

Volume 24, No. 1, March 2015

**“VASILE ALECSANDRI” UNIVERSITY
OF BACAU**

**SCIENTIFIC STUDIES
AND RESEARCHES
SERIES BIOLOGY**



ALMA MATER BACAU PUBLISHING HOUSE

ISSN: 1224-919 X

CHIEF EDITOR

Maria PRISECARU

University „Vasile Alecsandri” of Bacau, Faculty of Science, Department of Biology, e-mail: prisecaru_maria@yahoo.com

EDITORIAL BOARD (in alphabetical order)

Nicoleta BĂDĂLUTĂ, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: nicoletadadaluta@yahoo.com

Daniela NICUȚĂ, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: dana_nicuta@yahoo.com

Diana Elena MAFTEI, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: diesel24ro@yahoo.com

Dumitra RĂDUCANU, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: dumitra_manea@yahoo.com

Ionuț STOICA, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: ionut_stoica23@yahoo.com

Roxana VOICU, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: roxana_voicu2002@yahoo.com

TEHNICAL EDITORIAL STAFF (in alphabetical order)

Tina Oana CRISTEA, Vegetable Research and Development Station, Bacau, e-mail: tinaoana@yahoo.com

Nadia MORĂRAȘU, „Vasile Alecsandri” University of Bacau, Faculty of Letters, English Department, e-mail: nmorarasu@yahoo.com

Florian PRISECARU, Siret River Water Basin Administration, Bacau City, Romania, e-mail: prisecaru_florin@hotmail.com

EDITORIAL ADVISORY BOARD (in alphabetical order)

Neculai BARABAȘ, The Complex of Biological Science Museum, e-mail: muzstnatbc@yahoo.com

Fernando BRANCA, University of Catania, Department of Horticulture and Agroalimentary Technology, Catania, Italy, e-mail: fbranca@unict.it

Klaus Werner BATTES, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: klaus_battes@yahoo.com

Dumitru COJOCARU, „Al. I. Cuza” University Iasi, Department of Biochemistry and Molecular Biology, e-mail: cdumitru@oaic.ro

Maria CĂLIN, Vegetable Research and Development Station, Bacau, e-mail: scbac@legumebac.ro

Raman DANG, Al-Ameen College of Pharmacy, Department of Pharmacognosy & Phytochemistry, Bangalore, India, e-mail: dangraman2000@yahoo.co.in

Henrique FONSECA, University of Aveiro, Department of Biology, Aveiro, Portugal, e-mail: hfonseca@bio.ua.pt

Diego GARCIA de JALÓN, Polytechnical University of Madrid, Department of Forest engineering, Madrid, Spain, e-mail: subdirector.eeu.montes@upm.es

Gogu GHIORGHITĂ, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: gogugen@yahoo.com

Hamide GUBBUK, Department of Horticulture, Agricultural Faculty, Akdeniz University, 07059 Antalya, Turkey, e-mail: gubbuk@gmail.com

Martine GUERIN, University of Orleans, Department of Neurobiology, Orleans France, e-mail: martine.guerin@univ-orleans.fr

Tobias HEVOR, University of Orleans, Department of Neurobiology, Orleans France, e-mail: tobias.hevor@univ-orleans.fr

V.I. HUKKERI, Nargund College of Pharmacy, Department of Pharmacognosy and Phytochemistry, Bangalore, India, e-mail: vihukkeri@yahoo.co.in; vihukkeri@gmail.com

Liga LEPSE, Pure Horticultural Research Station Abavasiela 2, Letonia, e-mail: liga.lepse@puresdis.lv

Lotus MESTER, University of Bucharest, Faculty of Biology, e-mail: ionelclaudiu@yahoo.com

Mehmet OZSOZ, Ege University, Faculty of Pharmacy, Analytical Chemistry Department, Izmir, Turkey, e-mail: ozsozsy@yahoo.com

Giambattista POLIGNANO, Istituto di Genetica Vegetale Consiglio Nazionale delle Ricerche (CNR), Via G. Amendola 165/A 70126 Bari, Italy, e-mail: gianbattista.polignano@igv.enr.it

Jaime Tomas PROHENS, Institute for Conservation and Improvement of Valencian Agrodiversity (COMAV) Polytechnic University of Valencia Camino de Vera s/n 46022 Valencia, Spain, e-mail: jprohens@btc.upv.es

Laszlo RAKOSY, University „Babeș-Bolyai”, Cluj Napoca, e-mail: laszlorakosy@hasdeu.ubbcluj.ro

Jani SOKRAT, Agricultural Technology Transfer Centre of Lushnje, Rr. „Zonel Baboçi”, Pall. „Ferrari”, Seksioni A. 7 Tirana, Albania, e-mail: sokratjani@yahoo.com

Ursula STANESCU, University of Medicine and Pharmacies Iassy, Department of Pharmacognosy, e-mail: ursula_stanescu@yahoo.com

Veronica STOIAN, University of Bucharest, Faculty of Biology, e-mail: vstoian@botanic.unibuc.ro

