision and all stabilities were completed for all assessments to meet acceptance criteria from the regulatory agencies, instead, not reference methods "fit-for-purpose" for diagnostic. In this presentation, all above scientific challenges and regulatory considerations are introduced and discussed. All methods were successfully applied to our several clinical studies, and with later on the methods for phytosterol have provided very useful insights for the drug developments.

### Biography

Yong-Xi Li has completed his Postdoctoral trainings at Kansas State University, Cornell University, USA. Currently he is Executive Director at Medpace Bioanalytical Laboratories after he served as vice presidents at XenoBiotic Labs and Ricerca Bioscience. His experiences are focusing on bioanalysis: TK, PK, ADA, Nab (and Cell base Nab), PD markers including method developments, validations, sample analysis for small molecule, protein and antibody therapies. He and his group developed many such applications by using LC-MS/MS and immunoassays (ELISA, ECL and Flow cytometry). He is author, co-author of more than 150 papers, book, presentations in reputed journals, and conferences. He is also serving as an organizing committee member for one of biotech conferences.



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### Title

**IN-SITU NMR STUDY OF LITHIUM-ION CAPACITORS**

### Name & Country

**Jim P. Zheng**

USA

### Abstract

Lithium-ion capacitors (LICs) are emerging as promising energy storage devices; thus, understanding their electrochemistry is of great interest. Here we report the study of a novel LIC by employing in-situ nuclear magnetic resonance spectroscopy (NMR) as a nondestructive tool, revealing the sequence of electrochemical processes in it. We have performed in situ  $^7\text{Li}$  NMR experiments on the LIC by simultaneously cycling the LIC pouch cell in the voltage range 2.0–4.0 V. NMR spectra recorded for multiple cycles reveal the  $^7\text{Li}$  NMR signals arising from different parts of the capacitor. By employing a combination of in-situ  $^7\text{Li}$  NMR, component isolation, and Gaussian-Lorentzian peak fitting, we investigate the resonances arising from the Li metal from stabilized lithium metal powder (SLMP), free ions in electrolyte, the solid electrolyte interface layer (SEI), intercalated lithium in carbon anode, and the Li-ions in the electric double layer on cathode. The recorded in-situ  $^7\text{Li}$  NMR spectra showed that the charge and discharge processes caused electrochemical reactions, resulting in considerable repetitive changes in peak intensities and chemical shifts over multiple cycles. Further cycle experiments revealed contributions from individual electrodes.

The application of in-situ NMR enabled monitoring of the LICs in real time, permitting us to not only identify various electrochemical processes in the LIC but also to delineate the contribution of each individual electrode. The in-situ NMR spectra recorded for multiple discharge/charge cycles of the LIC revealed the exchange of Li-ions between the anode and cathode through lithiation of the hard carbon and electric double-layer formation on the activated carbon. This series of experiments aid in the visualization of the Li-ion transfer mechanisms in LICs.

### Biography

Jim P. Zheng is a Professor and Sprint Eminent Scholar Chair at the Department of Electrical and Computer Engineering of Florida A&M University and Florida State University, Chair Professor at the College of Automobile Engineering of Tongji University, Professor at the Shanghai Institute of Technical Physics of the Chinese Academy of Sciences. He is the recipient of National Academy of Inventors Fellow, National Research Council Fellow, Army Research & Development Achievement Award, NASA Faculty Research Award, and Progress Energy Professional Development Award. He has published more than 130 articles in scholarly journals, and 130 papers in conference proceedings in the fields of energy storage, fuel cells, nano-sensors, photonics, and thin film growth, and been awarded 18 patents, and 5 patents have been licensed by a private companies. He is the founder of General Capacitor LLC and a co-founder of Bing Energy International Inc.

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### Title

**QUANTITATIVE DISTINCTION OF EXTERNAL AND BULK HYDROXYL GROUPS IN POROUS METAL OXIDES BY DFT MODELING AIDED FTIR SPECTROSCOPY**

### Name & Country

**Istvan Halasz**

USA

### Abstract

FTIR (Fourier Transform Infrared) spectroscopy is the most frequent tool for qualifying and quantifying OH groups on solid surfaces. Diffuse reflectance (DRIFT) or and transmission (TR) sampling techniques are used for testing the OH content of micro- ( $D < 2$  nm) and meso- ( $2\text{nm} < d > 20$  nm) porous oxides. Both techniques require initial pore cleaning in high vacuum at elevated temperatures and are considered to give largely identical results, provided Kubelka-Munk or other functions are employed for compensating DRIFT's nonlinearity. In contrast to this general view, we observed substantial difference between the TR and DRIFT measured FTIR spectra of the Brønsted acidic hydroxyl groups (BA-OH) of some nano- and microcrystalline, microporous molecular sieves. Their practical importance is well characterized by their global market value exceeding US\$ 3,000 billion\*. Since their Brønsted acidity plays pivotal role in numerous molecular sieve applications we deployed both experimental adsorption methods and density functional theory (DFT) based computer modeling to elucidate the cause of the TR and DRIFT measured BA-OH spectrum difference. We prove that TR overwhelmingly reflects vibrations of the bulk atoms, while DRIFT selectively measures vibrations from the top 15-20 Å thick layer of particles. These results helped among others to understand also the cause of DRIFT and TR measured spectral difference of hydroxyls in amorphous silica gels and cause of unusual hydrophobicity on certain zeolites.

\*Research and Markets, Guinness Centre, Dublin 8, Ireland

### Biography

Istvan Halasz obtained Ph.D. degree from the Hungarian Academy of Sciences (HAS) while studying the fundamentals of acid-base catalysis and developing efficient processes for pharmaceutical, fine chemical and petrochemical industries in the Hungarian Hydrocarbon Institute. Later his research focused on zeolite catalysis, oxide superconductor synthesis, and catalytic fume abatement from mobile and stationary exhausts in the chemical research laboratories of HAS, Technical University of Vienna, Wayne State University in Detroit and University of Iowa. He joined PQ R&D 20 years ago to characterize porous materials by molecular spectroscopy and other methods. He organized scientific meetings and served in various board positions in scientific organizations, including chairing the Philadelphia Catalysis Club and being president of the North-East Corridor Zeolite Association (NECZA). Edited a book on catalysis, (co)authored ca.120 papers, book chapters and patents, and held 95 conference presentations.

