

AES Bioflux, Volume 5(2)
June, 15, 2013

**Advances in Environmental Sciences -
International Journal of the Bioflux
Society**



International Standard Serial Number

Online ISSN 2065–7647; Print ISSN 2066-7620

Published by Bioflux – three issues per year

The journal covers all the fields of environmental sciences, connected mostly to life sciences, but also to geology, physics, chemistry, economics, policies or legislation (both theoretical and applied issues).

Editorial Board

26 Countries (6 continents): Romania, Republic of Moldavia, Poland, Belgium, Spain, England, China, Japan, Canada, Switzerland, France, Pakistan, Bangladesh, Thailand, Norway, Philippines, USA, Brazil, Greece, New Zealand, Peru, Guyana, Iran, South Korea, Czech Republic, Zambia.

Editor-in-Chief

Ozunu Alexandru - "Babes-Bolyai" University, Cluj-Napoca (Romania)

Editors

Botha Miklos - Bioflux SRL, Cluj-Napoca (Romania)
Gavriloaie Ionel-Claudiu - Technical College INFOEL Bistrita (Romania)
Georgescu Carmen - University of Medicine and Pharmacy, Cluj-Napoca (Romania)
Negrea Bogdan Mihai - University Stefan cel Mare, Suceava (Romania)
Pasarin Benone - USAMV Iasi, Iasi (Romania)
Petrescu-Mag Ioan Valentin – USAMV Iasi, Iasi (Romania)
Petrescu-Mag Malina Ruxandra – "Babes-Bolyai" University, Cluj-Napoca (Romania)
Petrovici Milca - West University of Timisoara (Romania)
Rhyne Andrew - Roger Williams University; New England Aquarium, Boston (USA)
Stefanescu Lucrina Niculina - "Babes-Bolyai" University, Cluj-Napoca (Romania)
Talu Stefan - Technical University of Cluj-Napoca (Romania)
Vesa Stefan Cristian - University of Medicine and Pharmacy, Cluj-Napoca (Romania)

Associate Editors

Al-Qutob Mutaz - Al-Quds University (Palestinian Authority)
Alizadeh Omid - Islamic Azad University (Iran)
Correa Jean Michel - Federal University of Ceara, Fortaleza (Brazil)
Costea Ramona Ioana - University Stefan cel Mare, Suceava (Romania)
Covaciu-Marcov Severus-Daniel - University of Oradea, Faculty of Sciences (Romania)
Farooq Jehanzeb - Cotton Research Institute, Ayub, Faisalabad (Pakistan)
Morar Gavrilă - USAMV Cluj, Cluj-Napoca (Romania)
Nezmal Matej, Radon v.o.s. Corporation, Prague (Czech Republic)
Nita Victor - Nat. Inst. Marine Research & Dev. Gr. Antipa, Constanta (Romania)
Outred Heather A. - Massey University, Palmerston North (New Zealand)
Paschos Ioannis - Technological Educational Institute of Epirus (Greece)
Pop Victor - Institute of Biological Research, Cluj-Napoca (Romania)
Popescu Irinel – "Al. I. Cuza" University, Faculty of Biology (Romania)
Sangpradub Narumon - Khon Kaen University, Khon Kaen (Thailand)
Sas Istvan – University of Oradea, Faculty of Sciences (Romania)
Sinitean Adrian - West University of Timisoara, Timisoara (Romania)
Zamfirescu Stefan – "Al. I. Cuza" University, Faculty of Biology (Romania)

Editorial Councillor

Velter Victor: UEFISCDI, Bucharest (Romania)

