INTERNATIONAL SCIENTIFIC SYMPOSIUM

" YOUNG RESEARCHERS AND SCIENTIFIC RESEARCH IN LIFE SCIENCES (Series - Food Engineering)",

BOOK OF ABSTRACT

Editors
Nicoleta Gabriela Hadaruga, Adrian Riviș,
Teodor Ioan Trașcă, Diana Veronica Dogaru

ISSN: 2821 – 4307
ISSN – L: 2821 – 4307

2021 – edition
Timisoara

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

Faculty of Food Engineering

INTERNATIONAL SCIENTIFICAL SYMPOSIUM: YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES

Series: Food Engineering

25 November 2021

Topic: **Conferința Științifică Internațională “TINERII SI CERCETAREA ȘTIINȚIFICĂ ÎN DOMENIUL ȘTIINȚELOR VIEȚII” dedicată studenților, masteranzilor, doctoranzilor și tinerilor cercetători.**
Time: Nov 25, 2021 09:30 AM Bucharest

Join Zoom Meeting
https://us02web.zoom.us/j/87343611117?pwd=Z3FqUGYyMTNTcEFHbWVOYzkvOFhlUT09

Meeting ID: 873 4361 1117
Passcode: 036481
One tap mobile
+13462487799,,87343611117#,,,,*036481# US (Houston)
+16465588656,,87343611117#,,,,*036481# US (New York)

Dial by your location
+1 346 248 7799 US (Houston)
+1 646 558 8656 US (New York)
+1 669 900 9128 US (San Jose)
+1 253 215 8782 US (Tacoma)
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
Meeting ID: 873 4361 1117
Passcode: 036481
Find your local number: https://us02web.zoom.us/u/kdWYmqxRWu

"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES", 25 November 2021, Timisoara

General Programme

Thursday, November 25, 2021

9^{30} – 9^{50}	Participant admission
10^{00} – 10^{15}	Symposium opening **Prof. univ. dr. Cosmin Alin Popescu** BUASVM`s Rector
	Opening conference Opening conference, Akademika Banat Chorus – ***dirijor Prof.dr. Nicolaescu Ingrid***
10^{55} – 10^{40}	Utilizarea inteligenței artificiale în agricultură **Cristian Apa** - *Solutions Business Manager, SAS CEMEA, Romania*
10^{40} – 10^{55}	Oral Communication OC_1
10^{55} – 11^{10}	Oral Communication OC_2
11^{10} – 11^{25}	Oral Communication OC_3
11^{25} – 11^{40}	Oral Communication OC_4
11^{40} – 11^{55}	Oral Communication OC_5
11^{55} – 12^{10}	Oral Communication OC_6
12^{10} – 12^{25}	Oral Communication OC_7
12^{25} – 12^{40}	Oral Communication OC_8
12^{40} – 12^{55}	Oral Communication OC_9
12^{55} – 13^{10}	Oral Communication OC_{10}
13^{10} – 13^{25}	Oral Communication OC_{11}
13^{25} – 13^{40}	Oral Communication OC_{12}
13^{40} – 13^{55}	Oral Communication OC_{13}
13^{55} – 14^{10}	Oral Communication OC_{14}
14^{10} – 14^{25}	Oral Communication OC_{15}

"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES", 25 November 2021, Timisoara

Programme

9^{30} – 9^{50} Participant admission

10^{00} – 10^{15} Opening of the Symposium
Prof. univ. dr. Cosmin Alin Popescu
Prof. univ. dr. Isidora Radulov
Rector and Vice rector of the Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timişoara

Opening conference Opening conference, Akademika Banat Chorus – ***dirijor Prof.dr. Nicolaescu Ingrid***

10^{15} – 10^{40} Utilizarea inteligenței artificiale în agricultură - **Cristian Apa** - *Solutions Business Manager, SAS CEMEA, Romania*

Oral communications

10^{40} – 10^{55} **OC_1:** "*Zero chemical*" agriculture
Daniela Trifan, **George Toader, Cătălin-Ionuț Enea, Alin-Ionel Ghiorghe, Emanuela Lungu, Leonard Ilie**, *University of Agronomic Sciences and Veterinary Medicine of Bucharest*

