Comparative in-silico/experimental study of functionalized dendrimers for nano-detoxification of organophosphate agents. The rational design of these nanoparticles allows increase their affinity and ability to capture organophosphates. Details are presented in the Article **Nano-Detoxification of Organophosphate Agents by PAMAM Derivatives** by Esteban F. Durán-Lara, Fabian Ávila-Salas, Sebastian Galaz, Amalraj John, Adolfo Maricán, Margarita Gutiérrez, Fabiane M. Nachtigall, Fernando D. Gonzalez-Nilo and Leonardo S. Santos on page 580.
Communication

405 Asymmetric Synthesis of Highly Functionalized Cyclohexa-1,3-dienes via Organocatalyzed One-Pot Three-Component Domino Reaction of Malononitrile with α,β-Unsaturated Imines
Wei Chen, Ren-Zan Zhang, Xiao-Yan Lu and Jian-Wu Xie

Graphical Abstract
The enantioselective synthesis of highly functionalized cyclohexa-1,3-dienes was achieved via an organocatalytic one-pot three-component domino reaction

Articles

411 Non-Thermal Plasma Induced Total Mineralization of Glyphosate in Water in the Presence of Iron II Ions
Moïse Fouodjouo, Samuel Laminsi, Georges Y. Kamgang, Michele T. Mengue and Nito A. Debacher

Graphical Abstract
Glidarc plasma completely mineralized glyphosate into CO₂, NH₄⁺ and PO₄³⁻. The kinetics has been studied and a plausible degradation pathway has been proposed

420 Investigation of the Interaction of 2-(2'-Hydroxyphenyl)-benzoxazoles and their Derivatives with B-DNA by Docking and Molecular Dynamics
Fábio dos S. Grasel, Tiago E. de Oliveira and Paulo A. Netz

Graphical Abstract
Quantum calculations, docking and molecular dynamics simulations were performed, analyzing the interactions between six 2-(2'-hydroxyphenyl)-benzoxazoles derivatives and the dodecamer d(CGCGAATTCGCG). They showed favorable interactions, without DNA denaturation, and may act as potential biological probes

434 Experimental and Theoretical Studies of Volatile Corrosion Inhibitors Adsorption on Zinc Electrode
Deiver A. Teixeira, Marco A. G. Valente Jr., Assis V. Benedetti, Gustavo T. Feliciano, Sebastião C. da Silva and Cecílio S. Fugivara

Graphical Abstract
Amine-based volatile corrosion inhibitors (VCI) are adsorbed on Zn surface under a VCI positive vapor pressure environment, and the adsorbed inhibitors are easily removed by opening the container having the pieces, saving costs and time to clean the metallic surface
458 Improving Natural Biopolymeric Membranes Based on Chitosan and Collagen for Biomedical Applications Introducing Silver
Camelia Ungureanu, Daniela Ioniță, Elena Berteanu, Luminița Tecuenco, Adina Zauv and Ioana Demetrescu

Graphical Abstract
New membranes have been elaborated and their physicochemical properties were assessed. The water absorption permitted the evaluation of the diffusion coefficient and the enhancement of antibacterial activity and hemolytic properties was emphasized.

466 A Prompt, Tough and Eco-Friendly (PTOCO) System for Mini-Scale Extraction of Samples for Antioxidant Capacity Assays
Thiago Claus, Oscar O. Santos Júnior, Janksyn Bertozzi, Swami A. Maruyama, Sylvio V. Palombini, Eduard J. Pilaú, Carlos A. P. da Camara, Makoto Matsushita and Jesuí V. Visentainer

Graphical Abstract
The PTOCO (P = Prompt, TO = TOugh and CO = eCO-friendly) system of mini-scale antioxidant compounds extraction attends the need of obtain extracts in sufficient amounts for rapid and efficient application at several analytical methods, turning the routine of analysis in something more enjoyable.

