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INVITED CONTRIBUTION

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COMPLEX COPPER COMPOUNDS WITH PENTAAMINOTETRAZOLE ARE THE NEW CHALLENGE IN TREATMENT AND PREVENTION OF FREE-RADICAL CONDITIONS

Irina Shugalei, Mikhail Ilyushin, Veronika Sokolova, Nadejda Dubjago, Irina Bachurina, Alexander Garabadzhiu

The present article provides route of synthesis of complex copper compounds with 1.5-pentamethyltetrazole as a ligand. These compounds are considered promising antioxidants that can find application in treatment and prevention of "free radical" conditions caused by a variety of reasons, e.g. harmful environmental factors. The obtained compounds were rated by their antioxidant potential; the ability to inhibit lipid peroxidation and SOD-like activity thereof were assessed by independent experimental techniques.

FULL PAPER

ECOLOGICAL CHEMISTRY

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STUDYING THE RESEARCH RESULTS REGARDING FERTILIZERS USED IN THE REPUBLIC OF MOLDOVA

Tamara Leah, Igor Povar, Tudor Lupascu, Serafim Andries, and Vladimir Filipeciuc

This paper represents an analysis of the research concerning the use of fertilizers and nutrients balance in the soils of the Republic of Moldova. The nature and effectiveness of fertilizers, their influence on the agrochemical properties of soils, the protection of the environment from the pollution by nutrients in addition to the regulatory normatives of our country developed in order to determine the necessary in fertilizers for obtaining the expected crops have been as well discussed.

FULL PAPER

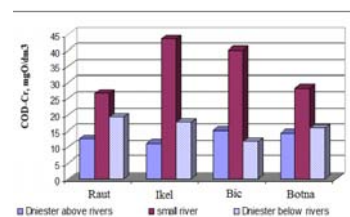
ECOLOGICAL CHEMISTRY

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CHEMICAL COMPOSITION FROM THE DNIESTER RIVER TRIBUTARIES

Viorica Gladchi, Gheorghe Duca, Nelli Goreaceva, Elena Bunduchi, Angela Lis

This article presents the results obtained in the framework of the project 09.832.08.06A. The role of the tributaries on formation of the Dniester river water and the study of the waters quality of sources / fountains in the catchment area of the Dniester river as sources of water supply and for irrigation in the State Program, Scientific Researches and of the management of waters quality.



FULL PAPER

ECOLOGICAL CHEMISTRY

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ECOLOGICAL PECULIARITIES OF COPPER CHEMICAL FORMS CONTENT IN THE ERODED SOILS

Tamara Leah

The content of chemical forms of copper, the features of the distribution and transformation in eroded Gray soils and Calcareous chernozems are presented. Erosion process led to increase the chemical forms associated with clay minerals, carbonates, oxides, and reducing the mobile and humus organic forms. The losses of copper in different chemical forms consist 35% from humus horizon of eroded soils.

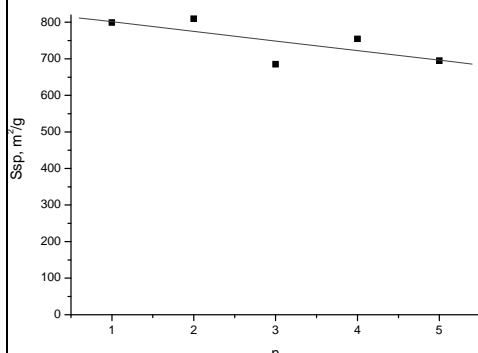
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STUDY OF HYDROGEN SULFIDE REMOVAL FROM GRUNDWATER

Tudor Lupașcu, Mihail Ciobanu, Victor Boțan, Taras Gromovoy
Silvea Cibotaru, Oleg Petuhov, Tatiana Mitina.



The process of the hydrogen sulfide removal from the underground water of the Hancesti town has been investigated. By oxygen bubbling through the water containing hydrogen sulfide, from the Hancesti well tube, sulfur is deposited in the porous structure of studied catalysts, which decreases their catalytic activity. Concomitantly, the process of adsorption / oxidation of hydrogen sulfide to sulfate take place. The kinetic research of the hydrogen sulfide removal from the Hancesti underground water, after its treatment by hydrogen peroxide, proves greater efficiency than in the case of modified carbonic adsorbents. As a result of used treatment, hydrogen sulfide is completely oxidized to sulfates.

**SYNTHESIS OF ACRYLIC ESTERS IN PTC:
KINETICS AND ECOLOGICAL ASPECTS**

G.Torosyan, Ghazi Aidan, N.Torosyan

The synthesis of esters of acrylic acids, which are applied for synthesis of polymeric materials by phase transfer catalysis were discussed (PTC), which is very useful for reduction of reaction consumption of materials and power. This method has substantial advantages including high speed of the process, soft condition of reaction and reduced pollution.

**AUTOCATALYTIC REDUCTION AND CHARACTERISTICS OF
BORON-CONTAINING COATINGS**

Victor Covaliov, Olga Covaliova, Mikhail Ivanov, Andrey Drovosekov

The research results of the plating conditions, chemical composition and properties of Ni-B coatings and Ni-Re-B, Ni-Mo-B and Ni-W-B alloys are given. It was shown that introduction of alloying elements (Re, Mo and W) in the composition of Ni-containing coatings modifies the catalytic activity of the alloys' surface, with regard to the parallel reactions of dimethylamino-borane (DMAB) heterogeneous hydrolysis, Ni reduction and evolving of the molecular hydrogen. It was found that with the increase in concentration of alloying element, boron contents in the coatings is decreased to the trace amounts. The effect of alloys composition on hydrogen evolving overvoltage was studied. Due to the low overvoltage of hydrogen evolving (HE) on the alloy Ni-Re-B surface (11 at.% Re), it can be used as electrode for hydrogen generation from water in the electrolytic cell with novel design and improved technical-economic indicators.