10^{55} – 11^{10} **OC_2**: Use of post cervical insemination in swine: economic aspects
Robert Florian Vlad, **Cristian Beg, Alina Maria Dodu, Iasmina Loredana Indri, Ioana Dana Pandur**, *Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Bioengineering and Animal Resources*

$11^{10} – 11^{25}$ **OC3:** Organoleptic characterization of desserts obtained from tapioca pearls
Alice Vasiloni, Zlatan Milosevic, Ana-Maria Crețu, Daniel Platon, Corina Mișcă, Delia Dumbravă, Camelia Moldovan,*"Victor Babeş" University of Medicine and Pharmacy from Timişoara, Faculty of Pharmacy*

$11^{25} – 11^{40}$ **OC4:** The use of satellite images in agriculture, forestry and horticulture. Reflective indices
Olimpiu Ovidiu Cornea, Dorin Camen, *Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Horticulture and Forestry*

$11^{40} – 11^{55}$ **OC5:** Konya - tourist destination and component of tourism products offered by Turkish travel agencies
Ayşe Gözeller, Burak Altiparmak, Cosmina-Simona Toader, *Erciyes University, Faculty of Tourism, Kayseri, Turkey*

$11^{55} – 12^{10}$ **OC6:** Current state and prospects for the development of renewable energy in Russia
Daniil Raspopin, Irina Minakova, Lucrețiu Dancea, *Southwest State University, Kursk, Russia*

$12^{10} – 12^{25}$ **OC7:** Biochemical composition of Melia azedarach berries from the eastern mediterranean (Hatay, Turkey) region and evaluate in terms of Veterinary Toxicology
M. Yipel, Aysun Ilhan, Fulya Altinok Yipel, Musa Türkmen, *Hatay Mustafa Kemal University, Faculty of Veterinary Medicine*

$12^{25} – 12^{40}$ **OC$_8$:** Study on the vector role for *Calicophoron Daubneyi* of some aquatic snails form Western Romania
Cătălin Bogdan Sîrbu, Ioan Peț, Claudia Alexandrina Goina, Miruna Magda Morariu, Beatrice Ana-Maria Sîrbu, Florica Morariu, *Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Bioengineering and Animal Resources*

$12^{40} – 12^{55}$ **OC$_9$:** Recent researches for coenzyme Q_{10} from food matrices. Supplementation in aging and diseases
Andersina - S. Podar, Cristina - A. Semeniuc, Maria - I. Socaciu, Melinda Fogarasi, Anca - C. Fărcaș, Sonia - A. Socaci, *University of Agricultural Sciences and Veterinary Medicine from Cluj-Napoca*

$12^{55} – 13^{10}$ **OC$_{10}$:** Tomographic Analysis of Magnolia x soulangiana Soul. Bod. from the Historical Garden of the Baroque Palace in Oradea, Romania
Timea Kleszken, Daniela Sabina Poșta, *University of Oradea - Faculty of Informatics and Science, Biology department*

$13^{10} – 13^{25}$ **OC$_{11}$:** Consumers' opinions on bovine milk, especially on raw milk sold directly
Dzsenifer Mária Ruzsa, Karoly Bodnar, *Hungarian University of Agriculture anf Life Sciences*

$13^{25} – 13^{40}$ **OC$_{12}$:** Morphology of the skull in badger (*Meles meles*)
I. Crăciun, Ana-Maria Marin, C. Hulea, Crina Moșneang, M. Pentea, Banat's University of Agricultural Sciences and Veterinary Medicine "*King Michael I of Romania*" from Timisoara, Faculty of Veterinary Medicine

$13^{40} – 13^{55}$ **OC$_{13}$:** Possibility of using grape pomace as an antifungal and antimycotxigenic agent in wheat for food consumption
Voichița Bota, Renata Maria Sumălan, Loredana Pluștea, Andrada Gavra, Diana Obistioiu, Monica Negrea, Antoanela Cozma, Ersilia Alexa, *Banat`s University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Food Engineering*

$13^{55} – 14^{10}$ **OC$_{14}$:** The effects of including cinnamaldehyde or carvacrol on wethers' diets on their ruminal metabolism
- Alexandra - Gabriela Oancea, Catalin Dragomir, Ana Cismileanu, *INCDBNA, National Research-Development Institute of Biology and Animal Nutrition, Balotesti, Romania, jud. Ilfov*

