



REVISTA DE CHIMIE



Chemistry Sciences

Chemical and Biochemical Engineering

Environmental Chemistry and Engineering

Chemistry Application in Food, Nutrition, Agriculture

Medical and Pharmaceutical Chemistry

Materials

OCTOBER 2020

Print ISSN: 0034-7752 / Online ISSN: 2668-8212

<https://revistadechimie.ro>
<https://doi.org/10.37358/Rev.Chim.1949>



**REVISTA DE
CHIMIE SRL**

**REVISTA DE CHIMIE FOUNDED IN 1949
BUCURESTI ROMANIA**

EDITORIAL BOARD

Editor-in-Chief:
Gabriel Lucian RADU
Politehnica University of Bucharest, Romania

Editorial Manager:
Ion ANDRONACHE
Revista de Chimie SRL, Bucharest, Romania

EDITORS:

Ionel MANGALAGIU – Chemistry Sciences
Alexandru Ioan Cuza University, Iasi, Romania

Irinel Adriana BADEA – Chemistry Sciences
University of Bucharest, Romania

Costin Sorin BILDEA – Chemical and Biochemical Engineering
Politehnica University of Bucharest, Romania

Ioana FECHETE - Chemical and Biochemical Engineering
Université de Technologie de Troyes, France

Gheorghe NECHIFOR – Environmental Chemistry and Engineering
Politehnica University of Bucharest, Romania

Simona Gabriela BUNGAU - Environmental Chemistry and Engineering
University of Oradea, Romania

Adela PINTEA - Chemistry Application in Food, Nutrition, Agriculture
University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

Gabriela RAPEANU - Chemistry Application in Food, Nutrition, Agriculture
Dunarea de Jos University of Galati, Romania

Gabriel Ovidiu BRATU - Medical and Pharmaceutical Chemistry
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Camelia DIACONU - Medical and Pharmaceutical Chemistry
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Maria CAZACU – Materials
Petru Poni Institute of Macromolecular Chemistry, Iasi, Romania

Iulian ANTONIAC – Materials
Politehnica University of Bucharest, Romania

ASOCIATE EDITORS:

Lotfi ALEYA
Université de Franche-Comté, France

Patrick Da COSTA
Sorbonne Universite, France

Remi CHAUVIN
University of Toulouse, France
Huaqiao University, Xiamen Campus, China

Giuseppe GATTUSO
University of Messina, Italy

Andrei JITIANU
Lehman College of The City University of New York, USA

Piotr KURCOK
Centre of Polymer and Carbon Materials Polish Academy of Sciences, Poland

Bouchta SAHRAOUI
University of Angers, UFR Sciences
Institute of Sciences and Molecular Technologies of Angers, France

Yanzhong ZHANG
College of Chemistry, Chemical Engineering & Biotechnology Donghua University, China

EDITORIAL ADVISORY BOARD:

Codrina ANCUTA
University of Medicine and Pharmacy Grigore T. Popa, Iasi, Romania

Sanda ANDREI
University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania

Catalina ARSENESCU
University of Medicine and Pharmacy Grigore T. Popa, Iasi, Romania

Camelia BALA
University of Bucharest, Romania

Narcis BARSAN
Vasile Alecsandri University of Bacau, Romania

Ede BODOKI
Iuliu Hatieganu University of Medicine & Pharmacy, Cluj-Napoca, Romania

Andreea BUNEA
University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania

Ioan CALINESCU
Politehnica University of Bucharest, Romania

Simona CAPRARESCU
Politehnica University of Bucharest, Romania

Otilia CINTEZA
University of Bucharest, Romania

Dragos Mihael CIUPARU
Petroleum - Gas University of Ploiesti, Romania

Simona CLICHICI
University of Medicine and Pharmacy, Cluj-Napoca, Romania

Simona COMAN
University of Bucharest, Romania

Carolina CONSTANTIN
Victor Babes National Institute, Bucharest, Romania

Lucian Octav COPOLOVICI
Aurel Vlaicu University, Arad, Romania

Calin Cristian CORMOS
Babeş-Bolyai University, Cluj Napoca, Romania

Dana CULITA
Institute of Physical Chemistry Ilie Murgulescu, Bucharest, Romania

Andrei DANET
University of Bucharest, Romania

Iulia Gabriela DAVID
University of Bucharest, Romania

Gyorgy DEAK
INCDPM, Bucharest, Romania

Kamel EARAR
Dunarea de Jos University of Galati, Romania

Abdol Ghaffar EBADI
Tajik Academy of Science, Tajikistan

Petru FILIP
C. D. Nenitescu Institute of Organic Chemistry, Bucharest, Romania

Anca Irina GALACTION
University of Medicine and Pharmacy Grigore T. Popa, Iasi, Romania

