USAMVB Timisoara

Multidisciplinary Conference on Sustainable Development

08-09 October 2020

Scientific Programme

Multidisciplinary Conference on Sustainable Development, 08-09 October 2020

Section: Food Chemistry, Engineering & Technology

***Faculty of* Food Engineering**

Timişoara, 2020

Academy of Agricultural and Forestry Sciences "Gheorghe Ionescu-Şişeşti" Timisoara Branch

Romanian Association of Food Industry Specialists Timisoara Branch

Romanian Chemistry Society Timisoara Branch

Conferences Programme

1st Day – 08th of October, 2020 (Thursday)

Registration on-line

$10^{00} – 10^{10}$	Opening of the Conference
$10^{10} – 10^{30}$	Plenary Lecture PL_1
$10^{30} – 10^{50}$	Plenary Lecture PL_2
$10^{50} – 11^{10}$	Plenary Lecture PL_3
$11^{10} – 11^{30}$	Plenary Lecture PL_4

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

Section: Agriculture - *Trends in european agriculture development*

$12^{00} – 12^{10}$	Opening of the Conference
$12^{00} – 13^{45}$	Oral communications
$13^{45} – 14^{00}$	Concluding Remarks

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

Section: Veterinary Medicine - *Animal breeding and pathology today*

$14^{30} – 14^{40}$	Opening of the Conference
$14^{40} – 16^{15}$	Oral communications
$16^{15} – 16^{30}$	Concluding Remarks

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

Section: Animal husbandry and biotechnology - *Animal resource bioengineering*

$17^{00} – 17^{10}$	Opening of the Conference
$17^{10} – 18^{45}$	Oral communications
$18^{45} – 19^{00}$	Concluding Remarks

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

2nd Day - 09th of October, 2020 (Friday)

Section: Agricultural management - *Managemnt of sustainable rural development*

$10^{00} – 10^{10}$	Opening of the Conference
$10^{10} – 11^{45}$	Oral communications
$11^{45} – 12^{00}$	Concluding Remarks

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

Section: Horticulture and Forestry - *Horticulture, Forestry and Biotechnology*

$12^{30} – 12^{40}$	Opening of the Conference
$12^{40} – 14^{15}$	Oral communications
$14^{15} – 14^{30}$	Concluding Remarks

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

Section: Food Engineering - *Food Chemistry, Engineering & Technology*

$15^{00} – 15^{05}$	Opening of the Conference
$15^{05} – 16^{45}$	Oral communications
$16^{45} – 17^{00}$	Concluding Remarks

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

Scientific Programme

1st Day – 08th of October, 2020 (Thursday)

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

Registration (ON-LINE)

$10^{00} – 10^{10}$ **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 Timişoara,*

Isidora Radulov, *Vicerector of the Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timişoara,*

$10^{10} – 10^{30}$ **PL_1:** Science, the media and communication
Serban Morosan - *Director UMS (unité mixte de service) (France), Associate Professor (USAMV Iasi), French National Institut of Health and Medical Research (INSERM), Sorbonne University, USAMV IASI*

10^{30} - 10^{50} **PL_2:** Sustaining the Natural Wonders of the Caribbean and the Communities who Depend on them
Timothee Huswald - *Honorary Consul General of Romania in Haiti, President of College Universitaire de Roumanie in Haiti, President of the Fund for Biodiversity in Haiti*

$10^{50} – 11^{10}$ **PL_3:** Probiotic approaches to modifing the microbial populations> how do you choose and why?
Todd Riley Callaway - *University of Georgia, Department of Animal and Dairy Science*

$11^{10} – 11^{30}$ **PL_4:** Impact of industrial production system parameters on Chicken microbioms
Ozan Gundogdu - *Department of Infection Biology – LSHTM; London School of Hygiene and Tropical Medicine - Department of Infection Biology*

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara
Section: Food Chemistry, Engineering & Technology

Registration (*ON-LINE*)

$15^{00} – 15^{05}$ Opening of the Conference (Section: Food Chemistry, Engineering & Technology)
Adrian Riviş, *Dean of the Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timişoara*

Nicoleta Gabriela Hădărugă, *Vicedean of the Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timişoara*

Chaired by: Eng. Claudia Isabela Oprinescu

"Iulian Drăcea" Auditorium
Banat's University of Agricultural Sciences and Veterinary Medicine
"King Michael I of Romania" from Timişoara

$15^{05} – 15^{20}$ **OC$_1$:** Functional food - PASTA
Simelda E. Zippenfening, Tamara Daniela Vlăduţescu, Anamaria Guran (căs. Radu), Dina Gligor (Pane), Christine A. Lucan (Banciu), Nicoleta Gabriela Hădărugă, Adrian Riviş - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

$15^{20} – 15^{35}$ **OC$_2$:** β-Cyclodextrin / *Phaseolus vulgaris* L. lipid complexes - stable and promissing ingredients for food and cosmetic industries
Marius Daniel Simandi, Laura Rădulescu, Adrian Riviş, Nicoleta Gabriela Hădărugă - *Soubry NV, Verbrandhofstraat 51 8800 Roeselare, Belgium*

$15^{35} – 15^{50}$ **OC$_3$:** IS "CHOCOLATE – functional food" good for you?
Claudia Isabela Oprinescu, Marius Ioan Cugerean, Giulia Golea, Paul Petridean, Nicoleta Gabriela Hădărugă - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

$15^{50} – 16^{05}$ **OC$_4$:** Fatty acid profile of lipid fractions of "*Mangalitza*" (*Sus scrofa domesticus)*
Raymond Nandy Szakal, Cosmina Andrea Chirilă, Lucian Radu, Cristina Liliana Mitroi, Adrian Riviş, Nicoleta Gabriela Hădărugă - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

$16^{05} – 16^{20}$ **OC$_5$:** Influence of growing and processing factors on the fatty acid profile of poultry lipids
Cosmina Andrea Chirilă, **Cristina Liliana Mitroi**, Corina Iuliana Megyesi Raymond Nandy Szakal, Daniel Ioan Hădărugă, Nicoleta Gabriela Hădărugă - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

16^{20} – 16^{35} **OC$_6$:** Evaluation of the fatty acid profile of whole barley (*Hordeum vulgare* L.)
Corina Iuliana Megyesi, **Silvia Ivanova**, Tamara Daniela Vlăduţescu, Nicoleta Gabriela Hadaruga, Răzvan Drăghici, Adrian Riviş, Gabriela Marinova - *Agricultural Academy, Institute of Cryobiology and Food Technologies (ICFT), Department: Technology of food of animal origin, Sofia, Bulgaria*

16^{35} – 16^{50} **OC$_7$:** Production and Characterization of a fat reduce Mascarpone cheese from Goat Milk
Ţelita Szilagyi, **Florina Radu**, Antoanela Cozma - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

16^{50} – 17^{00} Concluding Remarks

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P1 Red beetroot (*Beta vulgaris* L.): A super food – a short review
Gabriel – Dănuț Mocanu, Ana Cosmina Chirilă, Oana – Viorela Nistor, Liliana Ceclu, Oana Emilia Constantin - *Department of Food Science, Food Engineering, Biotechnology and Aquaculture, Food Science and Engineering Faculty, „*Dunarea de Jos*" University of Galati, Romania, Department of Engineering and Applied Sciences, Faculty of Economics, Engineering and Applied Sciences, „Bogdan Petriceicu Hasdeu" Cahul State University, Cahul, Republic of Moldova*

