

BOOK OF ABSTRACTS

The 1st International Conference on Life Sciences
Section: Food Chemistry, Engineering & Technology



Timișoara, 2018

The 1st International Conference on Life Sciences
Section: Food Chemistry, Engineering & Technology

General Programme

The 1st International Conference on Life Sciences **Section: Food Chemistry, Engineering & Technology**

Thursday, May 24, 2018

09³⁰ - 10⁰⁰ **Registration at the Faculty of Food Engineering**

„Ionel Jianu” Amphitheatre - Faculty of Food Engineering
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara

10⁰⁰ – 10¹⁰ Opening of the Conference
10¹⁰ – 10³⁰ Speech of the Ministry of Environment
10³⁰ – 11⁰⁰ Plenary Lecture PL₁
11⁰⁰ – 11³⁰ Congress Presentation
11³⁰ – 12⁰⁰ Plenary Lecture PL₂

Aula “Iulian Drăcea”
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara

12³⁰ – 14⁰⁰ **Lunch**

RESTAURANT
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara

14³⁰ – 16⁰⁰ Section: Food Chemistry, Engineering & Technology (I)
16⁰⁰ – 16³⁰ Coffee break and Posters
16³⁰ – 17⁴⁵ Section: Food Chemistry, Engineering & Technology (II)
17⁴⁵ – 18⁰⁰ Concluding Remarks and Coffee break

„Ionel Jianu” Amphitheatre - Faculty of Food Engineering
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara

19⁰⁰ - 23⁰⁰ **Dinner**

”Restaurant Senator”
Calea Lugojului 7, Timișoara

Friday, May 25, 2018

10³⁰ – 11³⁰ **- Workshop ASRO**

Faculty of Faculty of Agriculture
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara

Scientific Programme

1st Day – 24 May 2018

The 1st International Conference on Life Sciences

Section: Food Chemistry, Engineering & Technology

*”Ionel Jianu” Amphitheatre - Faculty of Food Engineering
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara*

09³⁰ – 10⁰⁰ Registration at the Faculty of Food Engineering

*Aula ”Iulian Drăcea”
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara*

10⁰⁰ – 10¹⁰ Opening of the Conference

Cosmin Alin Popescu, Rector of the Banat’s University of Agricultural Sciences and Veterinary Medicine “King Michael I of Romania” from Timișoara

10¹⁰ – 10³⁰ Speech of the Ministry of Environment

10³⁰ – 11⁰⁰ **PL₁**: Antibiotic resistance and alternatives - in vitro, ex vivo and in vivo effect of novel antimicrobials and implications on gut health
Nicolae Corcionivoschi, Dr. AFBI

11⁰⁰ – 11³⁰ Congress Presentation

10³⁰ – 11⁰⁰ **PL₂**: The Soil: The future for Life
Michele Sellitto, PhD V., MS BIOTECH S.p.A. Rome, Italy

***RESTAURANT**
Banat’s University of Agricultural Sciences and Veterinary Medicine
“King Michael I of Romania” from Timișoara*

12³⁰ – 14⁰⁰ Lunch

The 1st International Conference on Life Sciences

Section: Food Chemistry, Engineering & Technology

**"Ionel Jianu" Amphitheatre - Faculty of Food Engineering
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timișoara**

14³⁰ – 14⁴⁰ Opening of the Conference: The 1st International Conference on Life Sciences, Section: Food Chemistry, Engineering & Technology
Adrian Riviș, *Dean of the Faculty of Food Processing, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timișoara*

14⁴⁰ – 15¹⁵ **PL₃**: The advent of (nano)biotechnology in contemporary sciences and engineering
Athanasios Salifoglou - *Laboratory of Inorganic Chemistry and Advanced Materials, Department of Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki 54124, Greece.*

**Chaired by: Assoc.Prof. Univ.Dr. Corina Dana Mișcă
Prof.Univ.Dr. Constantin Mateescu**

**"Ionel Jianu" Amphitheatre - Faculty of Food Engineering
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timișoara**

15¹⁵ – 15³⁰ **OC₁**: Antioxidant activity and kinetics of extracts from some leaves used in Transylvanian traditional food products (tilia - *Tilia tomentosa* Moench. and patience dock - *Rumex patientia* L.) by DPPH· method
ZIPPENFENING Simelda Elena, SICOE Gabriela, RĂDULESCU (CORPAȘ) Laura, DUMITRELEA Rodica Gabriela, NISTOR Anca Giorgiana, DAVID Ioan, HĂDĂRUGĂ Daniel Ioan., HĂDĂRUGĂ Nicoleta Gabriela - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" – Timișoara, Calea Aradului 119, Romania*

15³⁰ – 15⁴⁵ **OC₂**: Evaluation of fatty acid profile of "leberwurst" obtained from meat by-products of the pork meat industry
RÎJNOVEANU (TĂTARU) Oana, LUKINICH-GRUIA Alexandra-Teodora, HĂDĂRUGĂ Nicoleta Gabriela, RIVIȘ Adrian- *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" – Timișoara, Calea Aradului 119, Romania*

15⁴⁵ – 16⁰⁰ **OC₃**: Effect of low-nitrite concentration on Romanian consumer preferences for a new parizer pork product
STOICA Maricica, DIMA Cristian-Vasile, COMAN Gigi, ALEXE Petru, MIHALCEA Liliana - *Integrated Center for Research, Expertise and Technological Transfer in Food Industry, Faculty of Food Science and Engineering, Dunarea de Jos University of Galați, Romania*

16⁰⁰ – 16¹⁵ **OC₄**: Addition of Sea-buckthorn and *Thyme* oil extract in feed influenced tissue composition and enhanced growth in Sterlet Sturgeon (*Acipenser ruthenus*)
CREȚU Mirela, DOCAN Angelica, MOGODAN Alina, DEDIU Lorena, PETREA Ștefan Mihai, COADĂ Marian Tiberiu, ANDREI (GURIENCU) Raluca-Cristina. - *Faculty of Food Science and Engineering, Department of Food Science, Food Engineering, Biotechnology and Aquaculture Dunărea de Jos University of Galați, Domnească Street no.47, 800008, Galați, Romania*