Ioan Viorel RATI, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, e-mail: ratiioanviorel@yahoo.com

Ștefania SURDU, Biological Research Institute Iasi, e-mail: surdustefania@yahoo.com

Ionel TABACARU, Institute of Speology „Emil Racoviță” Bucharest, e-mail: igtabacaru@yahoo.com

Constantin TOMA, University „Al. I. Cuza” Iasi, Department of Plant Biology, e-mail: ctoma@uaic.ro

Leonid VOLOSCIUC, Institute for plant Protection and Ecological Agriculture, Republic of Moldova, Chișinău, e-mail: volosciuc@netscape.net

EDITORIAL OFFICE ADDRESS

„Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, Marasesti Street, no. 157, Bacau, Romania
Phone: ++40-234-542411, tel./ fax ++40-234-571012, e-mail: www.ub.ro; e-mail: stiinte@ub.ro

Print ISSN: 1224-919 X

el ISSN: 2457-5178

This number was printed in March 2015 in an edition of 100 copies

CORRESPONDENCE ADDRESS

Ionuț STOICA, „Vasile Alecsandri” University of Bacau, Faculty of Science, Department of Biology, Marasesti Street, no. 157, Bacau, Romania, e-mail: ionut_stoica23@yahoo.com

Dear Colleagues and Friends,

ROMANIA is characterized by a high biological diversity, both at ecosystem and species level. Romanian territory comprises, in fairly equal proportions, three main geographical units: plain, hill and mountain. Due to their various soil, climatic and hydrological conditions, 52 eco-regions in a variety of terrestrial and aquatic ecosystems are differentiated in the coast area and seashore of the Black Sea, the steppe, forest steppe, hill, mountain, lakes, water streams and grasslands, dry lands or wet ones, including those specific to the Danube Delta. Romania's natural heritage is unique, comprising the Carpathian Mountains (65% of the Carpathian eco-region), as well as one of the most important wet areas in Europe: the Danube Delta (the second in size from Europe).

What is more, 30% of the carnivore species from Europe live in Romania (60% of the brown bear population and 40% of the wolf population) in about 300.000 ha of virgin forests. Large areas of alpine pastures, caves, and a complex network of rivers contribute to the country's high diversity.

Another extremely important aspect that is worth mentioning is the fact that Romania represents the junction of several regions of great biodiversity, such as the arctic, the alpine, the West and Central European, the Pannonic, the Balkan and sub-Mediterranean regions.

The landscape also harbours great variety. This fact, together with the numerous influences at many levels, lead to a vast flora consisting of more than 3700 plant species, as well as a fauna of 32 802 species. Among these species, there are many endemic and sub-endemic species, as well as about 1000 animal species that may be only encountered in Romania. Moreover, species that could be once found in many parts of Europe live only in Romania nowadays.

Dear colleagues and friends, after this short presentation of the beauties of my country, my great pleasure is to introduce to you Volume 24, the latest edition of our journal, SCSB, with its two issues: No.1, issued in March, comprising 17 original papers and No.2 issued in May with 14 original papers.

The works dedicated to plant biology studies comprise scientific papers of various approaches, starting with the ecological aspects, the assessment of germoplasm sources, biological methods in plant protection, the development of some industrial processes to maintain both the quality of marketed vegetables and their economic benefits, to apply certain advanced biological techniques meant to underline the biomolecular structure and the major processes of life.

Basic understanding in the biology field is more and more advanced every year. With the rapid pace of scientific development it may not be that long before some of our intriguing and scientifically challenging dreams become reality, but it should be recognized that there are still humans behind all the technology.

SCSB journal is devoted to the international advancement of organized knowledge covering all aspects of Biological Sciences.

The revue „Scientific Studies and Research – Series Biology” accepts three types of articles for publication:

- General review articles (maximum 8 pages) to underline the important areas of Biology.
- Research articles (4-6 pages) to popularize new and emerging results obtained in the above mentioned Biology subjects.
- Articles with technical focus (4-6 pages) to highlight the existing and new emerging techniques suitable for Biology.

The Scientific Advisory Board that assures the review of the articles comprises nationally and internationally recognised personalities in our field: at national level (12 members) and from abroad (15 members).

Our peer-reviewed articles are written by internationally respected scientists, researchers and practitioners with exceptional results.

We consider that our scientific journal brings an important contribution to the knowledge of Romanian and international biological research. A quality journal is useful so far as it may be known in the scientific research fields, and this depends largely on the quality of its published papers.

An important objective is to collaborate with scientists well known internationally, whose work and advice can help promote our scientific journal. It gives us great pleasure to welcome those who have agreed to join us and to thank them for their valuable time. Our deep gratitude is offered to the reviewers, without whose work which it would have been impossible for our scientific journal to reach the current stage of development.

*Finally, I would like to thank all the authors for agreeing to publish their invaluable work in our journal. We are expecting, by all means, other collaborators from our country and from other countries, to honor us with original papers in order to bring our contribution to all areas of great interest to human life, belonging to **BIOLOGY**.*

I hope this volume will add yet another piece to the complex and exciting puzzle of science and development.