P2 Traditional Fermented Pickles in Romania – a review
Gabriel – Dănuț Mocanu, Angel Florin Vasiliev, Oana – Viorela Nistor, Liliana Ceclu, Oana Emilia Constantin - *Department of Food Science, Food Engineering, Biotechnology and Aquaculture, Food Science and Engineering Faculty, „*Dunarea de Jos*" University of Galati, Romania, Department of Engineering and Applied Sciences, Faculty of Economics, Engineering and Applied Sciences, „Bogdan Petriceicu Hasdeu" Cahul State University, Cahul, Republic of Moldova*

P3 The influence of sweeteners about antioxidant activity and polyphenol content of fermented beverages obtained from chamomile
Camelia Moldovan, Paula Meilă, Viorica-Mirela Popa, Diana-Nicoleta Raba, Despina-Maria Bordean, Aurica-Breica Borozan, Maria Drugă, Delia-Gabriela Dumbravă - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P4 Market study on eating habits of meat products from Slobozia county
Felicia Dima, Daniela Istrati, Camelia Vizireanu, Eugenia Pricop, Ionica Crivăț - *Food Science, Food Engineering, Food Biotechnology Department, Faculty of Food Science and Engineering, "Dunarea de Jos" University of Galati, Romania*

P5 Study on the evaluation and optimization of the high school students' menu
Camelia Vizireanu, Daniela Istrati, Felicia Dima, Eugenia Pricop, Georgeta Cristea - *Food Science, Food Engineering, Food Biotechnology Department, Faculty of Food Science and Engineering, "Dunarea de Jos" University of Galati, Romania*

P6 Development and characterization of an innovative sweetness of hot pepper
Georgeta-Sofia Popescu, Marina Daiana Neicusi, Ariana Velciov, Florina Radu, Lia Rotariu - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P7 Malt replacers in the production process of gluten free beer
Marius Eduard Ciocan, Adriana Dabija - *Faculty of Food Engineering, Stefan cel Mare University of Suceava, Romania*

P8 Proximate composition of homemade chocolate with spices addition
Ariana - Bianca Velciov, Adrian Riviș, Sofia Popescu, Antoanela Cozma, Maria Rada - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P9 Content of total polyphenols, vitamin C, mineral elements and the antioxidant activity of some dried fruits from the Romanian market
Delia-Gabriela Dumbravă, Despina-Maria Bordean, Camelia Moldovan, Viorica–Mirela Popa, Diana-Nicoleta Raba, Ileana Cocan, Ersilia-Călina Alexa - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P10 CRISPR – CAS9 mediated genome editing, a cutting-edge tool for microbial metabolic engineering
Leontina Grigore-Gurgu, Florentina Ionela Bucur - *"Dunărea de Jos" University of Galaţi, Faculty of Food Science and Engineering, Galati, Romania*

P11 Gut microbiota particularities and gallstone disease in cholecystectomized patients
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P12 Understanding dyspepsia in postcholecystectomy syndrome: is gut microbiota dysbiosis linked to?
Doina Georgescu, Emil-Florin Hut, Daniela Radu, Oana Elena Ancusa, **Liviu Andrei Georgescu** - *University of Medicine and Pharmacy "V. Babes", Timisoara*

P13 Pumpkin – Health Benefits
Liliana Ceclu, Danut Gabriel Mocanu, Oana-Emilia Constantin, Oana Viorela Nistor - *Cahul State University"B.P.Hasdeu", Faculty of Economics, Engineering and Applied Sciences, Cahul, Republic of Moldova, Department of Food Science, Food Engineering, Biotechnology and Aquaculture, Food Science and Engineering Faculty, „*Dunarea de Jos*" University of Galati, Romania*

P14 Study of drinking water quality in cahul district
Veronica Filimon, Cristina Obreja, Simona Butan - *"Dunarea de Jos" University of Galati, Cross-Border Faculty, Galati, Romania*

P15 An overview on the earliest representative of today vegan and vegetarian ice cream
Oana-Viorela Nistor, **Ecaterina Pohrib**, Gabriel-Dănuț Mocanu, Oana-Emilia Cnstantin, Liliana Ceclu - *Department of Engineering and Applied Sciences, Faculty of Economics, Engineering and Applied Sciences, „Bogdan Petriceicu Hasdeu" Cahul State University, Cahul, Republic of Moldova, Department of Food Science, Food Engineering, Biotechnology and Aquaculture, Food Science and Engineering Faculty, „*Dunarea de Jos*" University of Galati, Romania*

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Teodora Alexandra Iordache, Fulvia Ancuța Manolache, Maria Cristina Todașcă - *National Research & Development Institute for Food Bioresources – IBA, Bucharest, Romania*

P17 Perspectives on mycotoxin management: occurrence of total aflatoxins in 2018-2019 romanian maize (*Zea mays* L.) samples
Irina Smeu, Hellene Casian - *National Research & Development Institute for Food Bioresources – IBA, Bucharest, Romania*

P18 Rheological characteristics of dough from wheat-defatted flaxseed composite flours
***Ana-Maria Istrate**, Ioan Gontariu, Silviu-Gabriel Stroe, Georgiana Gabriela Codină, Faculty of Food Engineering, Stefan cel Mare University of Suceava, Romania*

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Petre Savescu, Gabriel Badescu, Livia Apostol - *University of Craiova, Faculty of Agronomy, Craiova, Romania*

P20 Pre-treatments used for the recovery of brewer's spent grain-a minireview
Ancuța Chetrariu, Adriana Dabija - *Faculty of Food Engineering, Stefan cel Mare University of Suceava, Romania*

P21 Studies concerning the impact of the origin region on antioxidant properties of blackberries and blueberries
Cristina-Ramona Metzner Ungureanu, Andreea Ioana Lupitu, Cristian Moisa, Diana Moigradean, Mariana-Atena Poiana - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P22 Innovative shrimp products: physico-chemical and nutritional characterisation
Delia-Gabriela Dumbravă, Camelia Moldovan, Viorica-Mirela Popa, Diana-Nicoleta Raba, Ileana Cocan, Ersilia-Călina Alexa, Bogdan-Petru Rădoi, Diana-Veronica Dogaru - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P23 Chemical, physicochemical, and nutritional characteristics of some sausage types
Georgeta Sofia Popescu, Georgiana Ciortan, Ariana Velciov, Ersilia Alexa, Ionela Hotea, Antoanela Cozma, Lia Rotariu - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P24 Approaches in online food marketing research
Viorica-Mirela Popa, Camelia Moldovan, Delia-Gabriela Dumbravă, Diana Nicoleta Raba, Aurica-Breica Borozan, Corina-Dana Mișcă, *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P25 Opportunities to improve logistics performance in the food industry
Viorica-Mirela Popa, Camelia Moldovan, Delia-Gabriela Dumbravă, Diana Nicoleta Raba, Aurica-Breica Borozan, Corina-Dana Mișcă - *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P26 Research for identifying the optimum technological profile of rice flour for obtaining agglutene biscuits
Gabriela Cristina Constantinescu (Pop), Monica Gabriela Dinu, Amelia Buculei, Petru Alexe – *"Stefan cel Mare" University of Suceava, Faculty of Food Engineering, Suceava Romania*

P27 Comparative evaluation of nutritional potential of chestnuts and broad bean
Despina-Maria Bordean, Liana Maria Alda, Mirela Viorica Popa, Laura Rădulescu, Camelia Cioban – *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

P$_{28}$ BPA incidence in babies drinking water available on romanian market

Elena Loredana Ungureanu, Gabriel Mustatea, Mona Elena Popa– *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania*

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BOOK OF ABSTRACT

Multidisciplinary Conference on Sustainable Development

Section: Food Chemistry, Engineering & Technology

Timişoara, 2020

OC$_1$

Functional food - PASTA

Simelda E. Zippenfening[1], Tamara Daniela Vlăduţescu[1], Anamaria Guran (căs. Radu) [1], Dina Gligor (Pane) [1,2], Christine A. Lucan (Banciu) [1,3], Nicoleta Gabriela Hădărugă[1*], Adrian Riviş[1]

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Functional food provides exciting growth opportunities for the food industry, but the specific efforts of different groups of factors (e.g. scientists, food ingredient suppliers, food companies, retailers) are needed to realize these opportunities in the future. To date, multinational food companies as well as internationally active food ingredient suppliers are best positioned to overcome specific challenges in the development and marketing of functional foods. In general, these companies have the resources and know-how needed for research and development, human and financial capabilities, and marketing power to open new product segments as pioneering companies.