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**Title**

**3-PHENYLGLYCERIC ACID-DERIVED POLYETHER FROM MEDICINAL PLANTS, ITS BASIC MONOMERIC MOIETY AS PROSPECTIVE ANTICANCER AGENTS**

**Name & Country**

**Vakhtang Barbakadze**

Georgia

**Abstract**

According to data of different techniques of NMR spectroscopy <sup>13</sup>C, <sup>1</sup>H NMR, 2D heteronuclear <sup>1</sup>H/<sup>13</sup>C HSQC, 1D NOE and 2D DOSY experiments the main chemical constituent of high molecular preparations from medicinal plants of different species of two genera *Symphytum* and *Anchusa* (*Boraginaceae* family) was found to be 3-phenylglyceric acid-derived polymer poly [3-(3,4-dihydroxyphenyl)glyceric acid] (PDPGA). The polyoxyethylene chain is the backbone of this polymer molecule and 3,4-dihydroxyphenyl and carboxyl groups are regular substituents at two carbon atoms in the chain. The repeating unit of this regular polymer is 3-(3,4-dihydroxyphenyl)glyceric acid residue. In order to compare biological properties of natural polymer with its synthetic basic monomeric moiety, racemic and pure enantiomeric forms of PDPGA, as well as a methylated analogue of PDPGA were synthesized. Then the basic monomeric moiety of this polymer, 3-(3,4-dihydroxyphenyl)glyceric acid was synthesized via Sharpless asymmetric dihydroxylation of *trans*-caffeic acid derivatives using an osmium catalyst. The building block for the production of methylated derivative of PDPGA, methyl 3-(3,4-dimethoxyphenyl)glycidate was synthesized from veratraldehyde (3,4-dimethoxybenzaldehyde) based on the Darzen reaction or by oxidation of *trans*-caffeic acid with oxone in order to produce methylated derivative of natural polymer through ring-opening polymerization of 2,3-disubstituted oxirane. PDPGA is endowed with intriguing pharmacological activities as anticomplementary, antioxidant, anti-inflammatory, burn and wound healing and anticancer properties. PDPGA and its synthetic monomer exerted anticancer activity *in vitro* and *in vivo* against androgen-dependent and -independent human prostate cancer (PCA) cells via targeting androgen receptor, cell cycle arrest and apoptosis without any toxicity, together with a strong decrease in prostate specific antigen level in plasma. However anticancer efficacy of PDPGA against human PCA cells is more compared to its synthetic monomer. Methylated PDPGA did not show any activity against PCA. Overall, this study identifies PDPGA as a potent agent against PCA without any toxicity, and supports its clinical application.

**Biography**

Barbakadze V has completed his Ph.D and D.Sci from Institute of Organic Chemistry, Moscow, Russia and Institute of Biochemistry and Biotechnology, Tbilisi, Georgia in 1978 and 1999, respectively. He is the head of Department of plant biopolymers and chemical modification of natural compounds at the Tbilisi State Medical University I.Kutateladze Institute of Pharmacochemistry. In 1996 and 2002 he has been a visiting scientist at Utrecht University, (The Netherlands) by University Scholarship and The Netherlands organization for scientific research (NWO) Scholarship Scientific Program, respectively. Barbakadze V has his expertise in isolation and structure elucidation of plant biopolymers, which are endowed with pharmacological properties as anti-cancer agents. Besides, he interested in synthesis and biological activities of basic monomeric moiety of these biopolymers. He has published more than 98 papers in reputed journals that have been cited over 304 times. In 2004 he was Georgian State Prize Winner in Science and Technology.

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### Title

**APPLICATION OF ELECTROANALYTICAL TECHNIQUES IN THE ANALYSIS OF BIOACTIVE COMPOUNDS**

### Name & Country

**Rodrigo de S. Melo**

Brazil

### Abstract

Electroanalytical chemistry along with the use of oxidation–reduction reactions and other charge transfer phenomena had its origin a century ago. In the last five decades, voltammetric methods have become a popular tool for the study of electrochemical reaction with the practical applications in biological, pharmaceutical and environmental chemistry. Electroanalytical techniques can be easily adopted to solve many problems of fundamental importance with a high degree of accuracy, precision, sensitivity and selectivity, often in spectacularly reproducible way. The various applications of Electroanalytical chemistry to pharmaceutical analysis includes the voltammetric determination of pharmaceuticals of various classes: antibiotics, hypolipidemic, antipsychotic, cardiovascular, hypoglycemic, analgesics, coagulants, antiplatelet, anthelmintic, sedatives, antidepressant, vitamins, anticholinesterase, antiallergics and others. The different applications include voltammetric redissolution techniques using linear scanning voltammetry (LSV), cyclic voltammetry (CV), differential pulse voltammetry (DPV) and square-wave voltammetry (SWV). Electroanalytical techniques, especially modern stripping voltammetry, have been used for the sensitive determination of a wide range of pharmaceuticals. Such techniques enjoy the advantages that there is no need for derivatization and that these methods are less sensitive to matrix effects than other analytical techniques. Chemically modified electrodes are currently widely used due to the various advantages they offer. Electrochemical instrumentation provides reliable and reproducible data for analyte quantification. In addition, the use of modified electrodes presents excellent electroanalytical properties, such as higher potential bands, low background current and good biocompatibility. The present presentation will be of great help to analytical chemists using voltammetric methods for the determination of a given analyte in a complex matrix. The objective of this work is to present the application of electroanalytical methods for the determination of pharmaceutical products with low cost of operation, high speed, sensitivity, universality and wide application. These techniques are simple and, in cases more sensitive to the applied chromatographic and spectroscopic techniques.

### Biography

Dr. Rodrigo de S. Melo obtained his master's degree in biochemistry and a Ph.D. degree in chemical and biochemical process technology (Chemical Engineering) at the Universidade Federal do Rio de Janeiro, Campus UFRJ-Macaé Professor Aloísio Teixeira, where he is currently an adjunct professor in the Department of Chemistry Analytical. He is the Coordinator of the Group of Bioelectroanalytics and Advanced Materials at Universidade Federal do Rio de Janeiro, Campus UFRJ-Macaé Professor Aloísio Teixeira and develops researches in the area of quantification of heavy metals in environmental samples using electroanalytical methods, construction of electrodes and modified sensors for interaction with different analytes and development of films by electropolymerization with products bioactives.