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- 16¹⁵ – 16³⁰** **OC₅:** Phenolic Compounds And Vitamins Composition In Medicinal Plants With Potential Anti-Bloating Properties
LUPITU I. Andreea, MOISA Cristian, TOMESCU Daniel, POP Georgeta, COPOLOVICI Dana Maria, COPOLOVICI Lucia, RIVIS Adrian - *Aurel Vlaicu University of Arad, Faculty of Food Engineering, Tourism and Environmental Protection, and Institute of Research-Development-Innovation in Technical and Natural Sciences, 2 Elena Drăgoi St., 310330, Arad, Romania*
- 16³⁰ – 17⁰⁰** **Coffee break and Posters**
- 17⁰⁰ – 17¹⁰** **OC₆:** Haematological status of the Pontic shad, *Alosa immaculata* (Bennet, 1835), during its anadromous spawning migration in Danube
GRECU Iulia, MOGODAN Alina, DOCAN Angelica, DEDIU Lorena, IONESCU Tudor, CRISTEA Victor. - *Faculty of Food Science and Engineering, University "Dunarea de Jos" of Galati (ROMANIA)*
- 17¹⁰ – 17²⁰** **OC₇:** Kinetics on the DPPH· reaction with hydroalcoholic extracts from various pomegranate parts
SICOE Gabriela, OPRINESCU Claudia Izabela, GOLEA Giulia Mădălina, RIVIŞ Adrian, HĂDĂRUGĂ Nicoleta G. - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" – Timișoara, Calea Aradului 119, Romania*
- 17²⁰ – 17³⁰** **OC₈:** Antimicrobial Compounds of *Anethum graveolens* and Their Efficacy in Ricotta Safety Enhancement
JURCA PAVEN Claudia, **RADU Dana**, POPESCU Iuliana, COCAN Ileana, ALEXA Ersilia, RIVIŞ Adrian - *Aurel Vlaicu" University of Arad(ROMANIA)*
- 17³⁰ – 17⁴⁰** **OC₉:** Preliminary research regarding the mineral intake of walnut kernel
RADA Maria, BERBECEA Adina, ALDA Liana Maria, COZMA Antoanela, ZIPPENFENING Simelda Elena, NEMEŞ Olivia Florena, ALDA Simion, **GOGOAŞĂ Ioan** - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" – Timișoara, Calea Aradului 119, Romania*
- 17⁴⁰ – 17⁵⁰** **OC₁₀:** Influence of the added sugar type on some chemical characteristics of sea buckthorn (*Hippophae rhamnoides* L.) jam
DUMBRAVĂ Delia-Gabriela, DOANDEŞ Maria-Cristina, BOROZAN Aurica-Breica, RABA Diana-Nicoleta, POPA Viorica-Mirela, DRUGĂ Mărioara, MOLDOVAN Camelia - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" – Timișoara, Calea Aradului 119, Romania*
- 17⁵⁰ – 18¹⁰** **Posters and Coffee break**
- 18¹⁰ – 18²⁰** **Concluding Remarks**

POSTERS

- P₁** Correlation between Biophysical Characteristics in Case of some Exotic Fruit Compotes
COZMA Antoanela, VELCIOV Ariana, POPESCU Sofia, CRETESCU Iuliana, LALESCU Dacian, PETCU Mihaela - *Faculty of Food Engineering, Banat University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania”, Timisoara, Romania*
- P₂** Appreciation of Nutritional Quality for Some Dairy Products Using Statistical Modelling
VELCIOV Ariana- Bianca, RIVIȘ Adrian, LALESCU Dacian, POPESCU Sofia - *Faculty of Food Engineering, Banat University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania”, Timisoara, Romania*
- P₃** Effect of Horseradish on Quality and Shelf Life of Milk Beverages
ISTRATI Daniela Ionela, CONSTANTIN Oana Emilia, PAVALASC Cristina, VIZIREANU Camelia - *Food Science, Food Engineering, Biotechnology and Aquaculture Department, Faculty of Food Science and Engineering, “Dunarea de Jos” University of Galati, Romania*
- P₄** Effect of Tropical Spices on the Pork and Turkey Minced Meat Stability
CONSTANTIN Oana Emilia, ISTRATI Daniela Ionela, CRACIUN Florina, VIZIREANU Camelia - *Food Science, Food Engineering, Biotechnology and Aquaculture Department, Faculty of Food Science and Engineering, “Dunarea de Jos” University of Galati, Romania*
- P₅** Study on the Cider-Making Technology from Apples Grown in Romania
BOGDANESCU Dana, BORDEAN Despina-Maria, POIANA Mariana-Atena, TATARU Oana, RIVIS Adrian - *Faculty of Food Engineering, Banat University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania” Timisoara, Romania*
- P₆** Influence of different dietary protein levels and feeding frequencies on growth performance, body composition and welfare of Nile tilapia, *Oreochromis niloticus* reared in a recirculating aquaculture system
ANDREI (GURIENCU) Raluca Cristina, CRISTEA Victor, CREȚU Mirela, MOGODAN Alina, DOCAN Angelica, DEDIU Lorena - *“Dunărea de Jos” University of Galați, Faculty of Food Science and Engineering, Department of Food Science, Food Engineering, Biotechnology and Aquaculture;*
- P₇** Determination of antioxidant capacity in some types of honey from Romania
BLAGA (COSTEA) Giorgiana-Valentina, VIZIREANU Camelia - *„Dunărea de Jos” University of Galați, Faculty of Food Science and Engineering, Galați, Romania*
- P₈** The Comparative Properties of Poly-Flower And Manuka Honey With Sea Buckthorn Juice
MOLDOVAN Camelia, BORDEAN Despina Maria, BOROZAN Aurica-Breica, POPA Viorica-Mirela, RABA Diana-Nicoleta, DRUGĂ Mărioara, CĂTANĂ Cristina Sorina, DUMBRAVĂ Delia-Gabriela - *Faculty of Food Engineering, Banat University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania” Timisoara, Romania*

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- P₉** Induced Breeding, Embryonic and Larval Development of Calico Gold Fish (*Carassius auratus*)
NICA Aurelia, POPESCU Adina, VASILEAN Ion, IBANESCU Daniela-Cristina, CRETU Mirela – *“Dunărea de Jos” University of Galați, Romania*
- P₁₀** Effect of body mass on the standard metabolic rate (SMR) and routine metabolic rate (RMR) of young of the year of sterlet sturgeon and bestbeluga hybrid
DEDIU Lorena, ANDREI (GURIENCU) Raluca Cristina, CRISTEA Victor, CREȚU Mirela, DOCAN Angelica, MOGODAN Alina, GRECU Iulia – *“Dunărea de Jos” University of Galați, Faculty of Food Science and Engineering, Department of Food Science, Food Engineering, Biotechnology and Aquaculture*
- P₁₁** Evaluation of dietary and functional sorbet innovative formulas, on their content in bio active compounds
Cosmina M. BOGĂTEAN, Maria TOFANĂ, Emil RACOLȚA, Carmen R. POP, Floricuța RANGA, Elena S. BIRIȘ-DORHOI - *Faculty of Food Science and Technology, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania*
- P₁₂** Induced breeding of *H. molitrix* and histological observations on the development stage of oocyte
POPESCU Adina, CREȚU Mirela, NICA Aurelia, IBĂNESCU Daniela Cristina - *„Dunarea de Jos” University of Galati (Romania)*
- P₁₃** Use of Hematological Parameters as Assessment Tools in Fish Health Status
DOCAN Angelica, GRECU Iulia, DEDIU Lorena - *Faculty of Food Science and Engineering, “Dunarea de Jos” University of Galati (Romania)*
- P₁₄** Properties of the emulsions formulated with soy protein isolate
TOMA Oana, NISTOR Oana - Viorela, ANDRONOIU Doina Georgeta, BOTEZ Elisabeta - *F Food Science and Engineering Faculty, „Dunarea de Jos” University of Galati, Romania*
- P₁₅** Natural vegetable juices – a valuable source of antioxidant compounds
MOIGRADEAN Diana, ALDA Liana-Maria, GOGOASA Ioan, MANGU Nicolae-Adrian, POIANA Mariana - Atena, - *Faculty of Food Engineering, Banat University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania” Timisoara, Romania*
- P₁₆** The Action of Digestive Enzymes on the Soluble Dietary Fiber Fraction of Thermally Processed Wheat
CAPRITA Adrian, CAPRITA Rodica - *Faculty of Food Engineering, Banat University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania” Timisoara, Romania*