Today, pasta is the food accepted and used worldwide to varying degrees of importance, It is also a sophisticated technology that today uses advanced techniques to maximize efficiency, production and quality. In contrast to other departments in the food industry (for example, the bread industry), it is a tribute to the technologists and engineers involved in this progress, so that they can make pasta production cheap and plentiful without affecting quality.

The present survey focuses on the new trends in pasta technology, especially regarding the use of natural and functional ingredients for the research, production and marketing of pasta-based innovative functional foods.

Keywords: Functional food, pasta

OC$_2$

β-Cyclodextrin / *Phaseolus vulgaris* L. lipid complexes - stable and promissing ingredients for food and cosmetic industries

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Bioactive compounds from common beans (*Phaseolus vulgaris* L.) can be valorized in both food and cosmetic industries taking into account the progress in extraction technologies [1-3]. Among other biologically active constituents in common beans (e.g., protein, lipids, starch and dietary fibers, as well as oligoelements, vitamins and even antioxidant flavonoids) [3,4].

The study aimed to valorizes the common bean (*P. vulgaris* L.) lipid fractions by β-cyclodextrin nanoencapsulation. The more stable β-cyclodextrin/*P. vulgaris* L. lipid complexes under thermal and oxidative conditions and having controlled release properties can be promising ingredients for food and cosmetic products. The *P. vulgaris* L. lipids have been obtained by solid-liquid extraction and had linoleic acid as main constituent (35.2-43.4%), according to gas chromatography-mass spectrometry analysis of the derivatized lipids (mainly triacylglycerols) to the corresponding fatty acid methyl esters. The *P. vulgaris* L. lipids also had important content of the ω-3 α-linolenic acid (13.1-15.7% as methyl ester). The most important parameter of ω-3 fatty acid based lipids, ω-3/ω-6 ratio, was 0.3-0.5, higher than the limit of 0.2 from where lipids are valuable against neuronal and cardio-vascular diseases [4].

β-Cyclodextrin/*P. vulgaris* L. lipid complexes have been obtained by kneading method [4-7]. The solid complexes have been analyzed by thermogravimetry-differential thermogravimetry and differential scanning calorimetry in order to evaluate their thermal and oxidative stability. Moreover, the efficiency of molecular nanoencapsulation of *P. vulgaris* fatty acid glycerides by β-cyclodextrin have been evaluated by Fourier transform infrared spectroscopy and powder X-ray diffractometry [4]. The reduction of the moisture content as well as the presence of lipid components in β-cyclodextrin complexes have been confirmed. These powdery materials based on *P. vulgaris* L. lipids have higher stability and can be studied for their possible applications in food and cosmetic fields.

Keywords: *Phaseolus vulgaris* L., common bean, β-cyclodextrin, supramolecular system, fatty acid, lipid composition

References

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OC$_3$

IS "CHOCOLATE – functional food" good for you?

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Chocolate is a sugary product, likely to melt in the mouth, without being able to detect the presence of solid particles, with aroma and fine taste. These qualities - degree of dispersion, unctuousness and smell - are the result of physical and biochemical processes that take place during the processing of the main raw materials: cocoa mass, cocoa butter, sugar, some additives (milk, fatty seeds, flavorings, etc.). Cocoa beans have thixotropic properties. At room temperature are solid dispersed systems that become fluid by heating. In such a system, the dispersion phase is the melting of cocoa butter, and the dispersed phase is represented by solid particles coming from cocoa beans and sugar powder.

In order to achieve a feeling of non-detection of solid components, they must have dimensions smaller than 20-25 microns, which is the threshold of detection by the olfactory organs. Chocolate products are highly valued products due to their taste, pleasant aroma and high nutritional value.

The survey is focused on the research and technology for preparing various types of chocolate products, including the chocolate specialties having functional properties. The quality, stability and influence to the human health of specific ingredients as well as the chocolate products have been addressed.

Keywords: Chocolate, sugary product,

OC4

Fatty acid profile of lipid fractions of "Mangalitza" (*Sus scrofa domesticu*)

Raymond Nandy Szakal[1,2], Cosmina Andrea Chirilă[3], Lucian Radu[1], Cristina Liliana Mitroi[1], Adrian Riviş[1]*, Nicoleta Gabriela Hădărugă[1]

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Evaluation of the fatty acid profile of "Mangalitza" lipids (unprocessed and thermally processed) and the degradation to *trans* fatty acids have been performed. Similarities with other edible fats and oils through the fatty acid profile have also been emhasized. The fatty acid profile of Romanian "Mangalitza" lipid fractions have been evaluated through gas chromatography-mass spectrometry (GC-MS) and Fourier transform infrared spectroscopy (FTIR). The most concentrated fatty acids (as methyl esters resulted by transesterification of the corresponding glycerides from "Mangalitza" lipid fractions) were oleic acid, followed by palmitic, stearic and linoleic acids.

Trans fats increase the risk of coronary disease by increasing the level of "bad" cholesterol (LDL), and reducing the "good" cholesterol (HDL). A higher level of degradation was observed for unsaturated fatty acids, the *trans* degradation compound, elaidic acid, being found in double concentration in thermally degraded fats in comparison with the raw samples. A comparison of "Mangalitza" fatty acid profile with other oils and fats (poultry or fish) revealed a high similarity with the Wels Catfish oil, by means of total saturated, mono- and polyunsaturated fatty acids.

***Keywords**:* Fatty acid, lipid fractions, "Mangalitza" (*Sus scrofa domesticus*)

OC$_5$

Influence of growing and processing factors on the fatty acid profile of poultry lipids

Cosmina Andrea Chirilă[1], Cristina Liliana Mitroi[2], Corina Iuliana Megyesi[2], Raymond Nandy Szakal[2], Daniel Ioan Hădărugă[3*], Nicoleta Gabriela Hădărugă[1]

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The studies have been focused on the lipid profile of poultry meat in correlation with the environmental factors of growth, processing or conservation / storage, respectively protection of the labile components of the lipid fractions by molecular encapsulation. Various poultry samples were selected, bred in intensive system or in private households, for which the lipid profile was evaluated by gas chromatography-mass spectrometry (GC-MS), respectively by Fourier transform infrared spectroscopy (FTIR). In addition to the chicken samples, the lipid profile of turkey, duck, goose and pheasant were also evaluated. The similarity / dissimilarity of the lipid profiles have been performed by principal component analysis (PCA). The lipid profile of the chicken fractions indicated a relatively high concentration of mono- and polyunsaturated fatty acids, of which the most important were oleic and linoleic acids.

***Keywords**:* processing factors, fatty acid, poultry

OC$_6$

Evaluation of the fatty acid profile of whole barley (*Hordeum vulgare* L.)

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Barley (*Hordeum vulgare* L.), a member of the grass family, is a major cereal grain grown in temperate climates globally. It was one of the first cultivated grains, particularly in Eurasia as early as 10,000 years ago.

Barley has been used as animal fodder, as a source of fermentable material for beer and certain distilled beverages, and as a component of various health foods. It is used in soups and stews, and in barley bread of various cultures. Barley grains are commonly made into malt in a traditional and ancient method of preparation.