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### Title

**ENANTIOMERIC SEPARATION OF CHIRAL PHARMACEUTICALS USING HPLC**

### Name & Country

**Vinod Kumar Vashistha**

India

### Abstract

Enantiomers of a compound show difference in physiological and chemical activity in biological systems. In general, one enantiomer of most of the racemic drugs shows significantly higher pharmacological activity than the other. In some cases one enantiomer can be totally inactive or in others, it can produce adverse side effects. Therefore, synthesis and establishing enantiomeric purity becomes important. Among the various available methods for establishing enantiomeric purity, liquid chromatographic techniques particularly HPLC and TLC are extensively used. The present work has demonstrated the versatility, flexibility and sensitivity of two LC techniques, namely HPLC and TLC, for enantioseparation. These techniques were successfully employed for separation of enantiomers of different categories of pharmaceuticals which are marketed in racemic form. Experiments were successful allowing very good enantioseparation with low LOD using indirect methods. The optimized and validated RP-HPLC separation conditions can be successfully applied for determination and control of enantiomeric purity of the said drugs routinely in industries and R&D laboratories. Indirect enantioseparation of certain pharmaceutical compounds which are marketed as racemic mixtures were carried out. These chiral compounds/ drugs are (RS)-betaxolol (Bet), (RS)-baclofen (Bac), (RS)-mexiletine (Mex), (RS)-ketamine (Ket), DL-carnitine (Ctn) and (RS)isoprenaline (Ipn). For this purpose different chiral derivatizing reagents (CDRs) were synthesized and used, some of them were new with respect to their synthesis and characterization while others ones were used for the first time for derivatization of these drugs.

### Biography

Vinod Kumar Vashistha has completed his PhD at the age of 25 years from Indian Institute of Technology Roorkee, India. He currently working as the professor of GLA University, Mathura, India. He has published a no. of articles in international journals of repute. His major area of research include "Enantiomeric Separation of chiral pharmaceuticals using High performance liquid chromatography". He has been serving as potential reviewer of reputed Journals.

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### Title

**ANALYSIS AND SPECIATION OF DRINKING WATER IN SOME AREAS PREVAILING CHRONIC KIDNEY DISEASE IN SRI LANKA**

### Name & Country

**Janitha A Liyanage**

Sri Lanka

### Abstract

Chronic Kidney Disease of Known etiology (CKDu) is a burning issue in the North Central Province of Sri Lanka over past 20 years. There are so many factors are been suspected such as heavy metals contamination and hardness of drinking water, toxins associated with cyanobacteria, fluoride toxicity dehydration, etc.. In those areas majority of CKDu patient's drinking water source is well-water. Drinking water samples were collected from Welwetetiya (40 samples) and Katupuliynkulama (30 samples) sites in the Rambewa area. Those water samples were subjected to the analysis. Ca, Mg, Pb, Cd, Fe, Cr, F-, SO<sub>4</sub><sup>2-</sup>, NO<sub>3</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup> concentrations were analyzed. Speciation programme was run for Welwetetiya and Ampara as the reference area. According to the results Cd and Fluoride concentrations in the endemic area of CKD have been exceeded than permissible level according to Sri Lanka standards and those concentrations were higher in the CKDu endemic area than the reference area. Hence fluoride toxicity and the accumulation of Cd in the renal tubes may be a significant risk factor for the disease. Very lower concentrations of Ca and Mg were present in the drinking water in the endemic areas and according to the speciation results Ca, Mg and Fluoride species tend to exist as free ionic species as Ca<sup>2+</sup>, Mg<sup>2+</sup>, F<sup>-</sup>. In addition to Fluoride other anions such as SO<sub>4</sub><sup>2-</sup>, NO<sub>3</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup> were not exceeding the tolerance limit for drinking water. It can be seen that drinking water resource of people was a very significant factor for the prevalence of the CKDu in the endemic areas according to the data that collected for drinking water.

### Biography

Janitha A Liyanage Completed education from Srilanka. She is Professor of Department of Chemistry in University of Kelaniya, Sri Lanka Her Research Interest is Concentration and chemical speciation in drinking water in an affected area of Chronic Kidney Disease of unknown etiology (CKDu) in Sri Lanka.

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### Title

**CONDUCTOMETRIC TITRATION FOR ANALYZING EXCHANGE POLYMERIC MEMBRANES**

### Name & Country

**Maria Jose Lavorante**

Argentina

### Abstract

Conductometric titration is an analytical technique that consists of the addition, through a burette, of small equal amounts of titrant to the study system. It presents a lot of advantages in comparison with acid-based titration if the exchange capacity of polymeric materials needs to be determined: it reduces the time of the determination for at least six times depending on the material and the titrant used, it is not necessary to add an acid-based indicator so the system under study is not exposed to contamination and cannot influence the determination error due to the wide range of pH that the indicators present. The technician requires simple training to determine the final point because the technique only consists of adding the same amount of titrant to the system (polymeric material and deionized water) every specified period of time and register the conductivity of the solution. The sample of polymeric material does not need to be pre-treated (dissolved to make the determination) so this reduces the time of sample preparation, and the previous work to find the correct solvent or mixture of solvent for the system does not affect the results of the determination and the time needed to carry out this operation. Through the graphical representation of conductivity as a function of the volume of titrant added that consists of two straight lines that intersect at the equivalent point, it is possible to obtain the volume of titrant needed to complete the reaction proposed between the polymer and the titrant: exchange or neutralization. This value allows obtaining the equivalent weight, the total exchange capacity or the dry weight capacity of the exchange polymeric material. Three different types of perfluorosulfonic acid (PFSA) membranes were analyzed (Nafion® 112, 115 and 117) under this technique to show the procedure followed and the results obtained.

### Biography

María José Lavorante was born in Buenos Aires City, Argentina, in 1979. She graduated as Sc Ba Chemistry from the University of Salvador. She is the Director of Research and Development Department of Renewable Energy at the Institution of Scientific and Technological Research for Defense, Argentina. She is Head Professor at the Engineer Faculty of the Army Div. Gr1. Manuel Nicolás Savio, in charge of the subjects Organic Chemistry and Organic Synthesis. She has been a reviewer of different manuscripts to be presented in International Conferences as 2017 International Conference on New Energy and Future Energy System, 2017 International conference on Water Resource and Environment and 2018. She also works reviewing manuscripts to be published in the scientific journal "Proceedings of the Institution of Civil Engineers - Energy". Since 2017 is part of the Advisory Board of Cambridge Scholars Publishing. She delivered several oral presentations in different International Congresses.

