

## ISSUE CONTENTS LIST WITH GRAPHICAL ABSTRACTS

## NEWS AND EVENTS

7

**THE 6<sup>TH</sup> INTERNATIONAL CONFERENCE  
“ECOLOGICAL & ENVIRONMENTAL CHEMISTRY” 2017**  
 March 2-3, 2017, Chisinau, Republic of Moldova

Main scope of the conference is development of the international cooperation in the fields of ecological chemistry, environmental protection and promotion of the healthy life style by seeking harmony between ecology and chemical processes of pollution, purification, and methods of prevention of anthropogenic impact on the environment and human health, as well as issues related to environmental education, training and environmental safety.

## REVIEW PAPER

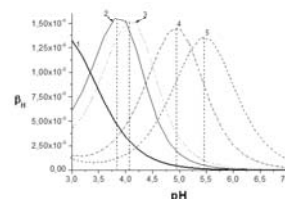
## ANALYTICAL CHEMISTRY

8

**BUFFER CAPACITY IN HETEROGENEOUS MULTICOMPONENT SYSTEMS. REVIEW**

Oxana Spinu, Igor Povar

The quantitative basis of the theory of buffer properties for two-phase acid-base buffer systems and for multicomponent heterogeneous systems has been derived. The analytical equations with respect to all components for diverse multicomponent systems were deduced. It has been established, that the buffer capacities of components are mutually proportional.



## FULL PAPER

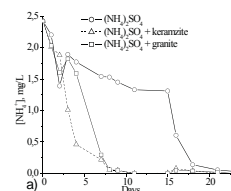
## ECOLOGICAL CHEMISTRY

26

**STUDY OF STABLE NITROGEN FORMS IN NATURAL SURFACE WATERS IN THE PRESENCE OF MINERAL SUBSTRATES**

Petru Spataru, Igor Povar, Elena Mosanu, Ana Trancalan

The influence of substrates on the oxidation of reduced toxic forms of nitrogen in river water was investigated by laboratory modelling. Granite and expanded clay accelerate the oxidation of ammonium and nitrite ions from 2 to 4 times. The presence of calcium carbonate in water hinders the oxidation of nitrogen in the polluted water.



## FULL PAPER

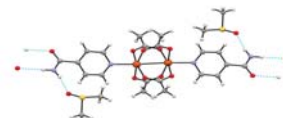
## INORGANIC AND COORDINATION CHEMISTRY

33

**NEW SOLVATOMORPH OF TETRAKIS( $\mu_2$ -ACETATO-O,O')-BIS(ISONICOTINAMIDE-N)-DI-COPPER(II): SYNTHESIS, IR, TGA AND X-RAY STUDY**

Diana Chisca, Eduard Coropceanu, Oleg Petuhov, Lilia Croitor

Dinuclear tetracarboxylato-bridged copper(II) solvato-morph  $[\text{Cu}_2(\text{OAc})_4(\text{ina})_2] \cdot 2\text{dmsO}$  was prepared and studied by IR spectroscopy, TGA analysis and single crystal X-ray method. Cu(II) ions are bridged by four *syn,syn*- $\eta^1:\eta^1:\mu$  carboxylates, showing a paddle-wheel cage-type with a square-pyramidal geometry.



## FULL PAPER

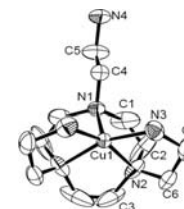
## INORGANIC AND COORDINATION CHEMISTRY

40

**SYNTHESIS, CRYSTAL STRUCTURE, AND PROPERTIES OF COPPER(II) COMPLEXES WITH 1,4,7-TRIS(2-AMINOETHYL)-1,4,7-TRIAZACYCLONONANE**

Masahiro Mikuriya, Mayu Hamagawa, Natsuki Tomioka, Daisuke Yoshioka, Naoko Uehara, Rika Fujimori, Hiroki Yamamoto, Yoshinari Ando, Shoichi Hori, Taro Kuriyama, Ryoji Mitsuhashi, Makoto Handa

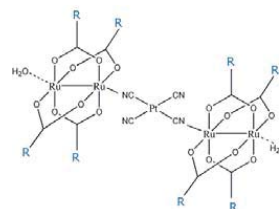
Three kinds of copper(II) complexes with 1,4,7-tris(2-aminoethyl)-1,4,7-triazacyclononane (taetacn),  $[\text{Cu}(\text{taetacn})](\text{ClO}_4)_2$  (**1**),  $[\text{Cu}(\text{Htaetacn})](\text{ClO}_4)_3$  (**2**), and  $[\text{Cu}(\text{Htaetacn})](\text{BF}_4)_3$  (**3**) were synthesized and characterized by elemental analyses, IR and UV-Vis spectroscopies. The spectral features are in harmony with an octahedral geometry for **1** and a square-pyramidal coordination for **2** and **3**.