The goal of the study was the evaluation of the fatty acid profile of the lipid extract obtained from whole barley flour, using the gas chromatography coupled with mass spectrometry. The following main conclusions can be drawn: saturated and monounsaturated fatty acids showed fairly close concentrations of 27.85% and 21.54%, respectively. The saturated fatty acids were mainly palmitic acid, but also myristic, stearic, arachidic and behenic acids, at much lower concentrations.

Other fatty acid (glyceride) degradation compounds are identified, including aldehydes and formylated carboxylic acids or dicarboxylic acids. However, they appear in very low concentrations in the derivatized lipid samples.

Keywords: fatty acid, barley, *Hordeum vulgare* L.

OC$_7$

Production and Characterization of a fat reduce Mascarpone cheese from Goat Milk

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Mascarpone cheese has been relatively new to the Romanian cheese market. Many brands of Mascarpone cheeses are imported into the domestic market. Only a few local private producers (Delaco) have shown interest in marketing this assortment in Romania. The literature data indicates that no systematic approach has been taken to enrich with fibre/protein or reduce the fat content of Mascarpone cheese to make it more functional for health-conscious consumers. Therefore, taking into account the benefits of the added protein and the harmful effects of high-saturated fat dairy products, an attempt was made to standardise the manufacturing process of Mascarpone cheese using cream obtained from goat's milk and to incorporate a whey protein concentrate. To optimize the manufacture of Mascarpone cheese with 38% fat, the lactate fat represented by pasteurized cream with 45% fat, obtained from goat's milk, was added in three different variants in the coagulation process: i) 100% fat was added to the milk before coagulation; (ii) 50%. fat has been added to milk and 50 % fat during coagulation; iii) 100% fat has been added to the clotting. The using of the second variant has led to a higher yield in cheese, a higher fat recovery in the coagulation, respectively a lower loss in whey of it. Also, the sensory characteristics of the Mascarpone cheese samples obtained by this variant were superior to those manufactured by the others two. For the manufacture of Mascarpone cheese with 25% fat was used a combination of fat substitute consisting of a whey protein concentrate (WPC) and a starch-based redness. This fat substitute was also added in three variants: 10% (5% WPC and 5% redness), 15% (7.5% WPC and 7.5% redness), 20% (10% WPC and 10% redness). Based on physico-chemical and sensory observations, the addition of 10% fat substitute was found to be the best of all 3 levels selected to obtain a low-fat cheese. Therefore, the 10% FS Mascarpone cheese sample was selected as the most appropriate to meet the requirements of the contemporary consumer.

Keywords: mascarpone cheese; goat milk; fat substitute; whey protein concentrate

P1

Red beetroot (*Beta vulgaris* L.): A super food – a short review

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Red beetroot (*Beta vulgaris* L.) belongs to the Chenopodiaceae family and is a vegetable root rich in carotenoids, nitrates, flavonoids, vitamins, minerals and water soluble pigments, betalains like betacyanins (red-violet color), and betaxanthins (yellow-orange color), all of which have numerous nutritional and health benefits. Several different researchers have reported that red beetroot is an important source of bioactive compounds that may provide health benefits. Some epidemiological studies have demonstrated that the consumption of red beetroot has health properties like reduce blood pressure, improved athletic performance, digestive health, brain health, anticancer properties, and hepato-protective activities due to his bioactive compounds. The aim of this review is to discuss the important role of red beetroot for the development and growth of human body.

Keywords: Red beetroot, super food, biological effects

Acknowledgements: This work was supported by the project "Excellence, performance and competitiveness in the Research, Development and Innovation activities at "Dunărea de Jos" University of Galati", acronym "EXPERT", financed by the Romanian Ministry of Research and Innovation in the framework of Programme 1 – Development of the national research and development system, Sub-programme 1.2 – Institutional Performance – Projects for financing excellence in Research, Development and Innovation, Contract no. 14PFE/17.10.2018."

P2

Traditional Fermented Pickles in Romania – a review

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Pickling is a conventional method used for several foodstuffs preservation like vegetables, fruits, and foods of animal origin such as fish, meats and eggs. In fermented pickles this method generate beneficial and distinctive changes in some sensorial characteristics like texture, flavor and color. Some microorganisms (especially lactic acid bacteria, yeasts, Bacilli, and filamentous fungi) have a essential contribution in the pickling process of foodstuffs while affecting the quality and safety of the final product. The focus of this review is to provide an overview of the traditional fermented pickles in Romania and their nutritional and therapeutic effects on the human body.

Keywords: Pickling, foodstuffs, nutritional effects, therapeutic potentials

Acknowledgements: This work was supported by the project "Excellence, performance and competitiveness in the Research, Development and Innovation activities at "Dunărea de Jos" University of Galati", acronym "EXPERT", financed by the Romanian Ministry of Research and Innovation in the framework of Programme 1 – Development of the national research and development system, Sub-programme 1.2 – Institutional Performance – Projects for financing excellence in Research, Development and Innovation, Contract no. 14PFE/17.10.2018."

P3

The influence of sweeteners about antioxidant activity and polyphenol content of fermented beverages obtained from chamomile

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The aim of this paper was to evaluate polyphenols content and antioxidant activities of the chamomile soft drinks obtained by different sweeteners adding. These fermented soft drinks were obtained from chamomile flowers, bran, lemon juice and four kind of sweeteners: white sugar, brown sugar, honey and Stevia rebaudiana plant. We evaluated these beverages by sensorial point of view and we determined the antioxidant activity and the content of polyphenols. The results of our study show that the best antioxidant activities (253.15 mg TE/g, respectively 329.714 mg TE/g) and the highest polyphenols contents (0.989 µM/ml, respectively 1.1145 µM/ml) were registered in the samples with brown sugar and honey. We also evaluated these beverage by sensorial point of view.

Keywords: fermented chamomile beverage, sweeteners, antioxidant activity, polyphenol content.

P4

Market study on eating habits of meat products from Slobozia county

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Modern food is characterized by the consumption of large amounts of protein, meat and meat products, meat products being preferred. Meat products are the most consumed, having a high nutritional value. They can be consumed as such, without additional preparation and can be stored for a longer time in refrigerated form. The present study was carried out at the level of the inhabitants of Slobozia regarding the consumption of meat products from the Kaufland hypermarket. The purpose of the study was to find out what are the preferences of consumers in the area, in terms of rhythmicity of the purchase, producers agreed by consumers, the quantity and quality of meat products purchased. The study was conducted through an online platform and consisted of the socio-statistical survey based on a standardized questionnaire on a strictly defined exhaustive community. The sample of respondents consisted of 203 people from the city of Slobozia who answered the questionnaire submitted during April 2020. The centralized data were analysed to establish the preferences of the inhabitants of the area regarding the consumption of meat dishes purchased from this chain of stores. The sample of online respondents was analysed based on passport data: social environment, age, employment, income, level of education, health, gender. It was found that 75% of respondents live in the city and the average age of them is approximate 32 years. 70% of respondents are employed, over 65% have post-secondary and higher education, the average monthly income / family is 2000-4000 lei, health being appreciated as good by over 62%. About 84% of the respondents were women.