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**APPLICATION AND COMPARISON OF ANALYTICAL HIERARCHY PROCESS (AHP) AND NETWORK METHODS IN PATH FINDING OF PIPELINE WATER TRANSMISSION SYSTEM, FROM TALEGHAN'S DAM TO HASHTGERD NEW CITY, TEHRAN, IRAN**

### Name & Country

**S. Ghareh Hassanloo**

Iran

### Abstract

These instructions give you guidelines for preparing Determination of optimum path by considering technical and engineering, environment and cost management visions. In this point of view from Taleghan's dam to Hashtgerd New City case study we need to distinguish and apply the essential parameters such as topographic and morphologic conditions, environmental issues by consideration on sustainable development, population distribution patterns, roads and etc. by using base map and extraction of expected points geometrical location from Google Earth, position land surveying done. Then the mentioned co-parameters data layer loaded in GIS environment and after allocation the special coefficient and value for weighting parameters and combine them based on MCE method and the cost map made based on AHP method which Lead to determination of optimum path by using LCPA method. Paths include of ABFA path and two evaluated optimum path compared and indicated that two optimum paths overlapped mostly. Cost comparison between optimum path and ABFA path imply 14% decrease in expenditure Which the main extra expense of ABFA path due to more intersection with rivers, roads and necessity construct of structures to keep water natural regimes, passing unauthorized areas and personal parcels need to pay, path finding only by personal experience underestimating academic science, data analysing software's which Cause to increasing the length of water supply pipeline.

### Biography

Saeid ghareh Hassanloo has his expertise in evaluation and passion in determining optimal path of water pipeline. His open and contextual evaluation model based on determining optimal path which cause deduction of cost path. he has built this model after period of experience in research, evaluation, teaching in university and cooperation with Alborz province water and wastewater are made. The research foundation is based on Multi Criteria Evaluation, Least Cost Path Algorithm and Analytical Hierarchy Process which is methodology that utilizes the ArcGIS software. This approach is responsive to all stakeholders (civil engineer, managers, consultants and etc) has a different way of focusing.



International Conference on  
**ANALYTICAL CHEMISTRY**

August 20-21, 2018 | Madrid, Spain

### Title

**INHIBITIVE ACTION OF 1,3,4-THIADIAZOLE-2,5-DITHIOL  
TOWARDS COPPER CORROSION IN SULPHATE SOLUTION**

### Name & Country

**Echihi Siham**

Morocco

### Abstract

Adsorption of 1, 3, 4 thiadiazole 2, 5 dithiol (DMTD) on copper surface in sodium sulphate media was investigated by different electrochemical methods, surface and solution analysis. The results from electrochemical measurements showed that DMTD adsorbs rapidly on copper surface and revealed a marked effect of mixed inhibition. Surface analyses confirm the adsorption of DMTD on copper and the formation of a Cu-DMTD complex through the S atoms of DMTD. Atomic absorption spectroscopy (AAS) and ion chromatography (IC) analysis results showed that the concentrations of copper (II) ions and sulphate ions in the electrolyte solutions decreased and increased, respectively during the corrosion process, when 10<sup>-2</sup>M of DMTD is present in the solution.

### Biography

SIHAM ECHIHI is a PhD student currently attending Faculty of Sciences of El Jadida at Chouaib Doukkali University, with a joint supervision in Faculty of Sciences of Rabat at Mohamed V University, her research interests are Corrosion inhibition of aluminium alloys rich with copper for aeronautical applications, she received the Bachelor and Master degrees in Chemistry Science from the Faculty of Sciences at University Mohamed V of Rabat in 2008 and 2010, respectively.

International Conference on  
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August 20-21, 2018 | Madrid, Spain

### Title

**FEASIBILITY, ACCURACY OF GAS CHROMATOGRAPHIC SYSTEM FOR OVI**

### Name & Country

**Rahul Hajare**

India

### Abstract

Separation methods occupy an important place in the array of available analytical techniques, depending on the nature of the compounds. Gas chromatography methods continue to be used to a large extent, especially in automated routine controls. The use of specialized injection and detection methods has further increased its field of applications. The synthesis of an active pharmaceutical ingredient (API) normally consists of several synthetic steps. Process-related impurities can be formed at any step and could ultimately appear in the final drug substance, particularly in the scale-up drug candidates. Impurities must be controlled because of their potential toxicity. Impurity control is a continuing concern of regulatory agencies and the pharmaceutical industry. The International Conference on Harmonization (ICH) has formed in the 1990s to coordinate the technical requirement for the registration of pharmaceuticals in the European Union, Japan and the United States. ICH has issued the guideline "Impurities in New Drug Substances, recommending that, for a maximum daily dose of less than or equal to 2 g per day, any impurity at the 0.10% level must be identified.

### Biography

Dr. Rahul Hajare is a post doctoral student of Renowned Scientist Respected Dr. R S. Paranjape Retired Director and Scientist 'G' National AIDS Research Institute India. He achieved his training at the National AIDS Research Institute, the reputed and primer HIV research institute in India. Dr. Hajare is board certified by Director-in-Charge, National AIDS Research Institute, the Secretary Board of Management KLE Society Belagavi, Registrar Vinayaka Mission's Research Foundation, Board of Management Aarti Drugs Limited Mumbai, Board of Management Shikshan Vikas Mandal. Dr Hajare has been awarded and recognition of research paper quality, novelty and significance grace by SHERRY A TANUMIHARDJO Professor of Nutritional Sciences and Director of Undergraduate Certificate in Global Health UNIVERSITY OF WISCONSIN, USA. Dr Hajare won World Academic Championship-2017 in Pharmacy (Antiretroviral Therapy) and certified as Fellow, Directorate of Pharmacy, IASR (Lifetime Membership).