Standard Board

Arockiaraj A. Jesu: Cheju National University (South Korea)
Blas Raul Humberto Sevillano - Univ. Nacional Agraria La Molina (Peru)
Bourne Godfrey Roderick - Univ. Missouri-St Louis (USA), CEIBA (Guyana)
Brasovean Ioan - USAMV Cluj, Cluj-Napoca (Romania)
Brunner Andreas - Extechna GMBtt (Switzerland)
Buburuz Dionisie – Academy of Environmental Sciences (Republic of Moldavia)
Burny Philippe – Universite de Liege (Belgium)
Caipang Christopher M.A. - Biovivo Technologies AS, Bodø (Norway); Indep. res. (Philippines)
Chanda Kelvin M. - Lusitu High School, Siavonga (Zambia)
Chongling Yan - Xiamen University, Xiamen (China)
Csep Laszlo - Bioflux, Cluj-Napoca (Romania)
Fendrihan Sergiu - Romanian Bioresource Centre, Bucharest (Romania)
Hasanuzzaman Mirza - Kagawa Univ. (Japan); Sher-e-Bangla Agric. Univ. (Bangladesh)
Iederan Cristian Ioan - USAMV Cluj, Cluj-Napoca (Romania)
Iftime Alexandru - "Grigore Antipa" National Museum of Natural History (Romania)
Nowak Michal – University of Agriculture in Krakow (Poland)
Odagiu Antonia - USAMV Cluj, Cluj-Napoca (Romania)
Oroian Ioan - USAMV Cluj, Cluj-Napoca (Romania)
Oroian Teofil - USAMV Cluj, Cluj-Napoca (Romania)
Pacioglu Octavian - Roehampton University, London (England)
Petrescu Dacinia Crina - "Babes-Bolyai" University, Cluj-Napoca (Romania)
Peteiro Cesar - Spanish Institute of Oceanography (IEO), Santander (Spain)
Rahman Motiur - Silvacom Ltd., Edmonton (Canada)
Rahman Mohammed M. - Kochi University, Kochi (Japan)
Roibu Catalin-Constantin - University Stefan cel Mare, Suceava (Romania)
Tugui Olimpia Ramona - Univ. Lyon II Lumiere (France)

Contact Publisher

SC Bioflux SRL, 54 Ceahlău Str., Cluj-Napoca, 400488, Romania, European Union.
Ioan Valentin Petrescu-Mag,
e-mail: zoobiomag2004@yahoo.com

Open Access – The Real Sense

Note that there is also an electronic version of the journal. You may download the fulltext version of AES Bioflux – Volume 5/2013 from the following link:
<http://www.aes.bioflux.com.ro/>

Peer review: all articles included in AES Bioflux are peer reviewed. Each published article was seen before by two reviewers and at least one specialist in foreign languages. The two peer-reviews are made independently; single blind peer-review is used.

Indexes and Abstracting

AES Bioflux is indexed, fulltext reproduced, or abstracted by the following databases, digital libraries and search engines:

Thomson - Master Journal List (Zoological Record)
ISI Web of Knowledge (Thomson Reuters, via Zoological Record)
ISI Web of Knowledge (Thomson Reuters, via CABI)
EBSCOhost Online Research Databases
Geobase (part of Elsevier Products)
CAB International (CABI, UK)
Index Copernicus
DOAJ (Lund University Library)
Wolters Kluwer - Ovid LinkSolver (via CABI)
CAB Direct (as part of CABI)
Ulrich's Periodicals Directory
Serials Solutions
Socolar (CEPIEC, China)
Open J-Gate: World's Biggest Open Access English Language Journals Portal
CNCSIS Romania (Rank: B+)
NewJour (Georgetown University Digital Library)
University of Washington Libraries (Digital Library)
University of Nevada, Reno (University Libraries - Catalogue)
Universitat Regensburg (Digital Library)
American University of Armenia - Koha Online Catalog
AcademicLink (Digital Library)
University Town Library of Shenzhen (Digital Library)
VUB University Library (Digital Library)
Geneva Foundation for Medical Education and Research (Digital Library)
Charles Sturt University (Digital Library)
Library of Congress Home (Digital Library)
ArgosBiotech Science Media (Digital Library)
Tsukuba Digital Library
Scirus Search Engine (Elsevier BV) - For Scientific Information Only
GOOGLE - Search Engine
GOOGLE SCHOLAR (Academic) - Search Engine
Yahoo - Search Engine
and many others.