The rhythmicity of the purchase showed that 43% of the respondents make their supply weekly and 25% every two weeks, the others less often and 7% do not buy. The purchased quantity was for most respondents between 0.250 Kg - 0.500 Kg (42%) and <0.250 Kg for 23%. About 33% of respondents consume meat dishes daily and about 47% every 2-3 days. The preferred assortments are the specialties (41%), the smoked products (26%), the salami and the fresh ones with approximate 17%. However, about 7% do not consume meat dishes. Domestic producers are preferred, with a percentage of 62%, although the rest of the consumers do not have clear preferences. Over 50% of respondents prefer products in natural membranes and about 36% prefer vacuum packed. According to the answers received, consumers appreciate the role of the label, content in meat products and depending on what information they find written on the labels. A large part consults the label regarding the salt and fat content (69%). Approximate 73% of respondents do not want to buy products that have an unknown ingredient that may affect their health. The shelf life is an important element of food product quality, over 80% of respondents control this aspect currently, only 11% sometimes, the rest not being interested. The influence of price on purchasing preferences was declared by most consumers as an important criterion, being decisive for 29% and average for 38%.

***Keywords*:** sociological analysis, questionnaire, respondent, consumer preferences, label

P5

Study on the evaluation and optimization of the high school students' menu

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In recent years, great emphasis has been placed on improving the diet and lifestyle of children and adolescents, as part of a global strategy to prevent various chronic diseases, such as obesity, cardiovascular disease, type 2 diabetes, osteoporosis. Therefore, the diet of adolescent boys and girls between 14 and 19 years must take into account the plastic, energetic and biocatalytic needs imposed by stature, physical and intellectual activities. Proper nutrition among adolescents helps to prevent certain diseases, but improves overall health and helps the normal growth and development of the body.

The objective of the study was to analyze from a nutritional and energetic point of view the weekly menu practiced in the canteen of the Mihai Viteazul National College from Slobozia and its optimization in order to ensure a balanced diet for students. Community consisted of 100 students, aged between 14 and 19 years, of which 19 boys and 81 girls, with an average weight of 59.16 kg for girls and 63.71 kg for boys.

The research was carried out, in the first phase, based on the analysis of the nutritional and energetic value of the menu. The next phase consisted of conducting an opinion poll based on a questionnaire, which aimed to analyze students' food preferences.

The nutritional value of the menus was analyzed over a week, 5 working days, the same menus for boys and girls. The average weekly amount of protein in the menu had a value of 30.21% higher than the norm. Lipids were in even greater quantities, 66.56% more than the recommended value and carbohydrates did not cover the required with 29.36% of the required value for boys. For girls, these additional deviations were slightly higher, 52.66% for proteins and 99.49% for lipids, carbohydrates registering a minus of 10.39% compared to daily requirement.

Energy value of the menus was designed for an average of 2800 kcal/day, both for girls and boys. Was much lower than necessary for boys (3100 kcal/day), with 3.92% than the norm. Thus, the average weekly energy value for girls was higher with 19.14% face to norm (2500 kcal/day).

The data from the questionnaire showed that about 66% of the students were from urban areas and about 74% did not have medical problems. The analysis of the answers to the questionnaire applied to students shows that they are generally aware of the importance of nutrition on maintaining health, aim to consume foods with high nutritional value. 42% of them admit that they have unhealthy eating habits, consume many sweets and sweet carbonated drinks. The majority (> 85%) prefer freshly cooked food at home, 30% of them eat breakfast but 52% only occasionally.

In conclusion, it is recommended to change some foods at least in the food rations of Thursdays and Fridays, in order to balance the nutritional and energetic composition of the respective menus.

Keywords: diet, nutritional value, energy value, food rations

P6

Development and characterization of an innovative sweetness of hot pepper

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Our research consists in developing an innovative new recipe to obtain a special sweetness made from hot peppers. To obtain the hot pepper jam, we started from a classic recipe (fruit jam) in which were added ginger and anise. We have developed a manufacturing process, and technological stages to obtain this sweetness prototype. Our work has focused on evaluation of the main nutritional components and sensorial characteristics.

Our product, hot pepper sweetness, is rich in vitamins and minerals and it does not contain artificial preservatives or flavour enhancers. To establish the quality of this product comparisons between it and other products from the market have been made.

Keywords: hot pepper, jam, sweetness, ginger, anise, organic product.

P7

Malt replacers in the production process of gluten free beer

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Beer is a wide world consumed alcoholic drink and related to the volume, it is after water and tea the third most consumed drink in general (He et al., 2018). In all industries, the key engine is innovation, and beer industry makes no exception. The consumers always seek for new products on the market: a new brand, a new taste, primary and secondary attractive packing, a new technology, better quality, health benefits, etc. (Quesada-Molina et al., 2019).

The low content of gluten beer (<100mg/L) or gluten free (<20mg/L) beer production and its selling is still in the beginner's phase and its estimated value on the European market is of several billion euro per year. The largest number of gluten free beers provides the use of at least one fraction of cereal and pseudo-cereals derived malt which are gluten free and its precursors like: sorghum, buckwheat, rice, millet (Bogdan & Kordialik-Bogacka, 2017; Albanese et al., 2017).

When gluten free cereals or the pseudo-cereals are used in beer production, the final product is absolute gluten free but it has different sensory and quality parameters, aside from malt and barley beer. According to Codex Alimentarius and U.E. Regulation 41/2009 for gluten free food, the beers with less than 20 mg gluten can be considered as gluten free beers (Rubio-Flores & Serna-Saldivar, 2016).

It is well known that 85-90% of the world wide manufactured beer is nowadays produced of other raw materials except the traditional ones: barley malt or wheat malt.

This paper tries to identify non-conventional raw materials that can be used for the production of new gluten free beers in our country. The chemical and technological proprieties of some cereals like: corn, sorghum, rice, millet and the pseudo-cereals like: buckwheat, amaranth, quinoa that recommends them for the gluten free manufacturing of beer are detailed. Also, the advantages and disadvantages of the use of those raw materials in beer manufacturing are synthetically presented. Those beer types, produced of unconventional raw materials are world wide known, the majority of those being produced in Africa, where the barley and wheat cultures are in limited quantities. In our country, gluten free beer is not industrially scale manufactured, only a few imported gluten free beers can be found on the market.

Researches in the obtaining of gluten free beers field are on incipient stage, on lab level, new manufacturing receipts being experimented with the purpose of obtaining a finished product that would be produced on industrial scale, with sensorial qualities that would be appreciated by consumers.

Keywords: Malt, production process, gluten free, beer

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P8

Proximate composition of homemade chocolate with spices addition

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This paper aims to determine the approximate composition of some varieties of homemade chocolate based on cocoa, milk, sugar and butter, with spices additions.

To carry out this study, we prepared three varieties of homemade chocolate with the addition of hot peppers, cinnamon and ginger. Samples were analyzed in terms of the approximate composition: moisture, protein, fats, carbohydrates and mineral contents (ash).

Preliminary results obtained, using the analysis methods recommended by the quality standards: 5.84 – 7.21%, moisture; 6.25 - 7.64% protein; 31.32 - 34.53%, fats; 48.02 – 52.16 %, 2.42 - 2.96, ash; shows that the studied chocolate assortments contain significant amounts of nutritional facts. In addition, these chocolates are distinguished by a pleasant taste, slightly spicy and a special flavor.

Keywords: homemade chocolate, proximate composition, hot pepper, cinnamon, ginger.

P9

Content of total polyphenols, vitamin C, mineral elements and the antioxidant activity of some dried fruits from the Romanian market

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The purpose of this paper was to analyze several types of dried fruits from the Romanian market (dates, brown raisins and figs) in terms of total polyphenols (Folin-Cioc\lteu assay), vitamin C (iodometric method) and mineral elements (K, Ca, Mg, Fe, P, Mn, Cu, Cd, Zn, Pb, Cr, Ni) content (atomic absorption spectrophotometry) and also concerning their antioxidant activity (CUPRAC assay). From the three types of dried fruit analyzed, brown raisins were the richest in both total polyphenols (5.17±0.08 mg gallic acid/g) and vitamin C (8.15±0.12 mg/100g). Dried figs were richer in total polyphenols but poorer in ascorbic acid than dried dates. Regarding the antioxidant activity, it was the strongest also in the case of brown raisins (17.82±0.21 mg Trolox/g), the dry dates registering the lowest value (14.08±0.18 mgTrolox/g). Of the heavy metals analyzed, Cd was not identified in any of the dried fruits analyzed. Heavy metals: Cu, Cr, Ni, Pb and Zn, were below the maximum limit provided by law. Brown raisins were the richest in Fe, Mn, Mg, K, while dried figs recorded the highest concentration of Ca and P.