ORAL PRESENTATIONS

The 1st International Conference on Life Sciences
Section: Food Chemistry, Engineering & Technology

The advent of (nano)biotechnology in contemporary sciences and engineering

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Social demand for advanced technological tools useful in the development of safe food, clean environment, sound agricultural practices leading to high quality food production, as well as risk assessment and diagnosis of diseases linked to plants, animals and humans, has prompted an interdisciplinary quest of approaches in research and industrial development. In the pursuit of such achievements, knowledge of basic and applied sciences and engineering fields is essential in collaboratively promoting research leading to tangible and applied results. From agricultural practices and agrofood production, to plant and crop improvement in quality and resistance to environmental pressure challenges, plant and animal (patho)physiology, as well as management of resources linked to agrarian and industrial processes entering food stuff production in line with natural product utilization, multidisciplinary contributions are required to advance new ideas toward products that ameliorate human livelihood. Poised to enter such a multidisciplinary field, we have embarked on a multilateral quest of issues, combining biological inorganic chemistry and engineering, molecular biology, medicine and bioinformatics. To that end, design and development of synthetic hybrid metal-organic materials [1,2], arising as potential differentiating factors in cellular physiology and therapeutics in diseases, has propelled research into natural antioxidants encapsulated in appropriately designed nanoparticles targeting antimicrobial processes, enhancement of antioxidant defense against oxidative stress in neurodegenerative diseases [3,4], adipogenesis linked to antidiabetic candidate metallo drugs, and even new metallofactors acting as signaling biomarkers [5], capable of inducing cellular differentiation with beneficial consequences to disease (cancer, diabetes, neurodegeneration). Further elaboration of materials technologies based on organic or hybrid metal-organic synthons-precursors has formulated the framework for further development of 3D printing technologies targeting biocompatible materials linked to microfluidics, relevant to human (patho)physiologies linked to biomedical applications, while concurrent research into the role of low molecular mass subcellular molecules led to the development of bioinspired modeling of nanonetworks, thereby gaining significant insight into molecular communications [6]. The collective effort pertains to fundamental research with multifaceted repercussions, targeting plant-animal-human theranostics, thereby promoting systems biology on processes involving metal cofactors in cellular (patho)physiologies and merit into multidisciplinary molecular engineering in the future.

Literature

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OC₁

Antioxidant activity and kinetics of extracts from some leaves used in Transylvanian traditional food products (tilia - *Tilia tomentosa* Moench. and patience dock - *Rumex patientia* L.) by DPPH· method

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Leaves of tilia (*Tilia tomentosa* Moench.) and patience dock (*Rumex patientia* L.) are two of the specific materials used for preparing of some Transylvanian traditional food products such as various types of rolls. They have valuable nutritional and antioxidant properties, due to the presence of flavonoids, flavonoid glycosides, and even some phenolic anthraquinone derivatives.

The aim of this study was to evaluate the antioxidant activity and kinetics of the raw tilia and patience dock leaf ethanolic extracts by DPPH· (2,2,-diphenyl-1-picryl-hydrazyl) method. Extracts were obtained at room temperature with ethanol 96% and water for 24 hours. The reaction of DPPH· with antioxidant compounds from extracts was spectrophotometrically monitored for five minutes at 517 nm. The antioxidant activity was in the range of 87.5 – 91.2 % for tilia extracts and 40.1 – 85.2 % for patience dock extracts. The best values were obtained for extracts obtained with concentrated ethanol. Kinetics of DPPH· reaction in the presence of antioxidant compounds-containing extracts was determined for two important time ranges having pseudolinear variation of the DPPH· concentration, which was determined using a standard curve. For the first range up to 80 s, the DPPH· mean reaction rates have values significantly higher than those corresponding to the second range of 0.2 – 0.5 μM/s for tilia extracts and 0.1 – 0.2 μM/s for patience dock extracts, in comparison with those from the second interval, where values were in the range of 0.01 – 0.07 μM/s. Tilia leaves extracts were the most valuable raw materials for Transylvanian traditional food products from the antioxidant activity point of view. However, all studied leaf extracts have antioxidant properties resembling with the standard solution of propyl gallate of 1 mM for tilia extracts and a standard solution of *tert*butyl-hydroxy-anisol for patience dock extracts.

Keywords: antioxidant activity, kinetics, DPPH· method, tilia, patience dock, Transylvanian traditional food

OC₂

Evaluation of fatty acid profile of “leberwurst” obtained from meat by-products of the pork meat industry

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Lipids, along with other nutritional principles, have entered into the composition of living matter since the beginning of life on Earth. These first forms of lipids have evolved along with animal and plant species, leading to various forms of vegetable and animal fat used by ancient humans. Food lipids improve their sensory properties and lipid-soluble vitamins ensure their uptake by gastrointestinal tract. Since omega-3 and omega-6 fatty acids are essential in growth and development throughout the lifecycle, they should be included in daily diets. The fatty acids profile of food products in the pork industry depends heavily on the ingredients used to make them, including those not derived from the main source.

This study was conducted to analyze the profile of fatty acids present in a meat product such as “leberwurst” made from by-products of the meat pork industry. For the evaluation of the lipid profile, derivatization and chromatographic gas analysis coupled with mass spectrometry (GC-MS) were used. The most concentrated fatty acids were monounsaturated compounds, with values in the range of 37.3-39.9% as was revealed by GC-MS for the fatty acid methyl ester derivatives. Similar content of saturated fatty acids were determined (36.4-37.8%), while the content of polyunsaturated fatty acids was lower than half (13.7-15.2%).