$14^{10} – 14^{25}$ **OC$_{15}$:** Researches regarding the microbiota of the homemade „bors", as healthy source
Radu Ciobanu[1], Nicoleta Badaluta[1], Claudia Ungureanu[1], Ana-Maria Georgescu[2], Dumitra Raducanu[1], *[1]Vasile Alecsandri'' University of Bacau, Faculty of Sciences, Department of Biology, Ecology and Environment Protection, 157 Calea Marasesti Street, 600115 Bacau, Romania;[2]"Vasile Alecsandri" University of Bacău, Faculty of Engineering*

Series: Food Engineering

Posters

P1 Phytochemical characterization of red onion skin anthocyanins liposomes

Florina Stoica, Nicoleta Stanciuc, Iuliana Aprodu, Gabriela Elena Bahrim, Gabriela Rapeanu

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galați, Domnească Street 111, Galați, România

P2 Encapsulation of phenolic compounds from a red grape skin extract in whey protein isolate and pectin

Daniela Serea, Gabriela-Elena Bahrim, Iuliana Aprodu, Nicoleta Stanciuc, Oana Constantin, Gabriela Rapeanu

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galati, Domneasca Street 111, Galati, Romania

P3 The influence of gum addition on colloidal stability and sensory characteristics of white wines (*Vitis vinifera* cv. Șarba)

Mihaela Manuela Hozoc (Nedelcu), Gabriela Rapeanu, Nicoleta Stanciuc, Georgiana Horincar, Iuliana Aprodu, Gabriela Elena Bahrim

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galati, Domneasca Street 111, Galati, Romania

P4 Value added mayonnaise enriched with red beetroot peels powder

Silvia Lazăr (Mistrianu), Georgiana Horincar, Doina Georgeta Andronoiu, Nicoleta Stănciuc, Oana Emilia Constantin, Gabriela Râpeanu

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galati, Domneasca Street 111, Galati, Romania

P5 Reasons for using rosehips in the food industry as a source of natural antioxidants

Sebastian Vesa, Anamaria Tobica, Diana Moigradean, Diana Raba, Delia Dumbrava, Mariana-Atena Poiana

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P6 Correlations between the health status of pregnant women and eating habits - review

Teodora - Alexandra Iordache, Fulvia - Ancuța Manolache, Adriana Macri

National Research and Development Institute for Food Bioresources, Dinu Vintila 6, RO-021102, Bucharest, Romania

P7 Effect of enzyme treatments on red wines colour (*Feteasca neagra* variety)

Elena Iosip (Dragomir), Gabriela Rapeanu, Gabriela Elena Bahrim, Nicoleta Stanciuc, Oana Emilia Constantin, Iuliana Aprodu

Faculty of Food Science and Engineering,"Dunărea de Jos" University of Galati, 111Domneasca Street, Galati, Romania

P8 Obtaining and sensory characterization of a spicy apricot sauce

Izabella Balasz-Kercso, Nicoleta Daiana Bardan, Grigore Alexandru Bălțatu, Mădălina Mărășescu, Delia Gabriela Dumbravă, Camelia Moldovan, Mărioara Drugă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P9 The quality of some meat products - the gypsy muscle

Yasmine Alexandra Goian, Mădălin Dorin Santa, Avărvarei Alexandra, Camelia Moldovan, Ariana Velciov, Mărioara Drugă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P10 The quality of telemea cheese sold in the supermarket

Mădălin Dorin Santa, Yasmine Alexandra Goian, Tabita Oana Iacob, Roxana Mihaela Dumitrescu, Camelia Moldovan, Mărioara Drugă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P11 Obtaining and characterizing a spreadable paste from pumpkin seeds

Daliana-Cornelia Trainic, Ruth-Brighita Gal, Iulia Gabriela Mihai, Delia Gabriela Dumbravă, Ariana Velciov, Mărioara Drugă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P12 Innovative assortments of bread with mushrooms – obtaining and analysig the proximate composition

Raphael Gregor Ursu, Alexandra Furdui, Lavinia Popa, Izabela Dumitrache, Camelia Moldovan, Mariana Atena Poiană, Delia - Gabriela Dumbravă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P13 An overview on the use of sea buckthorn bioactive potential in the food industry