Maria HARJA
Technical University Gheorghe Asachi, Iasi, Romania

Cosmin JINESCU
Politehnica University of Bucharest, Romania

Vasile LAVRIC
Politehnica University of Bucharest, Romania

Mihai Nita LAZAR
ECOIND, Bucharest, Romania

Simona Carmen LITESCU
National Institute for Biological Sciences, Bucharest, Romania

Cristian MATEI
Politehnica University of Bucharest, Romania

Florin MICULESCU
Politehnica University of Bucharest, Romania

Maria MOHORA
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Lucia MUTIHAC
University of Bucharest, Romania

Denisa NISTOR
Vasile Alecsandri University of Bacau, Romania

Octavian OLARU
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Eliza OPREA
University of Bucharest, Romania

Ovidiu OPREA
Politehnica University of Bucharest, Romania

Cristian Valeriu PIRVU
Politehnica University of Bucharest, Romania

Ileana RAU
Politehnica University of Bucharest, Romania

Cristian SIMION
Politehnica University of Bucharest, Romania

Sonia SOCACI
University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania

Bogdan SOCEA
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Irina STOIAN
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Emanuel VAMANU
University of Agronomical Sciences and Veterinary Medicine, Bucharest, Romania

Camelia VIZIREANU
Dunarea de Jos University of Galati, Romania

Laurian VLASE
University of Medicine and Pharmacy Iuliu Hatieganu, Cluj Napoca, Romania

Maria ZAHARESCU
Institute of Physical Chemistry Ilie Murgulescu, Bucharest, Romania
Romanian Academy

PUBLISHER STAFF:

Alice CRISTEA – Manager
Elena ANDRONACHE – IT
Monica BALUTA – Editing
Iuliana GHITA – Accounting

Impact factor 2019: 1.755

CONTENTS

GHEORGHE JUNCU

The Effect of Thermal Radiation on the Surface Catalytic Chemical Reaction.....1

**AURORA REISS, RAUL-AUGUSTIN MITRAN, CRISTINA BABEANU, EMILIA AMZOIU,
MANUEL OVIDIU AMZOIU, RENATA MARIA VARUT, ANCA GANESCU**

New Bioactive Co(II) and Ni(II) Complexes with Ofloxacin Mixed-Ligand.....11

WIDIA SARI, HARDOKO INSAN QUDUS, SUTOPO HADI

The Chemical Reactivity Study of Organotin(IV) 4-aminobenzoates Using Cyclic Voltammetry and
Antioxidant Activity Test by the DPPH Method.....28

**CATALIN ALEXANDRU BARBU, NICOLAE TOMUS, AURA DANIELA RADU,
MARIUS ZLAGNEAN, DIANA MARIA BANU**

Comparative Leaching Tests of Gold from Unroasted and Roasted Pyrite Using Microwave Radiation.....38

KAMRAN MEHDI, WAJID REHMAN, OBAID-UR-RAHMAN ABID, SROSH FAZIL,

MUHAMMAD SAJID, ABDUR RAB, MUHAMMAD FAROOQ, SIRAJUL HAQ, FARID MENAA

Green Synthesis of Silver Nanoparticles Using *Ajuga parviflora* Benth and *Digera muricata* Leaf Extract:
Their Characterization and Antimicrobial Activity.....50

**MOHAMED FARSANE, LHASNAOUI SOUFIA, ABDELLAH ANOUAR, SOUAD CHAH,
SAID DAGDAG, MILOUDI BOUZZIRI**

Experimental Evaluation of the Curing of Unsaturated Polyester Resin at Various Amounts of
Methyl Ethyl Ketone Peroxide, Cobalt Octoate and Porcelain Powder.....58

GHAIDAA MAJEED JAID, AZHAR JABBAR BOHAN, GHAED KHALAF SALMAN

Artificial Neural Network Modeling for Removal of Cd (II) and Pb (II) from Wastewater
by Using Three Ferrite Nanomaterials (Cu_{0.9}Zn_{0.1}Fe₂O₄, Cu_{0.8}Zn_{0.2}Fe₂O₄, and
Cu_{0.7}Zn_{0.3}Fe₂O₄) and Study the Antimicrobial Effectiveness of these Ferrite Substances.....67