Keywords: fatty acid profile, meat by-product, leberwurst, gas chromatography-mass spectrometry

OC₃

Effect of low-nitrite concentration on Romanian consumer preferences for a new parizer pork product

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This study aimed to investigate the effect of reduced nitrite concentration (55 mg nitrit / kg meat) on microbiological, sensorial properties, storage stability and the evaluation of the Romanian consumer's acceptance for a new parizer pork product. Microbiological tests indicated that the number of colonies is within normal limits ($1 \cdot 10^4$ NTG \cdot g⁻¹). The low-nitrite cured sample presented color and sensorial stability during 21 days of the storage. Sensory evaluation relieved no significant difference between aroma and texture. In this context, our product was evaluated as a good option in order to obtain new meat products due to the positively consumers reaction. This study is an opportunity for the meat producers to improve consumers' confidence in the processed meat industry.

Keywords: nitrite, pork parizer, consumer acceptance, healthy meat product.

OC₄

Addition of Sea-buckthorn and Thyme oil extract in feed influenced tissue composition and enhanced growth in Sterlet Sturgeon (*Acipenser ruthenus*)

CREȚU Mirela^{1*}, DOCAN Angelica¹, MOGODAN Alina¹, DEDIU Lorena², PETREA Ștefan Mihai¹, COADĂ Marian Tiberiu¹, ANDREI (GURIENCU) Raluca-Cristina¹

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The effect of dietary addition in the feed of Sea-buckthorn and Thyme oil was studied for juvenile of sterlet sturgeon (*Acipenser ruthenus*). Fish, with an initial weight of 27.44±2.59 g, were randomly distributed in the rearing units of a Recirculating Aquaculture System (RAS) in order to create for experimental variants, as follows: V1-Control group (where fish received only commercial feed with 54% protein content and crude fat of 15 %), V2 – commercial feed supplemented with 1% Sea buckthorn/kg feed, V3 – 1% Thyme/kg feed and V4 – 1% Seabuckthorn and Thyme/kg feed. Fish were fed with the tested diets for 38 days. At the end of the trial, the best SGR and FCR values were recorded in the experimental variants where the feed additives were added, with higher values in V4 variant. In terms of the biochemical composition of tissues, statistical differences (p<0.05) were found in the protein, fat, moisture and gross energy content and no significant differences (p>0.05) in the ash content. Taking into consideration the obtained technological parameters, it can be concluded that addition of these two phytobiotics improved the growth performance and tissue composition with better results in experimental variant where the mixture between seabuckthorn and thyme was added.

Keywords: Sea-buckthorn, Thyme, Sterlet Sturgeon, growth performance, tissue composition.

Acknowledgments. This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS/CCCDI – UEFISCDI, project number PN-III-P2-2.1-BG-2016-0417, within PNCDI III.

**Phenolic Compounds And Vitamins Composition In Medicinal Plants With
Potential Anti-Bloating Properties**

**LUPITU I. Andreea^{1,2*}, MOISA Cristian^{1,2}, TOMESCU Daniel¹, POP Georgeta²,
COPOLOVICI Dana Maria¹, COPOLOVICI Lucian¹, RIVIS Adrian²**

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In plants, phenolic compounds are natural substances derived from secondary metabolites considered to have an important role in growth and reproduction, also providing protection against pathogens. The phenolic composition of selected medicinal plants: *Foeniculum vulgare*, *Acorus calamus*, *Carum carvi*, *Pimpinella anisum* and *Origanum vulgare* have been selected in order to establish the highest content of biological active compounds. Ethanolic and aqueous extracts have been obtained, and their phenolic content, antioxidant activity and the chemical composition were determined. The results indicate that obtained extracts have had a remarkable content of phenolic content in range of 674-6800 mg GAE/L, an excellent antioxidant activity, with a significant percent of inhibition which varied between 34.1 and 80.3 %. Twelve phenolic compounds and two vitamins have been determined by ultra high-performance liquid chromatography. Ethanolic and aqueous extracts obtained from *Foeniculum vulgare*, *Acorus calamus*, *Carum carvi*, *Pimpinella anisum* and *Origanum vulgare* could replace synthetic food additives, with possible usage in novel functional food.

Keywords: Antioxidant activity, medicinal plants, phenolic compounds.

Acknowledgements: Some of the equipment used in this study has been provided by the European Commission and the Romanian Government (project POSCCE 621/2014).

OC₆

Haematological status of the Pontic shad, *Alosa immaculata* (Bennet, 1835), during its anadromous spawning migration in Danube

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In its life cycle, the migrating anadromous Pontic shads (*Alosa immaculata* Bennet, 1835) from the Danube-Black Sea area interact with both freshwater and marine saltwater environments, triggering the activation of regulating mechanisms that enable them to cope with the environmental changes. In order to provide basic information for the conservation of the species, new findings regarding the biology of the Pontic shad that could explain the regulation of the internal environment are considered necessary. As one of the most active components in maintaining the organism homeostasis, the blood exhibits physiological variations with ecological relevance in response to external changes. This paper introduces the first data, to our knowledge, about the haematological profile of this species during upstream migration in Danube River. The intervals found for the haematological parameters were: red blood cells count (RBCc) 1.74÷3.82 ($\times 10^6$ cells/ μ L), haemoglobin (Hb) 11.76÷16.10 (g/dL), haematocrit (Ht) 48.00÷68.00 (%), mean corpuscular volume (MCV) 154.45÷298.47 (fL), mean corpuscular haemoglobin (MCH) 38.32÷73.16 (pg), mean corpuscular haemoglobin concentration (MCHC) 15.14÷28.14 (g/dL) and white blood cells count (WBCc) 13.52÷40.04 ($\times 10^3$ cells/ μ L). The high haemoglobin content could explain the adaptive mechanism of the species in the respiratory stress caused by upstream swimming effort on long distances. These values represent helpful references in further physiological studies concerning variations in the environment or level of activity (swimming, spawning migration, health status) of this vulnerable fish that has a great ecological importance besides its high economic value.

Keywords: haematological parameters, *Alosa immaculata*, upstream migration, respiratory stress

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OC₇

Kinetics on the DPPH· reaction with hydroalcoholic extracts from various pomegranate parts

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In the present study the antioxidant activity and kinetics on DPPH· (2,2-diphenyl-1-picrylhydrazyl) reaction in the presence of hydroalcoholic extracts from various pomegranate parts have been investigated. Pomegranate, the fruit of the small tree *Punica granatum* L., is extensively used for obtaining food products, especially juices and alcoholic drinks, also having curative properties due to the presence of polyphenolic compounds and vitamin C. Pomegranate extracts were obtained from various fruit parts such as red or white internal shell, pulp, seeds and whole fruit, using ethanol 96% as solvent or the raw juice, at room temperature. The kinetic of the DPPH· reaction in the presence of pomegranate extracts (diluted at 1:50 and 1:100) was determined spectrophotometrically, measuring the variation of the absorbance at 518 nm during fifteen minutes. Consequently, the variation of DPPH· concentration during the reaction was determined using a calibration curve for the free radical. The mean DPPH· reaction rates were obtained for the pseudolinear intervals of 0- 30 s, 30-90 s and 90-900 s. The mean DPPH· reaction rate for the first interval had values in a wide range of 0.17-3.03 μM/s, with maximum values for pomegranate red shell and pulp extracts and the lowest ones for seeds extracts. On the other hand, the corresponding values for the second interval were in a narrow range of 0.05-0.6 μM/s, with the same observation for the lowest values for pomegranate seeds extracts. The antioxidant activity of these extracts were significantly higher for the pomegranate red and white internal shell extracts, as well as for the pulp extracts (46.9-54.9%), in comparison with the pomegranate juice samples (7.9-18.4%) and only 3.9-5.1% for the seeds extracts, after 1½ minutes of evaluation by DPPH· method. This study demonstrates the value of the pomegranate red and internal white shell (generally considered as waste) from the antioxidant activity point of view and suggest the recovery and reutilization of such by-products in the food, pharmaceutical or cosmetic fields.