Anamaria Tobica, Sebastian Vesa, Camelia Moldovan, Diana Dogaru, Adrian Rivis, Mariana - Atena Poiana

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P14 Effect of blackberry byproducts extract addition on thermo - oxidative stability of sunflower oil

Cristina-Ramona Metzner Ungureanu, Ileana Cocan, Diana Moigradean, Ioana-Alina Pop, Diana Dogaru, Adrian Rivis, Mariana-Atena Poiana

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P15 Current trends in the use of unconventional raw materials for the development of value-added food products

Ioana-Alina Pop, Ersilia Alexa, Diana Raba, Cristina Metzner Ungureanu, Daniela Stoin, 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, Calea Aradului 119, Timisoara 300645, Romania

P16 Current trends in obtaining low-sugar fruit jam

Ionela Sandru, Roxana Diadora Gruiescu, Gabriela Pupaza, Petrica Gosa, Diana Moigradean, Monica Negrea, Mariana-Atena Poiana

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P17 Study on the possibility of using soluble oat fiber in bakery industry to obtain functional products

Ramona Carmen Rominescu, Roxana Diadora Gruiescu, Mariana-Atena Poiana, Ersilia Alexa, Adrian Rivis

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P18 The use of gooseberries for the development of food products with high bioactive properties

Roxana Diadora Gruiescu, Ramona Carmen Rominescu, Despina-Maria Bordean, Adrian Rivis, Mariana-Atena Poiana

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P19 Ice cream - a healthy food product?

Denisa-Camelia Borza, Ramona Hegheduș-Mîndru, Mădălina-Ioana Stînga, Diana Vîrsta, Mihaela Cazacu, Daniela Stoin, Ducu-Sandu Ștef

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P20 Research on the sensory characteristics of some fruit and vegetable chips

Paula Meilă, Robert Rece, Diana Vârsta, Paul Bakos, Andreia Cristea, Mirela Popa, Delia Dumbravă, Camelia Moldovan

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P21 Characterization of muffins obtained from almond and coconut flour

Mihaela Cătana, Romina Hiriș, Karla Vieriu, Romeo Vărzaru, Delia Dumbravă, Camelia Moldovan

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P22 Virșli: implementation of the HACCP system

Augusta Andreea Mărginean, Alexandra Andreea Predica, Nicoleta Daiana Bardan, Laura Rădulescu, Corina Iuliana Megyesi

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P23 Homemade smoked sausages with the addition of red wine

Valeriu Constantin Miron Mezdrea, Bianca Daniela Naherneac, Gheorghe Florin Samulescu, Laura Rădulescu, Corina Iuliana Megyesi

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P24 Obtaining potato bread with the addition of pumpkin seeds - implementation of the HACCP system

Bianca Daniela Naherneac, Valeriu Constantin Miron Mezdrea, Iulia Alexandra Mihart, Laura Rădulescu, Corina Iuliana Megyesi

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P25 Sensory analysis of chickpea salami - implementation of the HACCP system

Alexandra Andreea Predica, Augusta Andreea Mărginean, Denisa Florentina Haiduc, Alexandru Erne Rinovetz, Corina Iuliana Megyesi

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P26 Innovative raw-vegan dessert with *Ganoderma lucidum* – obtaining and nutritional profile analysis

Alexandra Furdui, Raphael Gregor Ursu, Lavinia Popa, Cristian Alin Costescu, Camelia Moldovan, Diana-Nicoleta Raba, Delia - Gabriela Dumbravă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P27 Sensory characteristics of gluten-free cookies prepared with rice flour and pumpkin flour

Cadrin Svetozar-Rusalin Nicolescu, Diana-Lenuța Vîrsta, Maria-Mădălina Zamoștean, Ioana-Marinela Daminescu, Călin Jianu, Ariana – Bianca Velciov, Daniela Stoin

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P28 *Hippophae rhamnoides* essential oil: chemical composition and in silico study a of its biological activities

Mihaela Agavriloaei, Maria Mădălina Zamostean, Ioana Marinela Daminescu, Cadrin Svetozar-Rusalin Nicolescu, Daniela Stoin, Călin Jianu