Our collaborators

Zoological Record (part of Biosis)

ION contains the organism names related data gathered from the scientific literature for Thomson Reuters' *Zoological Record*[®] database. Viruses, bacteria and plant names will be added from other Thomson Reuters databases such as *BIOSIS Previews*[®] and *Biological Abstracts*[®]



Index to Organism Names (ION)



ELSEVIER PRODUCTS

Elsevier B.V., Bibliographic Databases, Radarweg 29, 1043 NX Amsterdam, The Netherlands.



Socolar

The free scholastic search engine is established by China Educational Publications Import and Export Corporation (CEPIEC). Under the leadership of China Ministry of Education, CEPIEC is the only company dealing with publication ex-im business in the education field. CEPIEC has been serving colleges and universities, research institutions and public libraries in China for more than 20 years, providing them with excellent academic resources from all over the world. Contact:
No 41 Zhong Guan Cun Street,
Haidian District, Beijing,
P.R.China 100080
Tel: +86 (0)10 6251 4068
e-mail: li_yanxia@cepiec.com.cn
Fax: +86 (0)10 6251 4068
www.cepiec.com.cn



CABI is a not-for-profit international organization that improves people's lives by providing information and applying scientific expertise to solve problems in agriculture and the environment. Their mission and direction is influenced by their member countries who help guide the activities they undertake. These include scientific publishing, development projects and research, and microbial services. 2010 marks 100 years of CABI. Since its beginnings as an entomological committee in 1910, it then developed into a Commonwealth organization before becoming a truly international service in agricultural information, pest identification and biological control in the mid 1980s.



EBSCOhost® databases are the most-used, premium online information resources for tens of thousands of institutions worldwide, representing millions of end-users.
Address: 10 Estes Street
Ipswich, MA 01938 USA
Phone: (978) 356-6500
Toll Free: (800) 653-2726 (USA & Canada)
Fax: (978) 356-6565
e-mail: information@ebSCOhost.com



**"BABEŞ –
BOLYAI"
UNIVERSITY
CLUJ -
NAPOCA**



**FACULTY OF
ENVIRONMENTAL
SCIENCE AND
ENGINEERING**



**MINISTRY OF
ADMINISTRATION
AND INTERIOR -
GENERAL
INSPECTORATE
FOR EMERGENCY
SITUATIONS**



**DISASTER
PREPAREDNESS
AND
PREVENTION
INITIATIVE
FOR SOUTH –
EASTERN
EUROPE**



**S.C. ICPE
BISTRITȚA
S.A.**

ENVIRONMENTAL LEGISLATION, SAFETY ENGINEERING AND DISASTER MANAGEMENT

**ELSEDIMA International Conference,
9th edn., Cluj-Napoca, 2012**

Selected papers

SCIENTIFIC COMMITTEE

Prof. Petru Alexe, "Dunărea de Jos" University of Galați, Romania
Dr. MD. Raed Arafat, SMURD Foundation, Romania
Prof. Calin Baci, Babeş-Bolyai University of Cluj-Napoca, Romania
Ioan Balin, PhD, ENVIROSCOPY CH, Switzerland
Acad. Prof. Dan Bălțeanu, Institute of Geography, Romanian Academy, Bucharest, Romania
David Barry, PhD, DLB Environmental, U.K.
Prof. Ioan Bica, Technical University of Civil Engineering, Bucharest, Romania
Prof. Grigore Bozga, "Politehnica" University of Bucharest, Romania
Prof. Philippe Burny, University of Liege, Gembloux, Belgium
Prof. Georgeta Burtică, "Politehnica" University of Timișoara, Romania
Dr. Czako Sándor, CK-Trikolor Consulting Ltd., Hungary