451 Selective Determination of Unsymmetrical Dimethylhydrazine on a Prussian Blue Modified Carbon Paste Electrode
Bagher Sobhanmanesh and Mostafa Najafi

Graphical Abstract
This paper describes a carbon paste electrode modified with Prussian Blue for selective determination of unsymmetrical dimethylhydrazine (UDMH) in the presence of hydrazine.
484 Flow Injection Analysis System for Screening Organophosphorus Pesticides by their Inhibitory Effect on the Enzyme Acetylcholinesterase
Marcos P. Silva, Matthieu Tubino, Tereza C. R. Elsholz, Olaf Elsholz, Sibor Khan and Marta M. D. C. Vila

Graphical Abstract
A flow-injection spectrophotometric procedure was developed for screening organophosphorus pesticides. The method is based on the inhibition of acetylcholinesterase immobilized on controlled porous glass beads with acetylcholine chloride as the substrate.

490 Cadmium and Lead Determination in Freshwater and Hemodialysis Solutions by Thermospray Flame Furnace Atomic Absorption Spectrometry Following Cloud Point Extraction
Samara Garcia, Fabiana Gerondi, Thiago R. L. C. Paixão, Marco A. Z. Arruda and Ivanise Gaubeur

Graphical Abstract
A procedure of sequential trace-level Cd and Pb determination by thermospray flame furnace atomic absorption spectrometry, after cloud point extraction, was developed. The proposed method presents high sensibility, low reagent consumption and reduced waste disposal.

498 Rapid Preparation of (BiO)2CO3 Nanosheets by Microwave-Assisted Hydrothermal Method with Promising Photocatalytic Activity Under UV-Vis Light

Graphical Abstract
(BiO)2CO3 nanosheets have been successfully prepared by a rapid reaction using the hydrothermal method combined with microwave heating. The as prepared (BiO)2CO3 nanosheets presented good photocatalytic activity for degradation of organic dye Ponceau P4R under UV-Vis light.

506 The Performance of Crosslinking with Divinyl Sulfone as Controlled by the Interplay Between the Chemical Modification and Conformation of Hyaluronic Acid
Andréa A. M. Shimojo, Aline M. B. Pires, Rafael Lichy and Maria H. A. Santana

Graphical Abstract
The effects of the alkaline medium of the reaction mixture on the swelling and rheological properties of hyaluronic acid (HA) microparticles crosslinked with divinyl sulfone with regard to the interplay between the HA conformation and the extension of the crosslinking reaction.
513 Classification and Identification of Petroleum Microorganisms by MALDI-TOF Mass Spectrometry

Graphical Abstract
Indigenous bacteria isolated from a crude oil sample were successfully classified in groups which match exactly with molecular identification using the gyrB gene sequence, showing the advantages of using this technique to build petroleum bacteria database.

521 Size Reduced Iron Nitroprusside Particles: an Electrochemical Mediator for the Quantification of Peroxodisulfate and Nitrite
Samrat Devaramani, Ramakrishnappa Thippeswamy and Nathan S. Lawrence

Graphical Abstract
Size reduced iron nitroprusside particles modified carbon paste electrode has been used for the electrochemical oxidation and reduction of NO$_2^-$ and $S_2O_8^{2-}$ respectively.

531 Quantitative Analysis of Endocrine Disruptors by Comprehensive Two-Dimensional Gas Chromatography
Miriany A. Moreira, Leiliane C. André, Alexandra B. Ribeiro, Marco D. R. G. da Silva and Zenilda L. Cardeal

Graphical Abstract
The graphical abstract exemplifies the comparison between two methods of gas chromatography.

537 An Ion-Pair Reagent Incorporated Polystyrene Nanofiber Applied to Solid Phase Extraction of 5-Hydroxytryptamine in Human Plasma
Yu Wang, Xiaoling Zhou, Yuqin Ma and Xuejun Kang

Graphical Abstract
Sodium dodecyl sulphate incorporated polystyrene electrospun nanofibers was prepared and applied in ion exchange solid phase extraction.
550 Improving the Toolbox of Bioreductions by the Use of Continuous Flow Systems
Raquel O. Lopes, Simon Grimm, Joyce B. Ribeiro, Ivana C. R. Leal, Leandro S. M. Miranda and Rodrigo O. M. A. de Souza

Graphical Abstract
This report showed the bioreduction of ethyl 3-oxohexanoate by immobilized Kluyveromyces marxianus cells and tert-butyl 3-oxobutanoate by immobilized Rhodotorula rubra cells under continuous flow conditions leading to the desired β-hydroxy esters corresponding in high yields and enantiomeric excess.