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P29 The effect of incorporating spirulina in *Mozzarella* cheese as a functional food

Zorica Voșgan, Anca Dumuta, Monica Marian, Lucia Mihalescu

Technical University of Cluj-Napoca, Faculty of Sciences, Department of Chemistry and Biology, 76 Victoriei Street, 430122 Baia Mare, Romania

P30 Study on the preparation technique of onion jam

Bianca - Maria Laichici, Andrei - Laurențiu Șerban, Mihaela Cazacu

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P31 Obtaining and characterizing assortments of cheeses: Jintița

Roxana - Bianca Luca, Claudiu - Rafael Blănaru, Mihaela Cazacu

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P32 Development of low glycemic index products using psyllium husk and wheat bran fractions

Roxana – Lavinia Țuțuman, Didier-Makindu Mabibi, Loredana Rusu, Ileana Cocan, Ersilia Alexa, Monica Negrea

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P33 Valorizing the nutritional potential of quinoa and chia seeds

Mihai Milos, Marcela-Maria Cioara (Stancu), Elena Adelina Beuran, Alexandra Daniela Avirvarei, Liana Maria Alda, Despina-Maria Bordean

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P34 Evaluation of the antioxidant and mineral characteristics in some varieties of nuts

Monica-Manuela Marean, Darius-Lucian Ilioni, Sorin Marius Gilorteanu, Andrei Catargiu, Liana Maria Alda, Despina-Maria Bordean

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P35 Harnessing the nutritional potential of pomegranate fruits and peels

Alexandru Morariu, Ariana Cseke, Delia Ionela Patricia Ivanis, Liana Maria Alda, Despina-Maria Bordean

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P36 The study of antioxidant and mineral characteristics of various root vegetables

Paul Marian Petridean, Andreea Dobrin, Lucas Carolin Livitchi, Dan Raican, Liana Maria Alda, Despina-Maria Bordean

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P37 Characterization of the mineral and nutrient content of some fresh meat products assortments („Mici" and sausages)

Andrei-Razvan Potocean, Andreea Dobrin, Mihai Milos, Livia Maria Tomescu, Laura Radulescu, Liana Maria Alda, Despina-Maria Bordean

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P38 Possibilities to reduce the oxidation degree in meat products

Constantin Puiu, Majd Hasan, Alexandra Rus, Diana-Andreea Oprițescu, Monica-Mihaela Margan, Monica Negrea, Ileana Cocan

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P39 The influence of the processing conditions on the Salty cheese with *Propionibacterium shermanii* addition

Anca Dumuţa, Zorica Voşgan, Cristina Mihali, Lucia Mihalescu, Alina Groşan

Technical University of Cluj-Napoca, Faculty of Sciences, Department of Chemistry and Biology, 76 Victoriei Street, 430122 Baia Mare, Romania

P40 Homogeneity assessment. The critical role in certified reference material production

Ovidiu Mărculescu, Floarea Serbancea

University Politehnica of Bucharest, România, National Research and Development Institute for Food Bioresources – IBA Bucharest

P41 Modern aspects in the world of food engineering

Ovidiu Mărculescu [1,2], Maria-Roxana Marinescu [3], Augustin Semenescu [4,5]

[1]University Politehnica of Bucharest, România; [2]National Research and Development Institute for Food Bioresources – IBA Bucharest; [3]National Institute for Research and Development in Microtechnologies – IMT Bucharest; [4]Faculty of Materials Sciences and Engineering, University POLITEHNICA Bucharest, 313 Splaiul Independenței, 060042 Bucharest, Romania; [5]Academy of Romanian Scientists, 3 Ilfov, 050044, Bucharest, Romania

P42 Sensory properties of some red wines from different wine regions of Romania

Martina Necula, Iasmina-Ximena Iliopol, Andreea-Georgiana Ancas, Mirabela-Codruta Latcu, Mariana-Atena Poiana, Liana-Maria Alda, Diana Moigradean

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P43 Economic technical study of the natural storage of some vegetal raw materials. Parsnip

Ilie Nedelcu, Dorin Otiman, Alexandru Mitrache, Alexandru Corcionivoschi, Renata Sisa, Ioan David, Gabriel Bujancă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P44 Cooking at high temperatures - effects on human health