Prof. Gheorghe Damian, Technical University of Cluj-Napoca - University Centre of Baia-Mare
 Prof. Camelia Drăghici, Transilvania University of Braşov, Romania
 Dr. Giuseppe Etiope, Istituto Nazionale di Geofisica e Vulcanologia – INGV, Roma, Italy
 Prof. Gheorghe Gamaneci, "Constantin Brâncuşi" University of Târgu-Jiu, Romania
 Prof. Maria Gavrilescu, "Gheorghe Asachi" Technical University of Iasi, Romania
 Prof. Ioana Ionel, "Politehnica" University of Timişoara, Romania
 Francesco Italiano, PhD, Istituto Nazionale di Geofisica e Vulcanologia – INGV, Palermo, Italy
 Col. Marcel Sorin Lucaciu, General Inspectorate for Emergency Situations, Romania
 Prof. Matei Macoveanu, "Gheorghe Asachi" Technical University of Iasi, Romania
 Prof. Gheorghe Maria, "Politehnica" University of Bucharest, Romania
 Prof. Valer Micle, Technical University of Cluj-Napoca, Romania
 Doina Nicolae, PhD, National Institute of R&D for Optoelectronics, Romania
 Assoc. Prof. Adrian Oros, University of Agricultural Science and Veterinary Medicine, Cluj-Napoca
 Prof. Vasile Oros, Technical University of Cluj-Napoca - University Centre of Baia-Mare, Romania, Faculty of Mineral Resources and Environment, Romania
 Prof. Alexandru Ozunu, Babeş-Bolyai University of Cluj-Napoca, Romania
 Prof. Valentin Petrescu, "Lucian Blaga" University, Sibiu, Romania
 Prof. Elena Petrova, Lomonosov Moscow State University, Russia
 Prof. Ákos Rédey, "Pannonia" University, Veszprem, Hungary
 Assoc. Prof. Cristina Rosu, Babeş-Bolyai University of Cluj-Napoca
 Prof. Florin Stătescu, „Gheorghe Asachi” Technical University of Iasi, Romania
 Kerstin Stebel, PhD, Norwegian Institute for Air Research, Norway
 Prof. Sabina Ştefan, University of Bucharest, Romania
 Prof. Carmen Teodosiu, „Gheorghe Asachi” Technical University of Iasi, Romania

ORGANIZING COMMITTEE

President:

Prof. Alexandru OZUNU

Members:

David Barry, PhD, DLB Environmental, UK
 Col. Lucaciu Marcel Sorin, General Inspectorate for Emergency Situations, Ministry of Administration and Interior
 Prof. Calin Baci, Babeş-Bolyai University of Cluj-Napoca
 Assoc. Prof. Liviu Muntean, Babeş-Bolyai University of Cluj-Napoca
 Assoc. Prof. Cristina Rosu, Babeş-Bolyai University of Cluj-Napoca
 Török Zoltán, PhD, Babeş-Bolyai University of Cluj-Napoca
 Nicoleta Brisan, PhD, Babeş-Bolyai University of Cluj-Napoca
 Cristina Modoi, PhD, Babeş-Bolyai University of Cluj-Napoca
 Reti Kinga, PhD, Babeş-Bolyai University of Cluj-Napoca
 Malina Petrescu - Mag, Babeş-Bolyai University of Cluj-Napoca
 Delia Gligor, PhD, Babeş-Bolyai University of Cluj-Napoca
 Dan Costin, PhD, Babeş-Bolyai University of Cluj-Napoca
 Viorel Arghius, PhD, Babeş-Bolyai University of Cluj-Napoca
 Camelia Botezan, PhD, Babeş-Bolyai University of Cluj-Napoca
 Lucrina Stefanescu, PhD, Babeş-Bolyai University of Cluj-Napoca
 Nicolae Ajtai, PhD, Babeş-Bolyai University of Cluj-Napoca
 Stezar Ileana Codruţa, PhD, Babeş-Bolyai University of Cluj-Napoca
 PhD student Horaţiu Ştefănie, Babeş-Bolyai University of Cluj-Napoca
 PhD student Emil Roman, Babeş-Bolyai University of Cluj-Napoca