555 Adsorption Mechanism of Lignosulfonate at the Air/Liquid Interface
Mingfang Yan and Dongjie Yang

Graphical Abstract
The configuration of PSL at the air/liquid interface will change from disorder to regularly as the concentration of PSL and the ionic strength of solution increase, but it will array from tightly to loose as the pH value of solution increases.

562 Quinolines by Three-Component Reaction: Synthesis and Photophysical Studies
Eric S. Sales, Juliana M. F. M. Schneider, Marcos J. L. Santos, Adailton J. Bortoluzzi, Daniel R. Cardoso, Willy G. Santos and Aloir A. Merlo

Graphical Abstract
Quinolines were synthesised by three-component reaction using Fe(III) and Yb(III) catalysts. From a single-crystal X-ray analysis for a synthesised quinolone, quinolyl and naphtyl groups connected to the C3 and C24 carbon atoms are twisted by torsion angle of 65.2°.
572 Levels of Soybean Oil and Time of Treatment for Nile Tilapia: a Factorial Design for Total n-3 Fatty Acids, n-6/n-3 and PUFA/SFA Ratios
Ana P. Lopes, Vanessa V. A. Schneider, Paula F. Montanher, Ingrid L. Figueiredo, Hevelyse M. C. Santos, Swami A., Maruyama, Angela M. M. Araújo and Jesuí V. Visentainer

Graphical Abstract
Response surfaces were obtained from a 2² factorial design for total n-3 fatty acids and n-6/n-3 and polyunsaturated fatty acids (PUFA)/saturated fatty acids (SFA) ratios in lipids of Nile tilapia fed with diets containing soybean oil.

580 Nano-Detoxification of Organophosphate Agents by PAMAM Derivatives
Esteban F. Durán-Lara, Fabian Ávila-Salas, Sebastian Galaz, Amalraj John, Adolfo Maricán, Margarita Gutiérrez, Fabiane M. Nachtigall, Fernando D. Gonzalez-Nilo and Leonardo S. Santos

Graphical Abstract
Polyamidoamine (PAMAM) derivatives showed in in vitro studies the ability to capture methamidophos efficiently and could be used as an antidote to maintain acetylcholinesterase activity in poisoning events.

592 Developing Fast and Facile Method for Speciation Analysis of Vanadium (V/IV) Ions with Calmagite Immobilization on Triacetyl Cellulose Membrane in Water Samples
Hossein Tavallali and Rozita Nejabat

Graphical Abstract
The first speciation of V(VI/V) ions with optical sensor, which is more superior in terms of sensitivity and simplicity.

600 Optimization of Process Variables in the Synthesis of Isoamyl Isovalerate Using Sulfonated Organic Heteropolyacid Salts as Catalysts
Keke Chen, Wei Yan, Xiaofang Zhang, Yingying Kuang, Xiujuan Tang and Xiaoxiang Han

Graphical Abstract
Sulfonated organic heteropolyacid salts with superior esterification rate, excellent durability, and unique self-separation property desirable for facile recovery and recycling during homogeneous synthesis of isoamyl isovalerate are reported.
619 QSAR Study of the Inhibitors of the Acetyl-CoA Carboxylase
1 and 2 using Bayesian Regularized Genetic Neural Networks:
A Comparative Study
Abolfazl Valadkhani, Mohammad Asadollahi-Baboli and
Ahmad Mani-Varnosfaderani

Graphical Abstract
The Monte-Carlo sampling strategy was implemented in Bayesian regularized genetic neural network (BRGNN) algorithm for quantitative structure-activity relationship modeling of acetyl-CoA carboxylase (ACC) inhibitors. The calculated activities using BRGNN algorithm in this work are in good agreement with experimental values. The results of the present work emphasize on the role of positive charge and polarity of molecules on ACC inhibitory activity.