**DINUCLEAR COMPLEXES AS BUILDING BLOCKS FOR TETRA-NUCLEAR MACROCYCLIC
COMPLEXES WITH DITHIOLATE MACROCYCLIC LIGAND**

Vasile Lozan

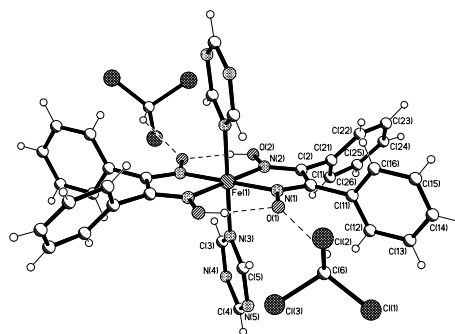


A series of novel tri-, tetra- and pentanuclear complexes composed of dinuclear LM units ($M = \text{Co}, \text{Ni}, \text{Zn}$; $L = 24\text{-membered macrocyclic hexaaza-dithiophenolate ligand}$) and ferrocenecarboxylate ($[\text{CpFeC}_5\text{H}_4\text{CO}_2]^-$), 1,1'-ferrocenedicarboxylate ($[\text{Fe}(\text{C}_5\text{H}_4\text{CO}_2)_2]^{2-}$), acetylene-dicarboxylate, terephthalate, isophthalate, and naphthalene diimide dicarboxylate groups is reported. The complexes, have been synthesized and characterised by UV/Vis-, IR-, NMR-spectroscopy, Cyclovoltammetry, and X-ray crystallography. Each dicarboxylate dianion acts as a quadridentate bridging ligand linking two bioctahedral LM_2 units via $\mu_{1,3}$ -bridging carboxylate functions to generate discrete dications with a central $\text{LM}_2(\text{O}_2\text{C-R-CO}_2)\text{M}_2\text{L}$ core. The magnetic properties of these compounds reveal the presence of weak ferromagnetic exchange interactions between the Ni^{II} ions of the dinuclear subunits and negligible coupling across the dicarboxylate bridges.

SYNTHESIS AND CRYSTAL STRUCTURE OF A NEW Fe(II) α -DIOXIMATE WITH TRIAZINE

O. Ciobanica, P. Bourosh, O. Bologa, I. Bulhac, V. Lozan, V. Shofranksy

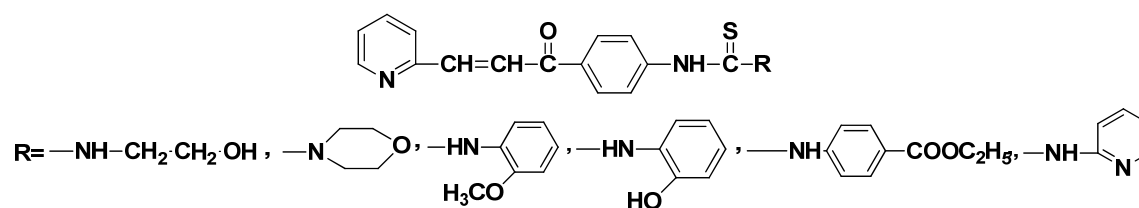
The interaction of $[\text{Fe}(\text{DfgH})_2\text{Py}_2]$ (where DfgH=monodeprotonated diphenylglyoxime, Py-pyridine) and 1,3,5-triazine (Trz) in chloroform resulted in a new coordination compound with the composition $[\text{Fe}(\text{DfgH})_2(\text{Trz})_2] \cdot 2\text{CHCl}_3$ (**1**). The crystal structure of **1**, determined by single crystal X-ray diffraction, revealed that Fe(II) atom is coordinated by four oximic nitrogen atoms of two DfgH and two nitrogen atoms of two Trz ligands resulting in octahedral surrounding.



SYNTHESIS AND BIOLOGIC PROPERTIES OF SOME

1-(ALCHYL)PHENYL-3-(4-(3-(PYRIDIN-2-IL)ACRYLOYL)PHENYLTHIOUREA

Popusoi Ana, Barba Nicanor, Gulea Aurelian, Roy Jenny, Poirier Donald, Prisacari Viorel



THE INFLUENCE OF THE POROUS STRUCTURE OF LOCAL ACTIVATED CARBONS ON THE IMMOBILIZATION OF THE CONGO RED DYE AND VITAMIN B 12

Țîmbaliuc Nina, Lupașcu Tudor

The adsorption properties of activated carbons, obtained from local raw materials (nut shells, peach and plum stones), towards Congo Red and vitamin B₁₂ have been studied. The values of adsorption of these marker-substances are in direct correlation with the structural characteristics of the studied samples of activated carbons, in particular, with their mesopore volume.

NONEXPERIMENTAL SCREENING OF THE WATER SOLUBILITY, LIPOPHILICITY, BIOAVAILABILITY, MUTAGENICITY AND TOXICITY OF VARIOUS PESTICIDES WITH QSAR MODELS AID

O.G. Kolumbin, L.N. Ognichenko, A.G. Artemenko, P.G. Polischuk, M.A. Kulinsky, E.N. Muratov, V.E. Kuz'min, V.A. Bobeica

In our study the dataset containing 489 pesticides and their active substances of different classes of organic compounds was used for analysis. For compounds of analyzed dataset the values of lipophilicity, water solubility, toxicity, bioavailability and mutagenicity were predicted by developed QSAR models. The most environmentally hazardous substances were identified using prediction of QSAR models for pesticides. The satisfactory coincidence between the experimental values of investigated properties and their predicted values by QSAR models was obtained (coefficient of determination in the range 83-94 %).