Keywords: dried fruits, polyphenols, vitamin C, mineral elements, antioxidant activity.

P10

CRISPR – CAS9 mediated genome editing, a cutting-edge tool for microbial metabolic engineering

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Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is an adapted technology based on bacteria and archaea CRISPR immune system, which developed rapidly in many domains of science or medicine with the goal of obtaining metabolites of high industrial significance aimed to combat the genetic aberrations or viral diseases (gene therapy). Nowadays, in terms of cellular metabolism engineering, CRISPR/Cas9 toolbox is applied to edit genes, knockout (overexpress)/ knockdown (repress) of competing pathways, mediate the integration of signaling pathways or increase the microbial cell tolerance to metabolite stresses. Chromosomal changes (such as insertions of biosynthetic pathways or codons/promotors substitutions using CRISPR/Cas 9) were performed in *Escherichia coli* in order to obtain β-carotene, isopropanol, n-Butanol, 5-Amino-levulinic acid, fatty acids, or medium chain fatty acids (MCFAs) bioproducts. In *Clostridium* sp. and *Streptomyces* sp., application of the technology aimed at the biosynthesis of isopropanol-butanol-ethanol, antibiotics, and anti-tumor compounds. Even though there are plenty of research papers on this topic, the time necessary for a successful metabolic network engineering depends on many factors, such as cell ploidy level, number of silent biosynthetic gene clusters or absence of the efficient tools for exploiting the bacteria genomes.

***Keywords*:** Crispr/Cas9, gene editing, metabolic engineering pathways, bioproducts

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P11

Gut microbiota particularities and gallstone disease in cholecystectomized patients

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Abstract 60 research participants: 35 patients with symptomatic gallstone disease (GSD) and indication for cholecystectomy (study group) and 25 healthy controls joined this cross-sectional pilot study, after signing the informed consent This study aimed to explore gut microbita in patients affected by GSD and the possible relation to GS gross description. All study participants underwent clinical examination, laboratory work-up including stool microbiology, as well as abdominal ultrasound/CT. Patients with GSD undertook cholecystectomy either laparoscopic or by classic approach. Dysbiosis, when diagnosed, was semiquantitatively assessed as 1 = minor, 2 = mild, 3=severe. Species from stool samples were identified by matrix-assisted laser desorption ionization (MALDI-TOF-MS) method and expressed as colony formatting units (CFU)/gram stool. Results: Demographic characteristic of study group were: average age 36-83 years, gender: 22.85% men, 77.15% women, location: urban=54.28., rural=45.72%. Distribution of GS by composition was: 76% of cases cholesterol and the rest (24%) pigment or mixed GS. Over 70% of cases had multiple stones and 1/3 either solitary or small number of stones. Stool microbiota analyze revealed that study group presented a highly significant percentage and range gut dysbiosis ($p<0.0001$) when compared to control group. 65.71% of patients displayed an alteration of the dominant phyla, with decrease of Firmicutes/Bacteroidetes ratio. This particular signature was observed in patients with cholesterol GS, associated in 28.57% with type 2 diabetes mellitus and in 54.28% with BMI over30 kg/m^2.Conclusions Patients with GS presented a significant increase of incidence and severity of gut microbiota dysbiosis. Several patients with cholesterol GSD displayed an alteration of Firmicutes/Bacteroidetes ratio, associated in many cases with metabolic issues.

***Keywords*:** microbiota, gallstone disease, cholecystectomized

P12

Understanding dyspepsia in postcholecystectomy syndrome: is gut microbiota dysbiosis linked to?

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Abstract 52 patients with persistent dyspeptic symptoms after cholecystectomy (study group), 21.15%, males, 78.85% females, mean age=59.05±14.47 years, location: 59.61% urban,40.39% rural, who met the inclusion criteria, after ruling out many diseases and conditions and 25 healthy controls were enrolled in this observational study, after signing informed consent. Aim of the study was exploring whether dyspepsia in postcholecystectomic syndrome could be related to gut microbiota dysbiosis. Research participants underwent clinical examination with thoroughly history taken and review of the surgical reports in study group, laboratory work-up and abdominal us/CT. Stool microbiology was performed in all study participants, microorganisms being identified by matrix-assisted laser desorption ionization (MALDI-TOF-MS) method and measured by number of colony formatting units (CFU)/gram stool. Severity of gut dysbiosis was scored as: 0=absent (normobiosis), 1=minor, 2=mild, 3=severe. Dyspeptic symptoms such as: abdominal pain, bloating and intestinal habit disorders were scored from 0-3. Results: 57.69% of cases experienced classical cholecystectomy, the rest (42.31%) laparoscopic approach. Study group displayed significant differences related to incidence and severity of gut microbiota dysbiosis by comparison to control group ($p<0.0001$).Modifications of gut microbiota were observed in 82,68%, as follows: 9.61% related to aerobic spp.; 73.07% anaerobic or microaerophilic changes that unbalanced Firmicutes/Bacteroidetes ratio. Correlation study revealed strong correlations between severity of dysbiosis, bloating and intestinal habit disorder. Conclusions Gut microbiota dysbiosis is often seen in patients with postcholecystectomy syndrome. Relation of intestinal habit disorder and bloating to severity of gut dysbiosis in conjunction to microbiological stool chart of each patient could mandate either probiotics or antibiotics, as customized therapy.

***Keywords*:** ostcholecystectomy, microbiota, dysbiosis

P13

Pumpkin – Health Benefits

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Plant products have been used for millennia as a medicine in human nutrition. The popularity of pumpkin consumed as both food and medicine in traditional medicine for several diseases (antidiabetic, antihypertensive, antitumor, immunomodular, antibacterial, antihypercholesterolemic, intestinal antiparasitic, anti-inflammatory, analgesic) have focused the attention of several researchers on it. Pumpkin is an important source of carotenoids, a variety of amino acids, vitamins and minerals, useful fibers, so it has a high therapeutic and health care function with great nutritional and technological potential. This review will focus on chemical composition, nutritional properties and health and medicinal benefits of the pumpkin.

***Keywords*:** Pumpkin, oil seeds, carotenoids, health

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P14

Study of drinking water quality in cahul district

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Groundwater is the main source of drinking water in the Republic of Moldova for the entire rural population and 30% of the urban population (65% of the total population of the country). In this study, the quality of drinking water from Cahul District (The Republic of Moldova) was investigated. Various water samples were collected from wells of rural localities, namely, Taraclia de Salcie, Doina, Huluboaia, Al.I. Cuza, having as reference the water from the central network of Cahul. Organoleptic, physico-chemical and microbiological analysis were performed. The analyzed water samples have no large deviations from the standards, except of the water from the village of Al.I. Cuza. This situation is very serious, because for a part of the population of Al.I.Cuza, this well is the only source of water and there is a possibility that some habitans use it as drinking water. In the future, our main goal is to perform the analysis of several water samples in Cahul County, in order to identify the suitable drinking water sources.

***Keywords**:* water quality, nitrates, water well.

Acknowledgements: We would like to thank the Sanitaro - Technical Laboratory of the Regional Public Health Center, which has allowed this research to be carried out.