# SESSIONS

August 20-21, 2018

Analytical Chemistry | Forensic Analysis | Environmental Science | Separation Techniques | Crystallography | Electrophoresis | Pharmaceutical Analytics

## Session Introduction

### Session Chair

Sergey Suchkov  
Russia

### Session Co-chair

Mehmet Yaman  
Turkey

Title: **Antibody-Proteases as a Novel Biomarker and a Unique Target to suit Translational Tools to be applied for Biodesign, Bioengineering and Regenerative Medicine**

Sergey Suchkov, Russia

Title: **Characterization and Application of Nanosorbents from Biowastes using Hydrothermal Synthesis for Biosorption of Toxic Metals**

Mehmet Yaman, Turkey

Title: **Validation of a tandem mass spectrometric method for direct analysis of free amino acids in rice**

Vimarshi liyanaarachchi, Sri Lanka

Title: **SWCNT Glass Composite- A Novel Material for Electronic, Optical and Mechanical Applications**

Rajat Banerjee, India

Title: **Generalized Electron Balance (GEB) as the Law of Nature for electrolytic redox systems**

Tadeusz Michałowski, Poland

Title: **Demand for Biogas: State of the Art and Future Perspective**

Abdeen Omer, United Kingdom

Title: **Role of microextraction techniques in analytical chemistry**

Rajeev Jain, India

Title: **Application of Hydrochemistry and Isotope methods for monitoring bioecological conditions of the Central Asia transboundary rivers**

Inom Normatov, Tajikistan

Title: **Analysis and speciation of drinking water in some areas prevailing chronic kidney disease in Sri Lanka**

Janitha A Liyanage, Sri Lanka

Title: **Research On Antidote Of Chemical Weapons Known as Sodasulphanecoblamine**

Salako N. Olatunji, Nigeria

Title: **Sorption affinities of chromium on natural phosphate and its derivative**

Kenza FANIDI, Morocco

Analytical Chemistry 2018

International Conference on  
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August 20-21, 2018 | Madrid, Spain

**Title**

**ANTIBODY-PROTEASES AS A NOVEL BIOMARKER AND A UNIQUE TARGET TO SUIT TRANSLATIONAL TOOLS TO BE APPLIED FOR BIODESIGN, BIOENGINEERING AND REGENERATIVE MEDICINE**

**Name & Country**

**Sergey Suchkov**

Russia

**Abstract**

Catalytic Abs (catAbs) are multivalent immunoglobulins (Igs) with a capacity to hydrolyze the antigenic (Ag) substrate. In this sense, proteolytic Abs (Ab-proteases) represent Abs to provide proteolytic effects. Abs against myelin basic protein/MBP with proteolytic activity exhibiting se-quence-specific cleavage of MBP are of great value to monitor demyelination whilst in MS. The activity of Ab-proteases was first registered at the subclinical stages 1-2 years prior to the clinical illness. And the activity of the Ab-proteases revealed significant correlation with scales of demyelination and the disability of the patients as well. So, the activity of Ab-proteases and its dynamics tested would confirm a high subclinical and predictive (translational) value of the tools as applicable for personalized monitoring protocols. Of tremendous value are Ab-proteases directly affecting remodeling of tissues with multilevel architectonics (for instance, myelin). By changing sequence specificity one may reach reduction of a density of the negative proteolytic effects within the myelin sheath and thus minimizing scales of demyelination. Ab-proteases can be programmed and re-programmed to suit the needs of the body metabolism or could be designed for the development of new catalysts with no natural counterparts. Further studies are needed to secure artificial or edited Ab-proteases as translational tools of the newest generation to diagnose, to monitor, to control and to treat and rehabilitate MS patients at clinical stages and to prevent the disorder at subclinical stages in persons-at-risks to secure the efficacy of regenerative manipulations.

**Biography**

Sergey Suchkov graduated from Astrakhan State Medical University and awarded with MD, then in 1985 maintained his PhD at the I.M. Sechenov Moscow Medical Academy and in 2001, maintained his Doctorship Degree at the Nat Inst of Immunology, Russia. From 1987 through 1989, he was a senior Researcher, Koltzov Inst of Developmental Biology. From 1989 through 1995, he was a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004, a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). Dr Suchkov has been trained at: NIH; Wills Eye Hospital, PA, USA; Univ of Florida in Gainesville; UCSF, S-F, CA, USA; Johns Hopkins University, Baltimore, MD, USA. He was an Ex Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK. At present, Dr Sergey Suchkov is a Chair, Dept for Personalized and Translational Medicine, I.M.Sechenov First Moscow State Medical University. He is a member of the: New York Academy of Sciences, USA; American Chemical Society (ACS), USA; American Heart Association (AHA), USA; EPMA (European Association for Predictive, Preventive and Personalized Medicine), Brussels, EU; ARVO (American Association for Research in Vision and Ophthalmology).

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### Title

**CHARACTERIZATION AND APPLICATION OF NANOSORBENTS FROM BIOWASTES USING HYDROTHERMAL SYNTHESIS FOR BIOSORPTION OF TOXIC METALS**

### Name & Country

**Mehmet Yaman**

Turkey

### Abstract

After intensive studies on sorbents based different materials for preconcentration and removing of toxic metals, it is necessary to develop new adsorbents having high adsorption capacity and cheaper. The modified biowastes are candidate for these purposes. In this work, the activated carbon obtained using chemically-modified orange peels were studied to be prepared nanosorbent using hydrothermal synthesizes procedure, specially produced in our university. The obtained nanosorbents were characterized using FTIR, SEM, nanoparticul sizer and BET methods. The characterized adsorbent was used for preconcentration and removal of toxic elements such as Cd, Co and Pb. The observed adsorption capacity was compared to the activated carbon without hydrothermal nanosorbent synthesis for the same biowaste, orange peel. The optimization of conditions was performed using parameters such as pH, contact time and final volume of elution. The measurements were carried out by both flame atomic absorption spectrophotometry and inductively coupled plasma-mass spectrometry (ICP-MS). The other results will be presented in conference.

### Biography

Prof. Dr. Mehmet Yaman has completed his Ph.D. in 1990 from the University of Inonu-Turkey. Since 2005, he is an Editor-in-Chief of, International Journal of Pure and Applied Chemistry" journal. Between 2010-2013, he was selected as member of consultative committee of TÜBİTAK (the Scientific and Social Research Council of Turkey). Professor Yaman supervised and assisted more than thirty students 11 Ph.D. and 22 M.Sc.. Professor Yaman has over 120 publications that have been cited over 2000 times, and his publication H-index is 29 and has been serving as an editorial board member of reputed Journals (more than 10 journals.) He is an invited speaker on international lectures and has given more than 130 talks for national and international conferences. He has managed two national and two international conferences. Professor Yaman have the International Book Chapter, Air Pollution-Monitoring, Modelling, Health and Control-978-953-51-0381-3, Hard cover, 254 pages.