Keywords: pomegranate extracts, antioxidant activity, DPPH·, kinetics, polyphenols

Antimicrobial Compounds of *Anethum graveolens* and Their Efficacy in Ricotta Safety Enhancement

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Dairy industry sustainable utilizes whey, a major by-product of valuable composition, to produce Ricotta type cheeses. Valuable food products from a nutritional point of view, whey cheeses have high moisture content and favor microorganism growth; producers pay special attention to avoid spoilage and risks to the consumer's health. In order to increase Ricotta cheese safety, avoiding synthetic preservatives, dill essential oil (DEO) already shown to have antimicrobial properties in vitro, could be a healthier alternative.

Current study aimed to assess the antimicrobial activity of DEO (0.25% and 0.5%), seeds (1%, 2.5% and 5%) and fresh leaves (2.5%, 5% and 10%), against Ricotta cheese micro-biota during storage at 4°C for 7 days. The composition of a commercially available dill essential oil was investigated using GC-MS. Total viable count (TVC) for control was compared to TVC for Ricotta mixed with dill seeds, leaves and DEO samples in order to evaluate the antimicrobial activity. (SR EN ISO 4833:2003)

The GC-MS profile of DEO *highlights* important content of D-limonene (46.30%) and D-carvone (40.85%); also trans-Dihydrocarvone (4.35%), Limonene oxide (1.70%), Carane, 4,5-epoxy-, trans(1.05%), cis-Dihydrocarvone (0.87%), Dill ether (0.44), Apiol (0.35%), other terpenes being present in small amounts.

The addition of DEO to reach concentrations of 0.25% and 0.5% caused significant reduction of the TVC in Ricotta cheese stored at 4°C, but no significant antimicrobial activity for ground dill seeds and leaves, added to Ricotta samples was observed. After 3 days refrigerated storage, TVC for Ricotta samples with 0.25% (2×10^4 CFU/g) and 0.5% (1×10^4 CFU/g) DEO added, were lower than control's TVC (3.5×10^4 CFU/g). *Results showed DEO has antimicrobial activity in the cheese sample with 0.5% DEO (TVC = 2.2×10^4 CFU/g) and 0.25% DEO (TVC = 4.8×10^4 CFU/g), control's TVC being (7×10^4 CFU/g), after 7 days.*

Keywords: *Anethum graveolens*, antimicrobial activity, commercially available essential oil, Ricotta safety enhancement.

OC₉

Preliminary research regarding the mineral intake of walnut kernel

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The paper presents preliminary results in determining essential micro element content in domestic walnut kernel and in estimating the supply of minerals of this food-medicine. Results of micro element analysis through flame atomic absorption spectrometry show that walnut kernel contains important amounts of Mn (18.59 ± 1.15 - 51.65 ± 2.81 mg/kg), Fe (20.5 ± 0.62 - 29.1 ± 0.93 mg/kg), Zn (16.06 ± 84 - 26.15 ± 1.61 mg/kg), Cu 9.64 ± 0.30 - 10.41 ± 0.53 mg/kg) and Cr (0.78 ± 0.13 - 1.08 ± 0.22 mg/kg).

Mineral supply of walnut kernel estimated based on mean concentrations in micro elements and on the necessary daily intake, shows that consuming 20 g of walnut kernel a day covers a significant part of the daily necessary micro elements: 51.43% (men) and 72.00% (women) Cr, 34.15 % (men) and 43.63% (women) Mn, 22.31% (men and women) Cu, 3.58% (men) and 4.93% (women) Zn and 6.13% (men) and 2.72% (women) Fe. Given the results of our experimental, we can say that walnut kernel can be taken into account as a supplementary source of Cr, Mn and Cu.

Keywords: trace element, kernel walnut, mineral intake.

Influence of the added sugar type on some chemical characteristics of sea buckthorn (*Hippophae rhamnoides* L.) jam

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The purpose of the present paper was to study the influence of the type of sugar: white (from sugar beet) or brown (from sugarcane) - added in the technological process of obtaining the sea buckthorn jam, on the content of vitamin C, polyphenols, carotenoids and on the antioxidant activity of the finished product. Ascorbic acid in the samples was determined by iodometric method, carotenoids by spectrophotometric assay, total polyphenols by the Folin-Ciocalteu method, and antioxidant activity by the CUPRAC assay. From experimental results it was found that in the case of sea buckthorn jam with brown sugar, the vitamin C content of 1185.08 mg/100g is close to that of the fresh sea buckthorn berries (1261.20 mg/100g) and twice as high as in the case of sea buckthorn jam with white sugar (592.54 mg ascorbic acid/100g). The *Hippophae rhamnoides* jam with brown sugar had a concentration of carotenoid compounds nearly 8 times higher than the white sugar variety. Concerning the total polyphenol content, the analyzed products do not differ significantly, the sea buckthorn jam with brown sugar is slightly higher in polyphenols (7.27 mg gallic acid/g) than the one with white sugar (6.86 mg gallic acid/g). Also, the highest antioxidant activity, of the two types of jam, has been noticed for the variant with brown sugar (222.86 mg Trolox/g).

Keywords: Sea buckthorn, jam, antioxidant activity, polyphenols, ascorbic acid, carotenoids.

POSTERS

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P₁

Correlation between Biophysical Characteristics in Case of some Exotic Fruit Compotes

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Fresh fruit represents the products of great importance in the rational diet with many health benefits, due to its nutritional properties. Rich in carbohydrates, cellulose, minerals and organic acids and being sources of vitamins: A, B1, B5, C, enzymes and fiber, they should not be missing from a daily rational nutrition. The fruits can be consumed fresh or can also be prepared into different food-processing products like juices, nectars, soft or fermented fruit drinks, syrups, jams or fruit compotes, etc. The aim of the study was to evaluate and test the linear relations between some biophysical characteristics (pH, total soluble solids, conductivity and viscosity) in case of various types of exotic fruit compotes. Were analyzed different samples of pineapple and mango fruit compote home made, simply just from fruit, also with sweetener or brown sugar addition. All the data was statistically analyzed using STATISTICA 10. The experiment showed that there are statistically significant correlation between the physicochemical characteristics for the analyzed exotic fruit compotes. Based on these linear correlations we determined the linear dependency between the above biophysical characteristics.