P15

An overview on the earliest representative of today vegan and vegetarian ice cream

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Known as ice cream, gelato, sorbet, granita, frozen yogurt or sherbet all are frozen desserts, prefered by consumers especially in the hot summer days. Ice cream was and is the most popular dessert of all times. Even it ancestor is represented by the sorbet, more and more popularity was gained by the frozen desserts based on milk. This situatiation was changed by the vegan and vegetarian trends. So, sorbet and other frozen desserts with a low content of dairy regained their importance. The consumers care and attention for the products with high fats, sugars and additives dethrones the ice cream against the vegetal frozen desserts. So, this study aims to present and describe the main characteristics of the earliest representative of frozen desserts.

Keywords: ice cream, sorbet, vegetal, vegan

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P16

Current techniques used for Romanian wine characterization - a review

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Wine, especially the red one, is grown for more than 10 000 years, worldwide. One important aspect regarding its distribution on the market and consumer's confidence is wine authenticity. Authenticity, in terms of geographical origin, vineyard and "terroir", it is the specific definition of one wine, of each vine. This review aims to summarize the most important analytical techniques used for authentication and characterization of principal parameters of Romanian wines especially in the last ten years. Among other, the review will focus on the most relevant, actual information found on spectroscopic, vibrational techniques, trace elemental analysis, chromatographic methods and isotopic ratios assessments used.

Keywords: spectral, vibrational, chromatographic methods, isotopic, wine, authenticity, statistical analysis

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P17

Perspectives on mycotoxin management: occurrence of total aflatoxins in 2018-2019 romanian maize (*Zea mays* L.) samples

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In recent decades, mycotoxin contamination have continued to represent a clear public health concern. Cereals are very susceptible to fungal attacks, both in the field and during storage. Although there are numerous mycotoxins affecting the maize crops, aflatoxins are the most widespread, toxigenic and important mycotoxins in maize. In this context, a maize survey was conducted in Romania, to monitor the occurrence of total aflatoxins in maize samples, collected during the 2018 and 2019 growing seasons from fields located in all counties. A total of 179 maize samples were collected along with information regarding the specific location of fields, the applied agronomic practices and cropping systems. ELISA method was used for the quantification of AFs. Only one sample noted aflatoxin levels higher than the limit of 10.00 μg/kg, settled by the Commission Regulation (EC) No 1881/2006 for maize to be subjected to soring or other physical treatment before human consumption or use as an ingredient in foodstuffs. The highest total afaltoxins level was 77.59 μg/kg, noted by a maize sample from Argeș County (the South-Muntenia development region, macroregion 3). There were gathered information for strategies and solutions to the maize mycotoxin management. When referring to the analysed samples, the total aflatoxin contamination was independent of the type of hybrid, but strongly influenced by the pedo-climatic differences between counties. The southern counties proved to represent critical risk areas for aflatoxin contamination when referring to maize. These results highlight the importance of an effective and sustainable mycotoxin management along the food and feed chain, as well as the need of mapping the mycotoxin risk areas.

Keywords: aflatoxins, maize, Romania

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P18

Rheological characteristics of dough from wheat-defatted flaxseed composite flours

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In this study, dough rheological characteristics were analyzed for composite flours obtained through different blends between refined wheat flour and defatted flaxseed one. The flaxseed flour was incorporated in wheat flour to a substitution level of 0%, 5%, 10%, 15% and 20%. The dough rheological characteristics were analyzed through different Brabender devices such as Glutograph, Farinograph, Extensograph and Amylograph. Also, for the mix samples the falling number values were determined in order to evaluate the alpha amylase activity. According to the obtained data it may be noticed that in general, flaxseed addition increased Farinograph values such as water absorption, dough stability, dough development time and decreased the degree of softening at 10 min. During extension, flaxseed flour decreased dough strength and extensibility. From the pasting point of view, compared to the control sample, the samples in which flaxseed were incorporated in wheat flour presented a lower falling number value and a higher peak viscosity one.

Keywords: flaxseed-wheat flours, mixing, extension, pasting

Acknowledgements: We want to thank to the Marbacher Ölmühle GmbH Company for the provided flaxseed flour sample

P19

The influence of some technological operations on the concentrations of proteins from *Cannabis Sativa*

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A significant number of valuable bio compounds are lost during food processing. In the research related to the design of a dietary supplement from the wastes of hemp cakes (from which the oil was extracted) and Jerusalem artichoke fibers, the influence of technological operations on the concentration and viability of hemp proteins was analyzed. In the new food supplement concept, were used only organic raw materials and by-products which resulting from the partial processing of other raw materials (e.g. hemp pomace).

It is very important to monitor the influence of certain technological treatments on some protein compounds in Cannabis Sativa.

With the help of these valuable organic compounds, can be built a range of functional foods characterized by a higher nutritional density.

Keywords: hemp pomaces, protein extraction, functional foods

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P20

Pre-treatments used for the recovery of brewer's spent grain-a minireview

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Lignocellulosic biomass, of which brewer's spent grain (BSG) is a part, has a varied composition and requires various pre-treatments to extract compounds with added value. Pre-treatments bring several advantages: they open the structure of the cell wall, decrease the particle size, reduce cellulose crystallinity, and improve digestibility. Solvent extraction methods, diluted acid methods, alkaline, supercritical carbon dioxide extraction, microwave-assisted extractions, or ultrasonic extractions have as their main objective the change of the crystallinity of lignocellulosic biomass and the detoxification of inhibitors to improve hydrolysis and general saccharification. Pre-treatments are essential strategies that disrupt the structure of the BSG and help remove lignin, thus facilitating the exposure of polysaccharides for optimal extraction efficiency. The complexity and heterogeneity of biomass decide the extraction method used. Efficient, economically feasible, simple extraction methods, from which no inhibitors and no corrosive materials are produced, are taking into account.

Keywords: brewer's spent grain, valorisation, extraction methods

P21

Studies concerning the impact of the origin region on antioxidant properties of blackberries and blueberries

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This study aims to assess the influence of the origin place in climatic terms on the antioxidant properties of blackberries (Rubus fruticosus L.) and blueberries (Vaccinium myrtillus L.). For this purpose, blackberries and blueberries from spontaneous flora were collected in 2019, from the following regions of Romania, as follows: Zugau (Arad County) and Paltinis (Sibiu County) for blackberries, respectively Brad (Hunedoara County) and Paltinis (Sibiu County) for blueberries. The investigated antioxidant features were expressed by antioxidant activity evaluated using a 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging activity assay and total phenolic content evaluated by Folin-Ciocalteu assay. The antioxidant characteristics of the studied berries were determined for hydro-alcoholic extracts obtained by a maceration solvent extraction procedure. The differences recorded in the investigated characteristics of the same species coming from distinct areas were no significant. Nevertheless, a 14% decrease in the total phenolic content of blackberries from Paltinis area compared to blackberries from Zugau area, respectively 12% in blueberries from Paltinis area compared with blueberries from Brad area, was reported. The antioxidant activity varied from 229.91 to 252.43 mg GAE/100 g d.s. being lower in berries from Paltinis area. The collected data highlight that the origin region in climatic terms impacted on the antioxidant properties, a milder climate with higher temperatures and a moderate precipitations regime led to a higher value of antioxidant attributes. The results of this study are important in selecting blackberries and blueberries that show high antioxidant properties for further applications in designing new value-added food products.