**DENITSA KIRADZHIYSKA, TSVETELINA BATСALOVA, BALIK DZHAMBАЗOV,
ROSITSA MANCHEVA**

In vitro Biocompatibility Evaluation of Anodic Alumina Substrates with Electrochemically Embedded Silver.....81

**TEODORA MALAERU, DELIA PATROI, ELENA ENESCU, GABRIELA GEORGESCU,
EUGEN MANTA, EROS ALEXANDRU PATROI, VIRGIL MARINESCU, CRISTIAN MORARI,
MAGDALENA VALENTINA LUNGU**

Synthesis and Characterization of Water Dispersible Iron Oxide (γ -Fe₂O₃)
Nanoparticles for Biomedical Applications.....89

**CARMELIA MARIANA DRAGOMIR BALANICA, CRISTIAN MUNTENITA,
DANIELA ECATERINA ZECA, MARICICA STOICA**

Statistical Analysis of the Physicochemical Characteristics of Urban Wastewater Treatment Plants from Romania.....100

**ADRIANA ELENA BOERIU, CARMEN LILIANA BADARAU, CRISTINA MARIA CANJA,
GAVRILA CALEFARIU**

Effect of Red Lentil Flour Addition on Total Polyphenols Content and Antioxidant Capacity of Frozen Dough Bread...108

ROKAYA I. M. MAHRAN, MONA M. NAIM, MOHAMED E. O. YEHIA,

MERVETTE EL-BATOUTI, MAHMOUD M. ELEWA

Bioconversion of Potatoes to Bioethanol.....118

TINA OANA CRISTEA, GABRIEL-ALIN IOSOB, CREOLA BREZEANU,

PETRE MARIAN BREZEANU

Effect of Chemical Composition of Nutritive Medium and Explant Size Over Androgenetic
Response in Microspore Culture of *Brassica oleracea* L.....131

MAJD AL BAYATTY, EMAN AL MOUSAWI

The Impact of Land Use Change on Perform (Soil-Water) System in Middle Part of Mesopotamian Plain.....137

OANA STELA MIREL, CONSTANTIN FLORESCU

Simulation of Wastewater Depolition Processes by Advanced Biological Methods.....150

CARMEN TOCIU, CRISTINA MARIA, GYÖRGY DEÁK, IRINA-ELENA CIOBOTARU,

ALEXANDRU-ANTON IVANOV, ECATERINA MARCU, FLORICA MARINESCU

Tertiary Treatment of Livestock Wastewater in the Context of

Alternative Water Resources for Sustainable Agriculture.....161

ANCA ZAHARIOIU, FELICIA BUCURA, EUSEBIU ILARIAN IONETE, ROXANA ELENA IONETE, DANIELA EBRASU, CLAUDIA SANDRU, FLORIAN MARIN, SIMONA OANCEA, VIOLETA NICULESCU, MARIUS GHEORGHE MIRICIOIU, MARIUS CONSTANTINESCU	
Thermochemical Decomposition of Sewage Sludge – An Eco-Friendly Solution for a Sustainable Energy Future by Using Wastes.....	171
MUHAMMAD ASHFAQ, S. MOBASHER ALI ABID, KHALID RAUF, YASSER MSA ALKAHRAMAN, MUHAMMAD ZEESHAN HAROON, FAWAD AHMAD, SAIMA IKRAM, JAMSHAID AHMAD	
Potential Role of Proton Pump Inhibitors Against Human DRD2 Receptor in Drug Induced Hyperprolactinemia.....	182
CORINA MOISA, SIMONA BUNGAU, TAPAN BEHL, FLORIN BANICA, LAVINIA PURZA, RADU DUMITRU MOLERIU, OANA CADAR, OVIDIU FRATILA, DELIA MIRELA TIT	
Aspects Regarding the Relationship Between the Stability of Six Magnesium Compounds and their Cellular Uptake in Mice.....	193
ADINA - ELENA TANASE, ROXANA POPESCU, MIRCEA ONOFRIESCU, ROXANA DANIELA MATASARIU	
Genetic and Biochemical Markers of Ovarian Function and Their Impact on Women Reproductive Status.....	205
GEORGE MAHU, CORNELIU MUNTEANU, BOGDAN ISTRATE, IGOR BLANARI, CORNELIA PALEU, COSMIN MIHAI COTRUT	
Evaluation of the Corrosion Resistance of Some Coating Obtained by Thermal Spray in Plasma Jet, on the Surface of Some Crankshafts Made of C45 Steel.....	211