Tudor Stricescu, Andrei – Marius Gherman, Ionela Anișoara Ponoran, Georgeta Sofia Popescu, Daniela Stoin, Ariana-Bianca Velciov

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P45 Evaluation of mineral micronutrients from native plums

Ionela Andreea Birtea, Iasmina Madalina Anghel, Adelina Avrămuş, Andreea Inoveanu, Georgeta Sofia Popescu, Antoanela Cozma, Ariana-Bianca Velciov

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P46 Study of the technological process of obtaining the fruit jam

Delia Mihaela Bădescu, Robert Costinel Mutici, Andreea Annemarie Kiss, Daniel Bogdan Platon, Ana-Maria Găină, Gabriel Heghedűş-Mîndru, Ramona Heghedűş-Mîndru

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P47 Assessment of the nutritional potential of raw and paraboiled rice

Ionut Adelin Bobiti, Delia Ionela Ivănis, Orsolya Izabela Kulcsar, Bianca Groza, Liana Maria Alda, Despina Maria Bordean, Simion Alda

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P48 Study of the technological process of obtaining chocolate

Ana-Maria Găină, Daniel Bogdan Platon, Andreea Annemarie Kiss, Delia Mihaela Bădescu, Robert Costinel Mutici, Ramona Heghedűş-Mîndru, Gabriel Heghedűş-Mîndru

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P49 Study of the technological process of obtaining pasta

Andreea Annemarie Kiss, Daniel Bogdan Platon, Delia Mihaela Bădescu, Robert Costinel Mutici, Ana-Maria Găină, Gabriel Heghedűş-Mîndru, Ramona Heghedűş-Mîndru

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P50 Study on the technological process of obtaining meat products

Robert Costinel Mutici, Andreea Annemarie Kiss, Daniel Bogdan Platon, Delia Mihaela Bădescu, Ana-Maria Găină, Gabriel Heghedűş-Mîndru, Ramona Heghedűş-Mîndru

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P51 The study of the technological process of obtaining dairy products through traditional processes and technologies

Daniel Bogdan Platon, Andreea Annemarie Kiss, Delia Mihaela Bădescu, Robert Costinel Mutici, Ana-Maria Găină, Ramona Heghedűş-Mîndru, Gabriel Heghedűş-Mîndru
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P52 Sensory evaluation of the innovative product „Pasta biscuits"

Cristiana Dragotă, Cristina Zbirnea, Diana Oprițescu, Camelia Moldovan, Corina Mișcă
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P53 The evaluation of microbiological and sensorial properties of a functional bakery product

Ciprian Mocan, Zlatan Milosevic, Mădălin Dorin Santa, Delia Dumbravă, Camelia Moldovan, Corina Mișcă
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P54 Functional foods - a challenge for the globalized food industry

Cristina Zbirnea, Zlatan Milosevic, Ciprian Mocan, Camelia Moldovan, Delia Dumbravă, Mirela Popa, Corina Mișcă
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P55 Research on the quality characteristics of exotic fruit added biscuits

Raul Codoban, Izabela Kulcsar, Andreea Kallos, Anamaria Găină, Raveca Cozan, Aurica Borozan, Bogdan Rădoi, Camelia Moldovan

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P56 Evaluation of the quality characteristics and nutritional properties of desserts with grape pomace flour

Alexandra Oprea, Anamaria Țobîcă, Ionela Șandru, Călin Cureleac, Andreea Kiss, Mărioara Drugă, Atena Poiana, Moldovan Camelia

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P57 Nutritional and chemical characterization of soymilk

Daniela-Florentina Marcu[1], Luiza Maria Ghigeanu[2], Adina Modoc[1], Georgeta- Sofia Popescu[2*], Ariana-Bianca Velciov[2], Florina Radu[2]

[1]Decembrie 1918" University of Alba Iulia;

[2]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P58 Possibilities to replace animal milk with vegetable milk

Iasmina Andreea Bordeanu, Oriana Dorina Jaba, Ionela Florentina Scurtu, Iosif Valentin Plesa, Diana Veronica Dogaru, Camelia Moldovan, Delia Gabriela Dumbravă, Mariana Atena Poiană

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P59 Characterization of some local cherry fruits assortments based on polyphenols content