Keywords: blackberries, blueberries, DPPH radical scavenging activity, total phenolic content, hydro-alcoholic extracts

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P22

Innovative shrimp products: physico-chemical and nutritional characterisation

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This paper had three major objectives. The first was to obtain an innovative ready-to-eat food product, using shrimp as a basic raw material, namely: appetizer cream, in two variants: one with baked red peppers and the second with green olives, using raw and auxiliary materials from the Romanian market. Second objective was to characterize the finished products obtained from the point of view of the total polyphenols and certain mineral elements content (K, Ca, Mg, Fe, P, Mn, Cu, Cd, Zn, Pb, Cr, Ni), as well as in terms of antioxidant activity, compared to the raw materials used. The third objective was to determine the proximate composition and energy value of the two variants of shrimp appetizer cream. From the raw and auxiliary materials used to obtain the two varieties of shrimp appetizer cream, the richest content of total polyphenols was found in black pepper (23.18 ± 0.56 mg acig gallic/g), followed by roasted capsicum pepper (13.89 ± 0.42 mg gallic acid /g) and green olives (12.40 ± 0.38 mg gallic acid /g). Shrimp had a total polyphenol content of 2.08±0.10 mg acid galic/g. Regarding the finished products, the highest content of total polyphenols was recorded for the appetizer cream variant with shrimp and baked red peppers: 6.93 ± 0.28 mg gallic acid /g, which also had the strongest antioxidant activity: 18.74±0.70 mg Trolox/g. Among the heavy metals analyzed, Cd was not identified in either the raw materials or the finished products. Pb was present in shrimp in a higher concentration (0,833±0.029 ppm) than the maximum limit provided by law. All other raw materials and finished products had concentrations of heavy metals below the maximum limits provided by law. The two varieties of appetizer with shrimp cream were very similar both in terms of proximate composition and energy value. Varianta de cremă aperitiv cu creveți și ardei capia copt a avut o valoare energetică puțin mai mică (229.70 kcal/100g) față de variantă cu măsline verzi (233.33 kcal/100g).

***Keywords**:* shrimp, appetizer, polyphenols, antioxidant activity, mineral elements.

P23

Chemical, physicochemical, and nutritional characteristics of some sausage types

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Sausages are a meat product usually made from ground meat, often pork, beef or poultry, along with salt, spices and other flavors. Other ingredients, such as breadcrumbs or grains, may be included as fillers or extenders.

Our research consists in developing an innovative meat product by using blueberry (*Vaccinium myrtillus L.*) and sea buckthorn (*Hippophae rhamnoides* L.) fruit rich in bioactive compounds. Our work has focused on evaluation of the biochemical, and nutritional characteristics some type of sausage with fruit adding (blueberry and sea buckthorn). These fruits have high content of antioxidants. The addition of antioxidants to meat products is done to prevent lipid oxidation, delay the development of off- flavours and improve colour stability.

The main physico-chemical features observed in the sample of sausage (simple sausage and sausages prepared with added cranberries) were: the content of humidity (%), ash (%), sodium chloride (%), protein (%), fat (%), carbohydrates (%) and energetic value (kcal/100g).

Following the research that have been undertaken in this work, the obtained product (sausages with fruit) can be included in the category of secure products of consuming.

From an organoleptic point of view, these sausages were in line with the rules previously established.

In conclusion, this prototype can be considered a food variant due to its high nutritious properties and to its distinguished taste too.

***Keywords**:* sausages, blueberry, sea buckthorn, pork, nutritional characteristics

P24

Approaches in online food marketing research

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Retailing food online is a difficult and complex business. Online shopping for food is a major issue as food is a tangible good that can be delivered via the internet under certain special conditions due to its perishable nature.

Consumers want to choose the food they buy. Even though consumers trust retailers to be able to deliver fresh food, there is a substantial difference between their personal preferences and tastes.

The real needs of customers in online food shopping will be identified and thus the general beliefs about the needs of consumers will be analyzed. It was thus emphasized that consumers immediately need all the products purchased and their desire to choose fresh food on their own is noticeable.

Keywords: retailing food online, online shopping

P25

Opportunities to improve logistics performance in the food industry

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The evolution of technology in all industries, including the food supply chain, exceeds the limits of digitalization and has changed people's daily lives in all its aspects. With all the rapid and spectacular developments, technology is changing every side of our lives, making constant efforts to make it easier, faster, better and more fun.

In this context of the advancement of technology and science, technological achievements in the logistics and supply chain industry have not lagged behind in this development. The transport and logistics industry in the food industry has traditionally been defined by the car and infrastructure base, but in recent years technology has begun to change the way it operates. Due to technological advances, the supply chain is more transparent than ever, and companies have become digitally connected, including to the level of end users.

From robotics in warehouses to dispatch and computerized tracking, technology has positively changed the perception and logistical approach of the food industry and offered new levels of visibility.

Keywords: logistics, food industry

P26

Research for identifying the optimum technological profile of rice flour for obtaining agglutene biscuits

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During the last decades, due to world globalization, rice flour has got assimilated by the European dishes especially to its benefits for the people suffering from gluten intolerance.

Without gluten-generating proteins, rice flour is a real challenge in applying the processing technologies, especially the adapting of the existing ones.

However, there have already made scientific approaches on the processing of this type of flour, with different applications for pasta, bread and even diverse doughs for making fancies, cookies and biscuits on classical technological lines, thus being a topic of scientific debate and a challenge.

The aim of this paper is to establish a mixolab profile for rice flour so that it can be applied to the production of agglutenic biscuits in order to support local producers Ascorbic acid and glucose oxidase were used as additives to strengthen the flour network.

Keywords: rice flour, biscuit, additive, profile, ascorbic acid.

P27

Comparative evaluation of nutritional potential of chestnuts and broad bean

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Chestnuts have become increasingly important in human nutrition due to their nutritional composition and potential beneficial effects on health, for example, as part of a gluten-free diet in cases of celiac disease and in reducing coronary heart disease and cancer. Chestnuts are a good source of energy and a healthy diet, due to the fact that they have a very low fat content, but a high fiber content predominated by unsaturated fatty acids. Same like chestnuts, broad beans is considered a source of protein in human diet, which decreases saturated fat and reduces cardiovascular risk, being one of the oldest crops grown by man. One of the possibilities to obtain a nutritious functional food is to create a puree mix of chestnuts pulp and broad beans.

The aim of this study to comparatively evaluate the nutritional potential of chestnuts and broad beans in order to obtain a valuable functional food for people with neurodegenerative diseases or for those which need a gluten free diet.

The data fingerprint reveals the possibility to use broad beans to improve the nutritional value of chestnuts products and also to create products with high content of natural L-dopa, the precursor of dopamine. The high mineral and vitamins contents of broad beans as well as the special taste of roasted broad beans makes this special legume an interesting substitute for chestnut flour and chestnuts products and creates the possibility to offer a functional food with an intriguing taste.

Keywords: gluten free diet, neurodegenerative diseases, functional food

P28

BPA incidence in babies drinking water available on romanian market

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Bisphenol A, a chemical that disrupts the endocrine system, is widespread in the population. In addition to the action of the endocrine disruptor, this compound can help develop many other health problems, some of them even serious. Among the categories of subjects, the most vulnerable are babies and children under 3 years old. The ways in which their exposure to BPA can be achieved are multiple, such as baby feeding bottles from PC, containers from PC for preparing food, drinking water from PET bottles made from recycled PET, used for preparing food or milk formulas, or for consumption as such. The purpose of this study is to conduct a market study on the degree of BPA contamination of babies drinking water available on the Romanian market. For the BPA analysis, 13 water samples were used, the samples being analysed by a UV - VIS spectrophotometric method. The results were between 0.12 – 0.76 µg / L, being slightly higher compared to the data in the literature, but without exceeding the limit imposed by EU Regulation no. 213/2018 of 0.05 mg / kg.

***Keywords**:* Baby, BPA, Drinking water, PET