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### Title

**VALIDATION OF A TANDEM MASS SPECTROMETRIC METHOD FOR DIRECT ANALYSIS OF FREE AMINO ACIDS IN RICE**

### Name & Country

**Vimarshi liyanaarachchi**

Sri Lanka

### Abstract

The role of free amino acids (FAAs) together with the soluble sugars in deciding the organoleptic characteristics of food has inspired growing concern in researching on the FAA levels present in foods. With this apparent relationship of FAAs to taste which are present in minute quantities, there is an increased demand for analytical methods sensitive in trace level detection. This study presents the validation results of the method developed for direct, underivatized analysis of FAAs in rice using tandem mass spectrometry with internal standard calibration.

Satisfactory chromatographic resolution of 20 FAAs was achieved using gradient elution on a Agilent Zorbax Eclipse C18 (4.0 x 100 mm, 5 micron) with liquid chromatography-tandem mass spectrometric (LC-MS/MS) detection in electron spray ionization (ESI) mode. The selectivity of the method was assured considering the quantifier to qualifier ratio. The detection limits and quantification limits of the method were in the range 0.4-1.0 mg/kg and 0.6-1.2 mg/kg respectively. The method had a wide linear range over 1.25-100 mg/kg range with regression coefficients greater than 0.999 obtained over seven calibration levels.

Precision of the method measured in terms of repeatability and reproducibility, expressed as percentage relative standard deviation (% RSD) were below 10 % for all the amino acids analyzed. The recoveries obtained for samples fortified at three concentration levels: low mid and high, covering the working range of the method were in the range of 80-110%. Measurement uncertainties of the studied analytes calculated with the coverage factor ( $k=2$ ), were below 14 % for all the amino acids analyzed and the method was found robust over other grains including corn, wheat, finger millet and black gram.

The developed LC-MS/MS method is reproducible and accurate, allowing determination of underivatized FAAs in rice and comply with the international method validation guideline requirements available for trace level analysis.

### Biography

Dr. Vimarshi liyanaarachchi has obtained her PhD in Analytical Chemistry from the University of Colombo in Sri Lanka.

International Conference on  
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### Title

**SWCNT GLASS COMPOSITE- A NOVEL MATERIAL FOR ELECTRONIC, OPTICAL AND MECHANICAL APPLICATIONS**

### Name & Country

**Rajat Banerjee**

India

### Abstract

A new generation composite has been synthesized by impregnating SWCNT in oxide glass matrix using melt-quench technique. Current-Voltage relationship was studied with different temperatures and the electrical conductivity was found to increase significantly with the increase in temperatures. The activation energy of the composite was determined by Arrhenius analysis and found to be significantly low. Microstructural analysis of the composite by SEM, FESEM and TEM clearly shows the random orientations of the bundles of nanotubes throughout the glassy host. TEM micrographs show wonderful alignment of nanotube inside the bundles. The charge transport phenomena of the composite was analyzed by using variable range hopping (VRH) and fluctuation induced tunneling (FIT) model. It was found that the charge conduction through the composite was well explainable by the FIT model. Moreover an interesting optical property of this composite has been observed where one can see strong near infrared fluorescence from Single walled carbon nanotube-borosilicate glass composite around 0.84-2.03  $\mu\text{m}$  with 325 nm laser excitation. Band gap fluorescence of SWCNT bundles along with defect related fluorescence from SiO<sub>2</sub> structure were the source of the NIR emissions of the composite. Finally researchers are looking for new class of materials having high mechanical resistance, low density and microwave attenuating properties for different structural applications. All these properties are well established in this composite thereby making it one of the versatile materials for conductor-insulator interface device coupled with broadband fiber optic telecommunications, fabrication of NIR tunable lasers and high end structural application.

### Biography

Dr. Rajat Banerjee is a Sr. Tech. Officer at Central Glass and Ceramic Research Institute, Jadavpur, Kolkata, India.

International Conference on

# ANALYTICAL CHEMISTRY

August 20-21, 2018 | Madrid, Spain

## Title

**GENERALIZED ELECTRON BALANCE (GEB) AS THE LAW OF NATURE FOR ELECTROLYTIC REDOX SYSTEMS**

## Name & Country

**Tadeusz Michałowski**

Poland

## Abstract

Generalized Electron Balance (GEB) was discovered by Michałowski and formulated for redox systems, as the equivalent Approaches: I (1992) and II (2005) to GEB. The Approach II is based on the linear combination  $f_{12} = 2 \cdot f(O) - f(H)$  of elemental balances:  $f_1 = f(H)$  for H, and  $f_2 = f(O)$  for O. The  $f_{12}$  is linearly independent from charge balance  $f_0 = ChB$  and other elemental and/or core balances  $f_k = f(Y_k)$  ( $k=3, \dots, K$ ) in redox systems, and linearly dependent from  $f_0, f_3, \dots, f_K$ . In non-redox systems,  $f_{12}$  is The linear independency/ dependency of  $f_{12}$  is the keystone differentiating between non-redox and redox electrolytic systems, of any degree of complexity, also in mixed-solvent media. The GEB completes the set of  $K$  independent equations (GEB, ChB,  $f_3, \dots, f_K$ ) necessary for mathematical description of electrolytic redox systems within the Generalized Approach to Electrolytic Systems (GATES), formulated (1992) by Michałowski. The resulting software is denoted as GATES/GEB. In a non-redox system, the set of  $K-1$  equations (ChB,  $f_3, \dots, f_K$ ) is required. The knowledge of oxidation numbers (ON) is not needed. The new principle of calculation of ON is proposed. The Equilibrium Law (EL) is formulated, as the counterproposal to mass action law (MAL). EL is based on the Gibbs function and the Lagrange multipliers idea, where all balances are put as constraints. The Generalized Equivalent Mass (GEM), not involved with stoichiometry, is suggested.