Luiza Maria Ghigeanu[1], Daniela-Florentina Marcu[2], Emilia Copaci[2], Adina Modoc[1], Florina Radu[1], Ariana-Bianca Velciov[1], Georgeta-Sofia Popescu[1*]

[1]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania; [2]Decembrie 1918" University of Alba Iulia

P60 Constraints and disputes regarding the production and consumption of horse meat

Simina Varan, Izabela Firuț, Cristiana Dragotă, Ciprian Mocan, Mădălina Nicoleta Roșu, Viorica – Mirela Popa, Corina – Dana Mișcă, Petru Bogdan Rădoi

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P61 Quality management and nutritional properties of appetizer waffles with coffee and bacon

Mădălina Stîngă, Andreea Pădurean, Bianca Groza, Csilla Kiss, Bianca Pascotescu, Diana Dogaru, Diana Raba, Camelia Moldovan

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P62 Forgery food. Lipid complexes. Case study

P.I. Trifa, Petru Bogdan Rădoi, Gabriel Bujancă, Denisa Lațcu, Mihaela Eugenia Simescu, Alexandru Rinovetz

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P63 Study on the traditionality of sausage meat products in the gastronomy of Banat

Petru Bogdan Rădoi, Christine Dragomir

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P64 COVID-19 Pandemic crisis - major changes in the food industry

Isabela Firuț, Simina Varan, Ciprian Mocan, Alexandra Daniela Șandor, Viorica – Mirela Popa, Camelia Moldovan, Delia- Gabriela Dumbravă, Diana Nicoleta Raba

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P65 Study on the nutritional value of traditional sausages compared to industrial sausages

Teodor Ioan Trașcă, Elena Manuela Decă
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P66 Comparative studies on the sensory and nutritional properties of natural and probiotic yogurt

Cristina Popescu, Adina Modoc, Andreea Ghitulescu, Evelyn Voian, Maria L. Ghigeanu, Ioan Miclau, Florina Radu
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P67 Edible flowers in novel foods: primary studies in the manufacture of flower compote of acacia (*Robinica pseudoacacia*), rose (*Rosa damascena*) and elder (*Sambucus nigra*)

Maria Lidia Iancu
"Lucian Blaga" University of Sibiu, Faculty of Agricultural Sciences, Food Industry and Environmental Protection, 5-7, Ion Rațiu Street, Sibiu, 550012, Romania

P68 The influence of oxidases in baking

Iulia Bucurescu, Ioan David, Gabriel Bujancă
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P69 The action of hemicellulase in the manufacturing process of pasta products

Sanda Dragomir, Ioan David, Gabriel Bujancă
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P70 Study on the identification of critical control points on the technological flow of production of the traditional product "*Jambon de comuna Blandiana*"

Petru Bogdan Rădoi, Andreea Diana Ispas
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P71 Study on the identification of critical control points on the technological flow of frozen dough manufacturing

Petru Bogdan Rădoi, Mădălina Roșu, Daniela Stoin
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

P72 Study on the nutritional value of "*Ciocopinguin homemade chocolate*" compared to industrial chocolate

Ioan Teodor Trașcă, Alexandra Daniela Șandor
Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

P73 The influence of ecosystem, growing level and extraction method on the fatty acid profile of chia seed oil (*Salvia hispanica* L.)

Iulia Maria Galan[1,3], Anamaria Guran[3], Christine Alexandra Lucan (căs. Banciu)[1,3], Cristina Liliana Mitroi[3], Marius Daniel, Simandi[3], Tamara Vlăduţescu[3], Raymond Nandy Szakal[3], Lucian Radu[3], Nicoleta Gabriela Hădărugă[3]

[1]Fornetti Romania, Timişoara, Romania; [2]European Drinks SA, Stei, Bihor, Romania; [3]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timişoara

P74 Fatty acid profile of the lipid fractions of various *Castanea* species

Răzvan Laurenţiu Drăghici[1], Claudia Izabela Oprinescu[1], Marius Ioan Cugerean[1], Dina Gligor (Pane)[1], Cristina Liliana Mitroi[1], Nicoleta Gabriela Hădărugă[1], Daniel Ioan Hădărugă[2]

[1]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

[2]Department of Applied Chemistry, Organic and Natural Compounds Engineering, Polytechnic University of Timişoara, Carol Telbisz 6, 300001-Timişoara, Romania

