STEFAN CEL MARE UNIVERSITY OF SUCEAVA

Journal Food and Environment Safety of the Suceava University

FOOD ENGINEERING

Volume XIII, Issue 1 31 MARCH 2014

Available online http://www.fia.usv.ro/fiajournal

©

Publised by University Publishing House of Suceava

EDITOR-IN-CHIEF:					
Sonia GUTT (AMARIEI)	Ştefan cel Mare University of Suceava, Romania				
EDITORIAL BOARD	Sectan cer ware oniversity or Succava, Romania				
Petru ALEXE	Dunărea de Jos University of Galați, Romania				
Thiery ABRAHAM	Enzymes & Derivates, Bruxelles, Belgium				
Marcel AVRĂMIUC	Stefan cel Mare University of Suceava, Romania				
Şerif BALDIRAN					
,	Amasya University, Amasya, Turkey University of Ljubljana, Slovenia				
Lidija BASA Iulian BOBE	Tyton BioSciences, Darien, USA				
Marija BODROŽA-SOLAROV	University Novi Sad, Institute for Food Technology, Serbia				
János CSAPÓ	Kaposvár University, Faculty of Animal Science, Hungary				
Cristina-Gabriela CONSTANTINESCU (POP)	Ştefan cel Mare University of Suceava, Romania				
Toshiki ENOMOTO	Ishikawa Prefectural University, Nonoichi, Japan				
Dirk FLOTTMAN	Technical University of Aalen, Germany				
José Antonio GABALDÓN HERNÁNDEZ	Catholic University of Murcia (UCAM), Spain				
Robert GRAVANI	Cornell University, Department of Food Science, USA				
Georg GUTT	Ştefan cel Mare University of Suceava, Romania				
Cristina-Elena HREŢCANU	Ştefan cel Mare University of Suceava, Romania				
Ștefania IORDACHE	Valahia University of Târgovişte, Romania				
Heinz – Dieter ISENGARD	Hohenheim University, Germany				
Süleyman KALELI	Sakarya University, Medical Faculty, Department of Medical Biology, Sakarya- Turkey				
Nijole KAZLAUSKIENE	Institute of Ecology of Nature Research Center, Vilnius, Lithuania				
Anna MARAZ	Corvinus Unversity of Budapest, Hungary				
Norbert KREUZINGER	Vienna University of Technology, Institute for Water Quality,				
Noibeit KREUZINGER	Resources and Waste Management, Austria				
Angel MARTINEZ SANMARTIN	Centro Tecnológico Nacional de la Conserva y Alimentación, Murcia, Spain				
Carmen MORARU	Cornell University, Department of Food Science, USA				
Christian NEUSUSS	Technical University of Aalen, Germany				
Regina PROSKUVIENE	Vilnius Pedagogical University, Lithuania				
Peter RASPOR	University of Ljubljana, Slovenia				
Vladimir REŞITCA	Technical University of Moldova, Chisinau - Republic of Moldavia				
Alice ROŞU	Ştefan cel Mare University of Suceava, Romania				
Sorin SABAU	Tokai University, Faculty of Biological Science, Sapporo, Japan				
Osman Kamil SAG	Piri Reis Maritime University, Istanbul, Turkey				
Jurgen SCHRAM	Krefeld University, Germany				
Rodica STURZA	Technical University of Moldova, Chisinau - Republic of Moldavia				
Yarema TEVTUL	Yuriy Fedkovych Chernivtsi National University, Ukraine				
Gagik TOROSYAN	State Engineering University of Yerevan, Armenia				
Never TOROSYAN	CSRO Institute, Yerevan, Armenia				
Yeva TOROSYAN	European Regional Educational Academy, Yerevan, Armenia				
Lester WILSON	Iowa State University, USA				
Igor WINKLER	Yuriy Fedkovych Chernivtsi National University, Ukraine				
Gheorghe ZGHEREA	Dunărea de Jos University of Galați, Romania				

AIMS AND SCOPE

The scientific journal *Food and Environment Safety* is a quarterly publication (4 issues per year) of the Faculty of Food Engineering, Ştefan cel Mare University of Suceava, Romania, that is indexed in the International Databases: Index Copernicus Journals Master List, Ulrich's and Chemical Abstract (CAS). Also, it is acknowledged B+ by the main Romanian funding organization for university and postgraduate research programmes - National University Research Council (CNCSIS).

The purpose of *Food and Environment Safety* journal is to provide a means of rapid publication for significant contributions to the improvement and diversification of specific activities in the field of food engineering, food and environment safety, biotechnologies, chemical engineering, biosensors, agriculture and applied sciences as well. Moreover, the journal assures promotion of research results in the field of food production and, from the nutritional and toxicological point of view, it underlines the importance of applying the best analyzing and control methods for consumer's protection, food technologies, industrial biotechnologies and environment protection as well to increase life quality.

Food Engineering Faculty journal has been published since 2000 like *Analele Universitatii Stefan cel Mare Suceava*, *Sectiunea Colegiul Tehnic (ISSN 1583-2295)*. Between 2002 and 2004 the journal was published biannually like *Analele Universitatii Stefan cel Mare Suceava*, *Sectiunea Inginerie Alimentara* (ISSN 1583-2295), then from 2005 till 2009, it was issued biannually like *ANNALS of Suceava University - Food Engineering* (ISSN 1842-4597), indexed in Index Copernicus data base and acknowledged by the National University Research Council (CNCSIS), Romania. In 2010, the Food Engineering Faculty journal changed its name in *Food and Environment Safety* (ISSN 2068 - 6609).

The cover of the journal was made by Niculai Moroşan.

Available online: http://www.fia.usv.ro/fiajournal
Address for submission, e-mail fiajournal@fia.usv.ro

CIP description of National Library

The scientific journal *Food and Environment Safety* (ISSN 2068 – 6609) is published by University Publishing House of Suceava, Romania.

Mail address of the University Publishing House of Suceava: Stefan cel Mare University, Suceava, Universitatii str. No. 13, 720229, Suceava, Romania

www.usv.ro, http://www.usv.ro/index.php/ro/1/Editura%20USV/238/3/15

Tel: +40 230 216 147, **Fax:** +40 0230 520 080

Editorial contact information:

Faculty of Food Engineering, Stefan cel Mare University, Suceava, Universitatii str., No. 13, 720229, Suceava, Romania.

Phone/Fax: +40 230 520267, www.fia.usv.ro

Editor-in-Chief: Prof. Ph.D,Eng. Sonia GUTT, gutts@fia.usv.ro

Assoc. Prof. Ph.D, Eng. Gabriela CONSTANTINESCU (POP), gabriela.constantinescu@fia.usv.ro

Assoc. Prof. Ph.D Cristina HRETCANU, cristina.hretcanu@fia.usv.ro

Subscription information

- the postal address:

Faculty of Food Engineering, Stefan cel Mare University - Suceava, Universitatii str., No. 13, 720229, Suceava, Romania