More details about our journal can be found web address: <http://pubs.ub.ro/scsb>.

*Maria PRISECARU
Editor in chief*

CONTENTS

Original Papers

RUKIE AGIC, GORDANA POPSIMONOVA, ZVEZDA BOGEVSKA, MARGARITA DAVITKOVSKA, AFRODITA IBUSOSKA - Utilization of onion landraces in the Republic of Macedonia for dehydration and chilling	7
RUKIE AGIC, GORDANA POPSIMONOVA, MIRJANA VASIĆ, JELICA GVOZDANOVIĆ VARGA, VIDA TODOROVIC, STEPHAN NEYKOV, ASTRIT BALLIU, ZDRAVKO MATOTAN, LUTVIJA KARIC, MARIA CALIN, JELKA ŠUŠTAR-VOZLIČ, SKENDER KACIU DUKAGJIN ZEKA - Collecting of onion (<i>Allium cepa</i> L.) and leek (<i>Allium porrum</i> L.) landraces in South Eastern Europe for further ex-situ conservation	10
DUMITRA RĂDUCANU, ELENA GOLDAN, VIOREL IOAN RATI, STEVE HENRI VOUNDI OLUGU, IULIANA LAZAR - The use of sewage sludge in agriculture: a swot analysis	18
OANA MARIN, DACIANA SAVA, MANUELA SAMARGIU - Comparison between the macroalgal qualitative structure in Northern and Southern part of the Romanian Black Sea Coast	27
DIANA ELENA MAFTEI, DANIEL IOAN MAFTEI, DAN – IOAN VÂRBAN - Preliminary research on <i>Arnica montana</i> L. provided <i>in vitro</i>	34
MARIA PRISECARU, IONUȚ STOICA, TINA OANA CRISTEA, MARIA CĂLIN, ADRIANA BERTHA DELIU - Assess the risk of mycotoxin contamination in cereals and mixed fodder	38
MARIA CALIN, TINA OANA CRISTEA, SILVICA AMBARUS, CREOLA BREZEANU, PETRE MARIAN BREZEANU, MARIA PRISECARU, IULIANA BARBU, DIANA BARBU - Study of soil diseases in seedling stage of vegetable seed crops	41
DANIELA NICUȚĂ - Cytogenetic observations on <i>in vitro</i> regenerants of <i>Veronica officinalis</i> L.	45
TINA OANA CRISTEA, MARIA PRISECARU, SILVIA AMBARUS, MARIA CALIN, CREOLA BREZEANU, MARIAN BREZEANU, GEORGE FLORIN ȘOVA - Micropropagation of <i>Hypericum perforatum</i> L. using AGNO ₃ to enhance shoot regeneration	52
CREOLA BREZEANU, PETRE MARIAN BREZEANU, TEODOR ROBU, SILVICA AMBĂRUȘ, AURELIA DOBRESCU - Expression of genetic potential of quality indicators in condition of ecological agriculture under the aim of promoting conservation and use of mint germplasm resources	56
MILIAN GURĂU, DANIEL SCORUȘ - Natural hayfields from Ghimeș-Palanca (Bacău County)	60
DANIEL IOAN MAFTEI, DIANA ELENA MAFTEI, MILIAN GURĂU - <i>Campanula serrata</i> in the Natura 2000 ROSCI0047 Nemira Peak Site	65
MILIAN GURAU, ANA SOFRONI - Contributions to the study of <i>Calluna vulgaris</i> thicket from the Trotus River hydrographic basin	74
PETRE MARIAN BREZEANU, CREOLA BREZEANU, SILVICA AMBĂRUȘ, TEODOR ROBU, AURELIA DOBRESCU, TINA OANA CRISTEA, MARIA CALIN - Study regarding the evaluation of a sweet corn local germplasm fund	78
MILIAN GURĂU, SEBASTIAN MUSCALU - Hayfields vegetation from Nemira ridge (Bacău County)	82
DIANA-ELENA MAFTEI - Cytogenetic analyses on several <i>in vitro</i> regenerants of <i>Melissa officinalis</i> L.	87

IOAN VIOREL RAȚI, DUMITRA RĂDUCANU, NICOLETA BĂDALUȚĂ - Research study on the best fertigation solutions for Van Sweet Cherry tree variety using ASFAC BC 04 growth stimulator	92
DIANA-ELENA MAFTEI - Overview on the spectrum of the chromosomal aberrations in lemon balm regenerants provided <i>in vitro</i>	99
IOAN VIOREL RAȚI, DUMITRA RĂDUCANU, NICOLETA BĂDĂLUȚĂ - The determination of the influence of ASFAC BC 04 biostimulator on Stanley plum fruits	104
DANIEL-IOAN MAFTEI, DIANA-ELENA MAFTEI - Several histo-anatomical aspects on the rhizome structure in <i>Rhodiola rosea</i> L.	109
Science News Interspecies RNA Shuffle	112
Upcoming Events	114
Instructions and information for authors	115