Contents

- Dumitrașcu I., 2013 Method validation for phthalate analysis from water. AES Bioflux 5(2):63-69.
- Chițu E., Giosanu D., Mateescu E., 2013 Seasonal and annual extreme temperature variability and trends of the latest three decades in Romania. AES Bioflux 5(2):70-88.
- Feodorov V., 2013 Ecological landfills for municipal waste. AES Bioflux 5(2):89-99.
- Mihai F.-C., Apostol L., Ursu A., Ichim P., 2013 Landfills as anthropogenic landforms in urban environment from Neamț county. AES Bioflux 5(2):100-108.
- Pop D., Micle V., Boda D. M., 2013 The contamination of the soil with petroleum products and identification of environmental risks. AES Bioflux 5(2):109-115.
- Rusu O. A., Zeic A., Pop C., Gurzău E. S., 2013 Variations in human exposure in car battery industry. AES Bioflux 5(2):116-123.
- Bungărdean C. M., Soporan V. F., Salanță O. C., 2013 Considerations on the life cycle and recycling of aluminum beverages cans. AES Bioflux 5(2):124-134.
- Cordoș A. A., Ristoiu D., 2013 Heavy metals inside and in the vicinity of contaminated sites - case study of industrial and municipal waste landfills Bistrița. AES Bioflux 5(2):135-140.
- Deaconu L.-T., Ajtai N., Torok Z., Ozunu A., 2013 Sulphur dioxide emissions modeling and monitoring, originating from a large combustion power plant. AES Bioflux 5(2):141-147.
- Gheorghiu A.-D., Nour E., Ozunu A., 2013 Critical infrastructure protection in Romania. Evolution of the concept, vulnerabilities, hazards and threats. AES Bioflux 5(2):148-157.
- Kozma Kis E.-E., Deaconu L.-T., Roman E., Ștefănescu L., Meltzer M., Pop C., Ozunu A., 2013 Assessment of population awareness and preparedness level regarding the environmental emergency situations. AES Bioflux 5(2):158-165.
- Modoi O.-C., Popița G. E., Mihăiescu R., 2013 Alternative decisions for municipal solid waste management in Cluj-Napoca area. AES Bioflux 5(2):166-177.
- Olah (Vasile) A., Stezar I.-C., Torok Z., Ozunu A., 2013 Soil remediation comparative analysis on two historically contaminated industrial sites in Romania. AES Bioflux 5(2):178-188.
- Oprea I. C., Malschi D., Muntean L. O., 2013 The biomonitoring and bioremediation of toxic water resulting from municipal waste storage of Somârd, Sibiu county. AES Bioflux 5(2):189-196.
- Murar M., Brad S., Suciu L., Pop C., 2013 Enhanced control architecture for achieving effective resources management within waste water treatment solution usage. AES Bioflux 5(2):197-207.
- Salanță O. C., Soporan V. F., Bungărdean C. M., 2013 Considerations on the recovery and recycling of plastic materials from computer equipment in Romania. AES Bioflux 5(2):208-214.
- Pricop F., Scarlat R., Moga I. C., Jianu N., 2013 The impact of textile finishing biotechnologies and of the wastewater treatment on environmental quality. AES Bioflux 5(2):215-225.
- Suciu A., Rusu T., 2013 Methods and equipments used in the monitoring of the atmospheric pollutants in urban environment. AES Bioflux 5(2):226-233.
- Dărab C., Crișan R., Vlad G., Nașcu I., 2013 An approach for industrial wastewater treatment process. AES Bioflux 5(2):234-238.
- Burghilea A., Bulimaga C., Kuharuk E., Mogâldea V., 2013 Impact of waste on soil cover in Chișinău urban ecosystem. AES Bioflux 5(2):239-244.