**MIXED-METAL COMPLEXES OF RUTHENIUM(II,III) CARBOXYLATE AND TETRACYANIDOPLATINATE(II)**

Masahiro Mikuriya, Kenta Ono, Shun Kawauchi, Daisuke Yoshioka, Ryoji Mitsuhashi, Makoto Handa

Mixed-metal complexes constructed from dinuclearruthenium(II,III) carboxylates and tetracyanidoplatinate(II),  $[\{\text{Ru}_2(\text{O}_2\text{CCH}_3)_4\}_2\text{Pt}(\text{CN})_4]\cdot 2\text{H}_2\text{O}$  (**1**) and  $[\{\text{Ru}_2\{\text{O}_2\text{C}(\text{CH}_3)_3\}_4\}_2\text{Pt}(\text{CN})_4]\cdot 2\text{H}_2\text{O}$  (**2**), were synthesized and characterized by elemental analysis and IR and UV-vis spectroscopies.

**GC-MS ANALYSIS OF THE FATTY ACID METHYL ESTER IN JAPANESE QUAIL FAT**

Ion Dragalin, Olga Morarescu, Maria Sedcenco, Radu Marin Rosca

The accumulated as production waste fat from Faraon quail breeds has been investigated for the first time by using GC-MS technique, preventively converting it *via* methanolysis to fatty acid methyl esters. The test results, regarding the content of unsaturated fatty acids having a favorable to human body *cis*-configuration (77.8%), confirm their nutritional value and the possibility of using this fat in cosmetic, pharmaceutical and food industries.

**SYNTHESIS OF NEW NITROGEN-CONTAINING DRIMANE AND HOMODRIMANE SESQUITERPENOIDS FROM SCLAREOLIDE**

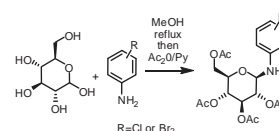
Lidia Lungu

The synthesis of new nitrogen-containing drimane and homodrimane sesquiterpenoids in cycle B is reported. A comparative study of the microwave (MW) assisted synthesis of drimenone versus classical conditions has been done. The drimanic and homodrimanic oximes were prepared on the base of ketones derived from commercially available sclareolide. The drimanic amine was obtained by reduction of corresponding oxime with  $\text{LiAlH}_4$ . The structure of novel compounds was confirmed using IR,  $^1\text{H}$  and  $^{13}\text{C}$  NMR analyses.

**NEW N-GLUCOSYLATED SUBSTITUTED ANILINES**

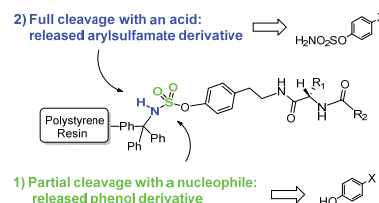
Vsevolod Pogrebnoi

The reaction of (+)-*D*-glucose with 4-chloroaniline or 3,5-dibromoaniline leads almost exclusively to the  $\beta$ -configuration of glucosylated anilines. The acetylating of 2-(3,5-dibromophenylamino)-6-(hydroxymethyl)tetrahydro-2*H*-pyran-3,4,5-triol is less selective than in case of the 2-(4-chlorophenylamino)-6-(hydroxymethyl)tetrahydro-2*H*-pyran-3,4,5-triol.

**A SEQUENTIAL DUAL CLEAVAGE OF THE ARYLSULFAMATE LINKER TO PROVIDE BOTH SULFAMATE AND PHENOL DERIVATIVES**

Diane Fournier, Liviu Ciobanu, Donald Poirier

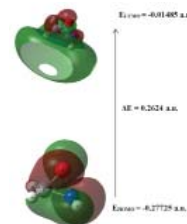
Tyramine sulfamate was linked to the trityl chloride resin and this polymeric support used to introduce two levels of molecular diversity by formation of peptide bonds. A dual cleavage strategy next generated in a sequential way (without resin split) two types of compounds (phenol and arylsulfamate derivatives), which are therapeutically attractive types of compounds.