Keywords: pineapple, mango, fruit compote, statistical evaluation data.

P₂

Appreciation of Nutritional Quality for Some Dairy Products Using Statistical Modelling

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Cheese is a delicious, nutritious and very versatile dairy food produced throughout the world from ancient time. Many factors (including quality and composition of milk) are influencing production of cheese.

This study aimed to assess and find relationship between some nutritional characteristics (water, lipid and protein content) for 20 different cheese samples (including fresh, soft-ripened, semi-hard, hard, pasta filata, blue cheese and low fat varieties) for which the energy value was also calculated. The lipidic content was determinate by Soxhlet extraction method, Kjeldahl method was using to determine protidic content. Moisture content and total dry mater was determinate gravimetrically, by drying at the oven.

The obtained data was then used in a principal component analysis, identifying such a number of 5 variables involved in 20 different cheese samples and also variables which determine 5 different clusters. The data were statistically processed using Statistica 10. The results look for the existence for statistically significant differences between different nutritional characteristics of the cheese types analyzed.

Keywords: cheese, nutritional characteristics, statistical modeling

P₃

Effect of Horseradish on Quality and Shelf Life of Milk Beverages

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The preservative effect of horseradish (*Armoracia rusticana*), on milk beverages made by pasteurized cow milk with addition of cranberry (*Vaccinium vitis-idaea*) and rosehip (*Rosa canina*) fruits was studied. Twelve types of samples were prepared and stored in refrigerated conditions at 4°C for 13 days. The effect of horseradish addition under three types: fresh, lyophilized and extract obtained by supercritical fluid extraction, on the quality of the samples was evaluated based on changes in pH, acidity, vitamin C and sensory analysis. Also, the physico-chemical, antioxidant activity, polyphenolic and flavonoid content of the ingredients were investigated. Addition of horseradish in pasteurized cow milk resulted in a lower decrease of vitamin C and pH and a lower increase of acidity with positive effect on preservation. The best results were obtained for the samples with horseradish extract obtained by supercritical fluid extraction and addition of cranberry and rosehip fruits. Regarding sensory evaluation, all the samples were well accepted by panellists obtaining the average or above average scores, the samples with the addition of horseradish extract obtained by supercritical fluid extraction and cranberry fruits showing the best scores.

Keywords: Horseradish, shelf life, cow milk beverages, lyophilisation, supercritical fluid extraction

P₄

Effect of Tropical Spices on the Pork and Turkey Minced Meat Stability

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The influence of six spice and their combination on minced meat mixture during storage for 4 days at 4°C were studied. The meat mixture was obtained by adding black pepper (*Piper nigrum*), garlic (*Allium sativum*), coriander (*Coriandrum sativum*), allspice (*Pimenta dioica*), laurel (*Laurus nobilis*) and paprika (*Capsicum annum*) in different combination, and the results were compared to those obtained for a raw mixture of minced pork meat and turkey, and fat without any additive. The approximate composition, pH, instrumental colour (CIE L^* , a^* , b^*), total viable counts (TVC), the Enterobacteriaceae counts, proteolytic bacteria and 2-thiobarbituric acid reactive substances (TBARS) were determined over a period of 96 h. The bacterial counts of samples were lower than those of control samples during storage. The samples maintained significantly higher L^* , a^* and b^* values during storage. The TBARS values of V2 and V5 samples were the highest among the samples. These results demonstrate that spices added to the samples are effective on microbial growth and lipid oxidation in the minced mix meats.

Keywords: turkey meat, pork meat, spices, vacuum packaging.

P₅

Study on the Cider-Making Technology from Apples Grown in Romania

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Apple cider is a low alcoholic fortified drink with beneficial effects on human health mainly due to the content of polyphenols, minerals and vitamins of natural origin. Nowadays, it has been noticed an increased interest in functional food. Along this line, the low alcoholic beverages like cider, have gained the attention of both cider makers and consumers for their health benefits and unique flavour, the attractive fragrance and the appealing colour. Besides all this, the cider has to be safe from the source point of view. For this purpose, it is necessary to comply with standardized procedures to control the quality and traceability, from apples as raw material to cider, as final product. A better understanding of each step in the cider making process brings along significant improvements in the cider production technology. The apple cider technology involves several steps, as follows: monitoring of apples quality, obtaining apples juice, the inoculation of apple juice with yeast cultures and caring out the fermentation process, the control of fermentation process, stopping the fermentation process, cider maturation by malolactic fermentation, cider conditioning and packaging. The polyphenolic compounds play an important role in the cider quality but their content greatly depend on the raw material quality as well as on how the fermentation - maceration proceeds. Regarding this last aspect, it seems that the involving of enzymes and selected yeasts represents key factors in the cider biotechnology. This paper aims to establish a sustainable technological model for apple cider production and to define the principles of apples cider traceability in terms of raw materials, their origin, processing steps, maturation and distribution, for ensuring the security and safety of the food chain.

Keywords: apple cider production, traceability, safety.

P₆

Influence of different dietary protein levels and feeding frequencies on growth performance, body composition and welfare of Nile tilapia, *Oreochromis niloticus* reared in a recirculating aquaculture system

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A feeding experiment was conducted for eight weeks to investigate the effects of three dietary protein levels (CP-30%, 45%, and 50%) and two feeding frequency (two meals/day and four meals/day) on growth performance, biochemical composition, and welfare status of Nile tilapia (*Oreochromis niloticus*). 120 juvenile fish, with an average weight of 70.12±4.36 g were randomly distributed in a recirculating aquaculture system in order to obtain six experimental groups, in duplicate: V1- 30% CP, 2 meals/day; V2 – 45% CP, 2 meals/day; V3 – 50% CP, 2 meals/day; V4 – 30% CP, 4 meals/day; V5 – 45% CP, 4 meals/day; V6 – 50% CP, 4 meals/day. At the end of the trial the best results in terms of weight gain (WG), specific growth rate (SGR) and feed conversion ratio (FCR) were recorded in the case of the 50% CP and four meals/day, but the differences were not significant in comparison with 45% CP and two meals/day. Regarding the fish weight from the V1 and V4 variants, feeding frequency has a significant influence ($p \leq 0.05$), fish weight from V1 having a significantly lower body weight than those from V4. Regarding the body biochemical composition of tilapia, no significant differences ($p > 0.05$) were registered between the content of protein, ash, and dry matter, while in the case of lipids significant differences were obtained ($p < 0.05$). The lipids content from the variants V2, V3, V5 and V6 was higher than in V1 and V3. Haematological analysis shows no significant difference ($p > 0.05$) in packed cell volume (PCV), haemoglobin (Hb), mean corpuscular haemoglobin (MCH) and mean corpuscular haemoglobin concentration (MCHC) and mean corpuscular volume (MCV), red blood count (RBCs) and glucose (GLU), while for total protein (TP) significant changes were recorded. The findings of the current study revealed that a feeding frequency of four meals/day and 45% CP is recommended to achieve the best performance from the economical point of view.