## Biography

Tadeusz Michałowski is a chemist and physicist. He was a professor at Jagiellonian University and Cracow University of Technology, Poland; now retired. He (a) discovered Generalized Electron Balance (GEB), considered as the law of Nature, formulated (b) GATES/GEB, as the best thermodynamic approach to electrolytic redox systems, (c) generalized equivalent mass (GEM), and (d) Equilibrium Law, as the counterproposal for mass action law. His activity concerned analytical chemistry, electrochemistry, electroanalysis and chemometrics. His scientific activity was reckoned among the main achievements in Analytical Chemistry in Poland. Author of ca 200 papers, articles, chapters and several books.



International Conference on  
**ANALYTICAL CHEMISTRY**

August 20-21, 2018 | Madrid, Spain

### Title

**DEMAND FOR BIOGAS: STATE OF THE ART AND FUTURE PERSPECTIVE**

### Name & Country

**Abdeen Omer**

United Kingdom

### Abstract

Biogas from biomass appears to have potential as an alternative energy source, which is potentially rich in biomass resources. This is an overview of some salient points and perspectives of biogas technology. The current literature is reviewed regarding the ecological, social, cultural and economic impacts of biogas technology. This article gives an overview of present and future use of biomass as an industrial feedstock for production of fuels, chemicals and other materials. However, to be truly competitive in an open market situation, higher value products are required. Results suggest that biogas technology must be encouraged, promoted, invested, implemented, and demonstrated, but especially in remote rural areas.

### Biography

Abdeen Mustafa Omer (BSc, MSc, PhD) is an Associate Researcher at Energy Research Institute (ERI). He obtained both his PhD degree in the Built Environment and Master of Philosophy degree in Renewable Energy Technologies from the University of Nottingham. He is qualified Mechanical Engineer with a proven track record within the water industry and renewable energy technologies. He has been graduated from University of El Menoufia, Egypt, BSc in Mechanical Engineering. His previous experience involved being a member of the research team at the National Council for Research/Energy Research Institute in Sudan and working director of research and development for National Water Equipment Manufacturing Co. Ltd., Sudan.

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### Title

**ROLE OF MICROEXTRACTION TECHNIQUES IN ANALYTICAL CHEMISTRY**

### Name & Country

**Rajeev Jain**

India

### Abstract

In recent years, scientists have focused towards the development of microextraction techniques which are simple, rapid, environmentally benign, cost-effective and offers high enrichment factors and extraction efficiencies. Microextraction techniques are basically miniaturized forms of extraction techniques where zero or microliters of extraction solvent and small amount of sample is used for extraction of target analytes. Beside this, they can be coupled to almost all sophisticated instruments such as gas chromatography-mass spectrometry (GC-MS), high performance liquid chromatography (HPLC), capillary electrophoresis (CE), UV-Visible spectrophotometry etc. Microextraction techniques have been classified into two categories viz. sorbent based and solvent based. Sorbent based microextraction techniques includes solid phase microextraction (SPME), stir bar sorptive microextraction (SBSE) and microextraction with packed sorbent (MEPS), whereas solvent based microextraction techniques are liquid phase microextraction (LPME), dispersive liquid-liquid microextraction (DLLME) and its variants. Since their introduction, microextraction techniques have been widely applied in various fields of analytical chemistry such as forensic toxicology, environmental analysis, food analysis etc. The present talk focuses on theory, application and future trend of modern microextraction techniques in analytical chemistry.

### Biography

Dr. Rajeev Jain has completed his PhD at the age of 28 years from CSIR-Indian Institute of Toxicology Research. He is Head of the Department of Toxicology Division at Central Forensic Science Laboratory, Guwahati (India), a premier Forensic Laboratory under Directorate of Forensic Science Services, Ministry of Home Affairs, Govt. of India. His research work focuses on development of green and cost-effective analytical methods for the analysis of various drugs and toxicants. He has published more than 20 papers in reputed journals and has been serving as a referee of various journals of repute.

International Conference on  
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### Title

**APPLICATION OF HYDROCHEMISTRY AND ISOTOPE METHODS FOR MONITORING BIOECOLOGICAL CONDITIONS OF THE CENTRAL ASIA TRANSBOUNDARY RIVERS**

### Name & Country

**Inom Normatov**

Tajikistan

### Abstract

The results of a complex analytical control of the chemical and isotopic (H, O) composition of waters from the formation zone to the scattering and snow cover on the glaciers of tributaries of the Amudarya River in Central Asia are presented. It has been established that the chemical composition of waters on the upper reaches of rivers is formed as a result of the washing out of rocks by river flow and the river system has almost no anthropogenic impact. The mechanism of interchange of surface and groundwater has been studied using isotopic methods. It was found that during the low water level of rivers, groundwater reservoirs become sources of water intake of rivers.

### Biography

Normatov Inom Sherovich Corresponding Member of Academy of Sciences of the Republic of Tajikistan, Doctor of Chemistry, professor. Sub-Manager of the International EUROPEAN Commission 6th FP Project "JAYHUN" (2006-2009). Manager of the Project Volkswagen Fund "Impact of transition processes on environmental risk assessment and risk management strategies in Central Asian Transboundary Basin" (2007-2010), USAID-University of Colorado Project "Contribution to High Asia Runoff from Ice and Snow" (2013-2016), Manager of the ISTC Project T - 2109 (2014-2017). Author of 6 monographs, 15 patents and more than 300 scientific articles.

International Conference on  
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### Title

**NEW INSIGHTS INTO THE KINETIC PARAMETERS OF OXYGEN REDUCTION ON PRE-REDUCED COPPER IN 0.5 M NaCl**

### Name & Country

**Nisrine BENZBIRIA**

Morocco

### Abstract

Regarding to their excellent mechanical properties, associated to a corrosion resistance quite satisfactory, the passivable metals occupy a prominent place in several industries. However, these materials undergo corrosion in some media especially those containing chloride [1]. Consequently, to understand the phenomena taking place into their surface, some electrochemical investigations should be done. The majority of the previous studies concerned only anodic dissolution of the metal while the cathodic reaction, which is least studied, can provide relevant information. Oxygen reduction assumes importance in corrosion processes since in neutral solutions and in the absence of any other depolarizer the corrosion rate is controlled by the kinetics of oxygen reduction reaction.

Our interest is to outline the significant role of oxygen reaction reduction (ORR) on pre-reduced copper. For this purpose, we have used the rotating disc electrode (RDE) to obtain cathodic polarization curves in 0.5 M NaCl solution containing different O<sub>2</sub> concentrations. Parameters, such as reaction order, kinetic current, Tafel slopes as well as the number of electrons transferred are determined.