**OXAZIRIDINE (C-CH<sub>3</sub>NO), C-CH<sub>2</sub>NO RADICALS AND Cl, NH<sub>2</sub> AND METHYL DERIVATIVES OF OXAZIRIDINE; STRUCTURES AND QUANTUM CHEMICAL PARAMETERS**

Mohammad Taghi Taghizadeh, Morteza Vatanparast, Saeed Nasirianfar

Oxaziridine [c-CH<sub>3</sub>NO (X<sup>1</sup>A)], c-CH<sub>2</sub>NO (X<sup>2</sup>A) radicals and Cl, NH<sub>2</sub> and methyl derivatives of oxaziridine structures have been optimized via DFTB3LYP level of theory using 6-311++G (d, p) basis set. Population analysis had been carried out. Vertical ionization energy (VIE) and adiabatic ionization energy (AIE), Fukui indices and some quantum chemical parameters were calculated. N-O bond was determined as weakest bond in oxaziridine triangle. The effect of electron withdrawing and electron donating groups on stability of weakest bond were assessed.

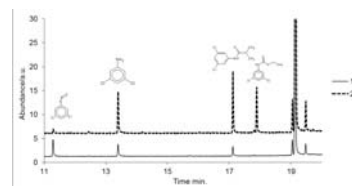
**SHORT COMMUNICATION****FOOD CHEMISTRY**

89

**THE SURFACE PHOTOCHEMISTRY OF PROCYMIDONE IN PRESENCE OF AMMONIUM FERRIC CITRATE**

Ivan Osipov

Procymidone was chosen as the model compound and its phototransformation was followed under sunlight irradiation. The main photodegradation products on silica is 3,5-dichloroaniline and 3,5-dichlorophenylisocyanate. The use of ammonium ferric citrate enhances the degradation of the procymidone.

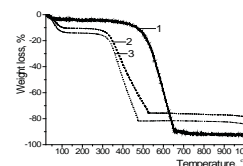
**SHORT COMMUNICATION****INDUSTRIAL CHEMISTRY**

92

**MODIFICATION OF CARBONACEOUS ADSORBENTS WITH MANGANESE COMPOUNDS**

Irina Ginsari, Larisa Postolachi, Vasile Rusu, Oleg Petuhov, Tatiana Goreacioc, Tudor Lupascu, Raisa Nastas

Four series of samples containing manganese supported carbonaceous adsorbents were prepared. Obtained results reveal the importance of surface chemistry of carbonaceous adsorbents on the manganese loading.

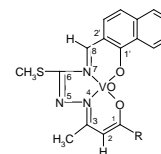
**SHORT COMMUNICATION****INORGANIC AND COORDINATION CHEMISTRY**

95

**COORDINATION COMPOUNDS OF OXOVANADIUM(IV) BASED ON S-METHYLISOTHIOSEMICARBAZIDE AS DYES FOR THERMOPLASTIC PLASTIC**

Maria Cocu, Stefan Manole

We have investigated the properties as dyes of coordination compounds synthesized by us previously (8-(1',2'-naphthyl)-1-R-3-methyl-6-thiomethyl-4,5,7-triazanona-1,3,5,7-tetraenato-1,1'-diolato(-)-O<sup>1</sup>, O<sup>1'</sup>, N<sup>4</sup>, N<sup>7</sup>-vanadil, where R=CH<sub>3</sub> (1), C<sub>6</sub>H<sub>5</sub> (2)), which can be used for colouring thermoplastic masses. The compounds have a high photostability (7 points), thermostability (>250°) and an intensity of colour that give a low consumption (0.006-0.010g).

**SUPPLEMENTARY MATERIAL****PHYSICAL CHEMISTRY AND CHEMICAL PHYSICS**

99

**OXAZIRIDINE (C-CH<sub>3</sub>NO), C-CH<sub>2</sub>NO RADICALS AND Cl, NH<sub>2</sub> AND METHYL DERIVATIVES OF OXAZIRIDINE; STRUCTURES AND QUANTUM CHEMICAL PARAMETERS****(Supplementary material)**

Mohammad Taghi Taghizadeh, Morteza Vatanparast, Saeed Nasirianfar

Supplementary material contains Tables S1 to S9 and Figures S1 to S4.

109

**INSTRUCTIONS FOR AUTHORS**