Keywords: tilapia, growth performance, body composition, welfare, recirculating aquaculture system

P₇

Determination of antioxidant capacity in some types of honey from Romania

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The aim of this study was to determine the antioxidant capacity of some Romanian honey in order to discriminate between their floral and geographical origin. Honey samples analysed show total polyphenol content between 26.73 mg GAE/100g and 264.17 mg GAE/100g. Buckwheat honey have the highest total flavonoid and polyphenol contents. Also, the buckwheat honey was noted compare to the other samples in terms of antioxidant capacity. Antioxidant capacity depends on the floral source, environmental factors and processing mode. According to the literature, the honey colour is considered an indicator of antioxidant activity. Fact confirmed in the present study, dark-coloured honeys had higher antioxidant activities than light-coloured honeys.

Keywords: honey, antioxidant capacity.

The Comparative Properties of Poly-Flower And Manuka Honey With Sea Buckthorn Juice

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The goal of this paper was to assess the quality and nutritional properties of honey with sea buckthorn juice (SBJ). In this respect, we prepared three types of poly-flower honey (PH) and manuka honey (MH) with different content of sea buckthorn juice (10%, 20% and 30%). Acidity, content of sugar (by refractometric method), vitamin C (by spectrophotometric method with leuco-green malachite - LMG), polyphenols (by Folin-Ciocalteu method) and some microbiological parameters (*Bacillus cereus*, *Salmonella*, yeast and molds) were determined. The obtained results showed differences between the two types of honey. The sea buckthorn juice adding lead to increase the polyphenols content (1.9-2.12 mg gallic acid/g), the vitamin C (0.88 – 1.85 mg/100g) and the sugar content (10.2-13.7 Brix). Regarding the microbiological characteristic, it was noticed the development of the yeasts and molds in samples containing 30% sea buckthorn juice added. The absence of *Salmonella* and *Bacillus cereus* was registered. The adding of sea buckthorn had as effect the improving of antioxidant properties of both types of honey.

Keywords: poly-flower honey, manuka honey, sea buchtorn juce, vitamin C, polyphenols, microbiologic parameters.

P₉

**Induced Breeding, Embryonic and Larval Development of Calico Gold Fish
(*Carassius auratus*)**

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Goldfish, *Carassius auratus*, is one of the most popular ornamental species in the world due to its varieties of attractive shapes and colours. This study aimed to achieve artificial reproduction and to observe embryonic development and larval stages of the goldfish, Calico variety with telescopic eyes. Hormonal stimulation was done with Cypφarоn which was administrated intramuscularly at a dose of 1 ml / kg body weight. Spawning was observed 20 hours after the injection at the temperature of 23,2⁰C. The fertilized eggs were adhesive, translucent and spherical in shape with diameter ranging between 0,8-0,9 mm. Embryonic development was divided into the following periods: zygote, cleavage, blastula, gastrula, segmentation, pharyngula and hatching. The hatching occurred 32 hours after spawning at 23°C. The larvae were transparent and measured 5 mm of total length with a large oval head, a well-defined yolk sac and short tail. At approximately three weeks the larvae attained an average total length of 10 mm, visible pigmentation was general and the body essentially resemble the adult. Due to good response to synthetic hormone Cypφarоn, considerable fertilization and hatching rate, short embryonic period and fast larval development it is possible to conduct breeding program of this species commercially and is suitable for commercial culture.

Keywords: Cypφarоn, breeding, embryonic development, larval development, goldfish

P₁₀

Effect of body mass on the standard metabolic rate (SMR) and routine metabolic rate (RMR) of young of the year of sterlet sturgeon and bestbeluga hybrid

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There is an increased interest in studying the oxygen consumptions and the physiological characteristics of swimming fish under minimal restraints. Most of the data on fish metabolic rates (typically measured as the rate of oxygen uptake - MO₂) resulted from respirometric experiments conducted in the laboratory, where environmental factors are easily controlled. Standard metabolic rate (SMR) was defined for whole organisms exhibiting minimal functional activity, i.e. in the total absence of voluntary muscular movements and when no food was being digested or absorbed. But, whenever subjects show some minor activity in a respirometer (swimming or maintaining position) many authors prefer the term routine metabolic rate (RMR), which includes a minor cost of the activity. The aim of the present study was to evaluate the effect of body mass on the standard and routine metabolic rate of juvenile sterlet (*Ac- Acipenser ruthenus*) and Bestbeluga (BB- hybrid of *Huso huso* male x bester female) hybrid sturgeons at a given temperature 22.09 ± 0.24 °C. The results of the present study indicate that an increase in body mass leads to both an increase SMR and RMR, without significant differences between the chosen body mass classes. However there were detected different patterns when pure line sturgeons and hybrid sturgeons were compared.

Keywords: best beluga hybrid, standard metabolic rate, routine metabolic rate, metabolism

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P₁₁

Evaluation of dietary and functional sorbet innovative formulas, on their content in bio active compounds

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The purpose of this study was to identify the effect of the addition of blueberries on the vitamin C content and the anthocyanins present in the finished dietary and functional product. The total anthocyanins were determined by spectrophotometric method using the double-beam UV-Vis Spectrophotometer Jasco V 530.

The chemical methods of vitamin C dosing are volumetric using oxidative solutions such as potassium iodate. The content of anthocyanins decreases significantly in the case of atomized blueberries in compare from the dried blueberries (12.53 / 11.53 mg / 100g, 24.08 / 19.74 mg / 100g, 42.52 / 26.90 mg / 100g) and in the functional product (9.71 / 6.05 mg / 100g; 16.48 / 10.42 mg / 100g; 31.72 / 16.44 mg / 100g). The explanation would be that atomization increases the total oxygen contact surface in the air, increasing the risk of oxidation of the anthocyanins. So it would be desirable to add the blueberries whole. As for the vitamin C content, it is found to increase it to the dietary product as compared to the blank (10.56 / 12.18 mg / 100g, 13.00 / 13.00 mg / 100g, 15.43 / 17.87 mg / 100g, 9.74 / 12.18 mg / 100g; 14.62 / 15.43 mg / 100g; 16.25 / 17.06 mg / 100g).

Keywords: functional foods, dietetic foods, serbet, vitamin C, isomalt.