### Biography

Nisrine BENZBIRIA is a PhD student currently attending Faculty of Sciences of El Jadida at Chouaib Doukkali University, with a joint supervision in Faculty of Sciences of Casablanca at Hassan II University. Her current research project takes part in the study of the kinetic parameters of oxygen reduction reaction on copper and aluminium, which are widely used in aeronautical industry. Prior to her doctoral studies, she received her engineering degree in materials from Cadi Ayyad University in 2012. Then, she worked as a head of slip casting Department in Casablanca.

International Conference on

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## Title

**RESEARCH ON ANTIDOTE OF CHEMICAL WEAPONS KNOWN AS SODASULPHANECOBALAMIN**

## Name & Country

**Salako N. Olatunji**

Nigeria

## Abstract

SodaSulphanecobalamin (Na4S5 CoC69N15H89O26) is an antidote for Chemical weapons, which detoxify and decentralized the toxic substances in any chemical based threat mainly, classical chemical agent threat categories include vesicant or blister agents (e.g., sulfur mustard), blood agents (e.g., cyanide), respiratory agents (e.g., phosgene), and nerve agents (e.g., GA or Tabun, GB or Sarin, GD or Soman, and VX) as well as lung damaging agents (Chlorine, diphosgene). It dissociate the toxic components in each chemical weapons, either nerves agent, blister agent or mustard gas to a nontoxic substance when administered and doesn't have any adverse effects unlike Atropine (which has little effect on nicotinic effect, such as muscle twitching, flaccidity) and other antidotes been tested for neutralizing or countermeasures for a particular chemical based threat. It displaces the Cystidine to a free toxic compound, thiocyanocobalamin. It removes the burns when the sulfur mustard is been contacted through skin, and eye The antidote (SodaSulphanecobalamin) which is sulfur drug group (H-S) bends the mustard makes the antidotal removes mustard from the body, of which can be used as treatment for Organic Arsenical. It also added the amide group of protein when used. However, recent studies shows that this antidote can serve as a replacement for the antidote of Orange agent (2, 3, 4, 7-tetra chlorobenzodioxin) which displaced millions of Vietnam Citizens during the World War II and displaces chlorobenzo to sodium benzoate and saline. Though Mercury (I) Oxalate is been used for this antidote for the orange agent, but we all know that Mercury is highly toxic and poisonous to the human. Nerve agents developed in the 1930s and 1940s were stockpiled during the Cold War. More recently, nerve agents have been used in the Iran-Iraq War in the 1980s, the Japanese terrorist attacks by the Aum Shinrikyo cult in 1995 and attacks in Syria in 2017. when SodaSulphanecobalamin is been used for nerves agent antidotal, it dissociates organophosphate to phosphoric acid which helps in metabolism of the body. (Na4S5 CoC69N15H89O26) is produce by dissolution of hydroxocobalamin with the decomposition of Sodium nitrite and Sodium thiosulfate, then treated with the acidified Sodium bicarbonate, which led to a faster return to baseline mean arterial pressure compared with sodium nitrite with sodium thiosulfate; however, there was no difference between the antidote combinations in mortality, serum acidosis, or serum lactate (TERTSodium1,2-diithiosulphite-3,4diintros Co-(α-5,6diimethylbenzylmizazonly)co-β-hydroxocobalamin) NO + HOCl + 2NaOH + NO2 + 3Na2SO4 + Na2S5 2Na2S2O3 + 2NaNO2 + 4NaOH + HOSCb1 + SO2 (g) Na4 (S2O3)2 (NO2)2 C62H87SCON1 3O16P This Research helps to develop the concepts, therapeutic regimens and procedures for the management of chemical warfare agent casualties; developing diagnostic and prognostic indicators for chemical warfare agent casualties; and developing life-support equipment for definitive care of chemical warfare agent casualties. The most efficient and reliable way to treat chemical weapons is by using SodaSulphanecobalamin. It is non-carcinogenic, non-mutagenic and non-teratogenic compound which is composition doesn't has any toxicity and health effect when administered. It can also be used as any chemical based threat.

## Biography

Expertise in quantum physics, also on determination of numerical value of dimension on physical quantities. Root mean square velocity and molecule velocity of all chemical elements which is never done before. stoichiometry and periodic properties table that shows the "INTRINSIVE AND EXTRINSIVE PROPERTIES" of all chemical elements. Determination of Molecular Mass and Formula for Air. Computational Mathematics and Application of Small organic Molecules. Antidote of chemical mass weapon (2, 3, 7, 8 - Tetrachlorobenzo-p-dioxin). Critical cGMP and ICH regulations for Pharmaceutical Laboratory. Pollution or environmental remediation studies, anthropogenic effect on petroleum. Synthetic of compound for biological evaluation. Synthetic of helium compound, which is another source of sun. Research on Oil Dispersant. Production of antidote of Cyanide Poisoning.

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### Title

**SORPTION AFFINITIES OF CHROMIUM ON NATURAL PHOSPHATE AND ITS DERIVATIVE HYDROXYAPATITE**

### Name & Country

**Kenza FANIDI**

Morocco

### Abstract

Moroccan natural phosphate and its converted hydroxyapatite were used to develop an effective adsorbent suitable for the removal of trivalent and hexavalent chromium from aqueous solution. The converted hydroxyapatite was prepared from natural phosphate and characterized using various techniques of characterization. Thus, the adsorption of Cr(III) and Cr<sup>2O7</sup><sup>2-</sup> ions were investigated to understand the adsorptive selectivities of two chromium oxidative degree on natural phosphate and its derivative apatite using batch system at room temperature. The sorption results showed a high affinity of natural phosphate for the Cr<sup>2O7</sup><sup>2-</sup> than c-HAP contrary to Cr(III) adsorption related to the presence of silica groups present in natural phosphate while the converted apatite has a good affinity for Cr(III) ions. The adsorption behavior of the both adsorbent fitted the Langmuir and Freundlich isotherm models implying that the adsorption mostly occurred through a heterogeneous binding of metal to the surface of the adsorbent.

### Biography

Kenza FANIDI is a PhD Student in Mohamed V University in Rabat Morocco, at the age of 27 years from Morocco.