P₁₂

Induced breeding of *H. molitrix* and histological observations on the development stage of oocyte

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The aim of the present study was to induced breeding of *H. molitrix* and to observe gonads maturation after the injections with the synthetic hormone Nerestin.

Males and females of *H. molitrix* were provided from the Cârja farm 1-from Vaslui county. All the breedings were injected with Nerestin 1, the females received two doses of 20%, respectively 80% of the total dose, within 24 hours, and the males received only the two doses representing 1/3 and 2/3 of the dose total administered to females.

For histological examination, oocyte samples were collected from adult *H. molitrix* females. The sampling periods overlapped with the maturation period after the vitellogenesis (April-May 2016) and ovulation, which took place in June 2016.

The ovulation process is determined by internal factors and assured by the normal development of the body; in the case of induced breeding is triggered by the administered gonadotrophic stimulants. Our results showed that in order to obtain good quality eggs a great importance must be given to the time of administration of gonadotrophin stimulants, and the quantity and quality of the introduced substance.

The biological material taken for the histological examination was processed by classical methods. Fixation was done in Bouin and Formalin, and after inclusion in paraffin, the pieces were cut at 7 μm by microtome Slee. During maturation period, the oocytes gradually pass into stage VII^B, the nucleus migrates to the animal pole in the cytoplasmic area at the micropyle. During the ovulation period, the histological sections show the presence of oocytes matures with finished vitellogenesis, prior to expulsion from ovary. Histological, it was noted the evidence of the oocytes in stages VII^B and VII^C.

Oocytes remain at this stage for 20-25 days. It is the optimal period of hormonal induction until the beating conditions are formed

Keywords: Nerestin, maturation, ovulation, oocytes.

Use of Hematological Parameters as Assessment Tools in Fish Health Status

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The purpose of this paper is to highlight the importance of blood analysis in assessing the welfare and health status of the fish. The blood is the circulating fluid that, through its dynamism, ensures the supply of all body cells with oxygen and nutrients. The peripheral blood is probably the most informative tissue because it may reflect all organism functions and can be non-lethally sampled in fish. Blood samples for hematological analysis are preferably collected by puncturing the caudal vessels or the heart, when there is no need for the fish to be sacrificed. Hematological indices, such as red blood cell counts, hemoglobin, hematocrit, leukocyte profile, differential white blood cell counts are widely known as indicators of several diseases and environmental stress in fish. The direct examination of the blood smears stained with May-Grunwald-Giemsa solution through routine hematological procedures can provide first signs of parasitosis (*e.g.* increase in eosinophil's number) or infections (*e.g.* increase in numbers of neutrophils, monocytes) together with the identification of some pathogens, such as haemoparasites and bacteria (septicaemia). Moreover, different observations of thin blood smears regarding the shape, size and color of the formed elements (red and white blood cell) have congruent diagnostic value. Our paper includes a broad overview of the working steps in hematological analysis and blood smear examination as well as the data gathered from our practice related to fish species variability manifestations under the action of extrinsic factors. As a conclusion, blood analyses may help as first indicators in the evaluation of fish health and valuable data base of blood investigations concerning their interspecies physiological reaction must be obtained from large numbers of individuals.

Keywords: hematological indices, blood smears, biochemical parameters, fish health

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Properties of the emulsions formulated with soy protein isolate

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This paper reports a study on some oil-water emulsions based on soy protein. The proteins are used as emulsifiers, they have the capacity to adsorb at the oil in water interface and then undergo unfolding to stabilize the layer at the droplet surface. The emulsions contain soy protein isolate, water, sunflower oil/grape seed oil. The difference between the samples is given by the protein content, which varies from 16% (SS_16-sample with grape seed oil/ FS_16 - sample with sunflower oil) to 20% (SS_20/ FS_20). The mixture was blended at 1900 rot/min for 5 minutes. The study aims the development and characterization of stabilized emulsions formulated with soy protein isolate. pH, dry matter, stability of the emulsions, water holding capacity (WHC), water and oil binding properties, textural and rheological properties were evaluated for the emulsions. The samples were stored at refrigeration temperatures. The pH was monitored for 14 days with a 2 days frequency. The decreasing in pH units for all the samples is almost insignificant. Dry matter varied between 40.1% for SS_16 and 43.8% for FS_20. The variation of dry matter is proportional with the concentration of soy protein isolate. The emulsions stability has been determined by storage for 21 days at room temperature. The highest WHC value (98%) was registered for SS-20. Water and oil binding capacities are very high, while the samples not expelled water or oil after centrifugation. The Textural Profile Analysis determined that firmness and adhesiveness show similar behavior. The reduction of droplet size and rheological modification of continuous phase and/or interface are specific to the non-Newtonian behavior. In conclusion, the soy isolate based emulsions properties are influenced only by the protein content.

Keywords: soy, protein isolate, emulsion, oil-water

P₁₅

Natural vegetable juices – a valuable source of antioxidant compounds

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The objective of this study was to obtain and characterize some natural juices using various vegetable as follows: tomatoes, parsley (leaves), carrots, celery (leaves) and spinach. The fresh natural juices have been prepared from individual vegetables and also from mixture of the above mentioned vegetables. Prior to natural juice processing using a home scale juicer, the edible parts of fresh vegetables were washed and suitable cut. The fresh juices were analyzed in terms of total soluble content (°Bx), vitamin C by titration with a 2,6-dichlorophenolindophenol sodium, total phenolic content by Folin-Ciocalteu method and total antioxidant capacity by FRAP assay. Vitamin C, the most abundant antioxidant in vegetables, was found in spinach (52.4 mg/100g). The highest amount of vitamin C (19.6 mg/100 mL) was detected in tomato juice and the highest of total phenolic contents was found in mix vegetable juice, mainly in juice of carrot and tomatoes in ratio 1:1 (v/v) (26.00 mg/L). Our results have revealed that the fresh natural vegetable juices are a valuable source of antioxidant compounds strongly recommended in a healthy diet.

Keywords: natural vegetable juices, tomato, parsley, carrots, celery, spinach

P₁₆

The Action of Digestive Enzymes on the Soluble Dietary Fiber Fraction of Thermally Processed Wheat

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Thermal treatment can modify the physicochemical properties of dietary fiber (DF). The study was conducted to evaluate the effect of thermal processing on soluble DF fraction of wheat samples subjected to *in vitro* gastric and intestinal digestion. Samples were treated by heating in a forced air oven at 150°C for 5, 10 and 15 minutes, and by exposing to radiations in a microwaves oven for 30, 60 and 90 seconds. The effect of digestive enzymes action on the soluble DF fraction was evidenced by the variation in the dynamic viscosity (DV) of the supernatant collected after gastric and intestinal incubation. Regardless of the heat treatment, DV increased during processing and during digestion. Maximum DV values were observed at 240 minutes of intestinal digestion, after 90 seconds exposure to microwaves.

Keywords: wheat, dietary fiber, digestion, dynamic viscosity

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