BOOK OF ABSTRACT

INTERNATIONAL SCIENTIFICAL SYMPOSIUM”YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES”

25 November 2021 Timisoara

Section: “Young researchers in food engineering”

Timişoara, 2021

OC$_1$

"*Zero chemical*" agriculture

Daniela Trifan, **George Toader, Cătălin-Ionuț Enea, Alin-Ionel Ghiorghe, Emanuela Lungu, Leonard Ilie**

University of Agronomic Sciences and Veterinary Medicine of Bucharest

OC$_2$

Use of post cervical insemination in swine: economic aspects

Robert Florian Vlad, **Cristian Beg, Alina Maria Dodu, Iasmina Loredana Indri, Ioana Dana Pandur**

Banat’s University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Bioengineering and Animal Resources

OC$_3$

Organoleptic characterization of desserts obtained from tapioca pearls

Alice Vasiloni [1], Zlatan Milosevic[2], Ana-Maria Crețu [2], Daniel Platon[2], Corina Mișcă[2], Delia Dumbravă[2], Camelia Moldovan[2*]

[1] *"Victor Babeş" University of Medicine and Pharmacy from Timișoara, Faculty of Pharmacy;* [2] *Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania*

*corresponding author: kmimol@gmail.com

In this paper we explored the possibility of improving desserts from tapioca pearls with various fruit additions. Tapioca is very popular due to its nutritional properties, the fact that it can be included in the diet of people with gluten intolerance, but also of people who want a source of energy, being easy and quick to prepare. We obtained two variants of the dessert: a simple variant, in which, after boiling the tapioca pearls, fresh mango, blackberry and quince fruit puree were incorporated, obtaining jellies and a second variant in which the preparations were of the pudding type. The obtained products were evaluated from a sensory point of view by awarding scores from 1-10. The appearance of the desserts was appreciated with values between 7.4 and 9.8, the most appreciated being the tapioca pudding with mango puree, immediately followed by the strawberry pudding. From the category of jellies, the tapioca jelly with quince puree was remarkable. Also, mango and blackberry fruits have led to very good color assessments, both for puddings and jellies, while quince puree has given desserts a less appreciated color. The consistency of tapioca desserts and fruit purees did not vary significantly, being appreciated in the range 8.2-8.8. In evaluating the smell, quince puree contributed substantially in the pudding version, obtaining a maximum score. The smell was not perceived as intensely in jellies as that perceived in the case of puddings. Quince and blackberry purees have greatly contributed to the finalization of the taste, both in the case of puddings and jellies.

Keywords: tapioca, fruits, jelly, pudding, sensory characteristics

***Acknowledgements*:** This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

OC$_4$

The use of satellite images in agriculture, forestry and horticulture. Reflective indices

Olimpiu Ovidiu Cornea, Dorin Camen

Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Horticulture and Forestry

OC$_5$

Konya - tourist destination and component of tourism products offered by Turkish travel agencies

Ayşe Gözeller, Burak Altiparmak, Cosmina-Simona Toader,

Erciyes University, Faculty of Tourism, Kayseri, Turkey

OC$_6$

Current state and prospects for the development of renewable energy in Russia

Daniil Raspopin, Irina Minakova, Lucrețiu Dancea,

Southwest State University, Kursk, Russia

OC$_7$

Biochemical composition of Melia azedarach berries from the eastern mediterranean (Hatay, Turkey) region and evaluate in terms of Veterinary Toxicology

M. Yipel, Aysun Ilhan, Fulya Altinok Yipel, Musa Türkmen

Hatay Mustafa Kemal University, Faculty of Veterinary Medicine

OC$_8$

Study on the vector role for *Calicophoron Daubneyi* of some aquatic snails form Western Romania

Cătălin Bogdan Sîrbu, Ioan Peț, Claudia Alexandrina Goina, Miruna Magda Morariu, Beatrice Ana-Maria Sîrbu, Florica Morariu,

Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Bioengineering and Animal Resources

OC$_9$

Recent researches for coenzyme Q_{10} from food matrices. Supplementation in aging and diseases

Andersina - S. Podar*, Cristina - A. Semeniuc, Maria - I. Socaciu, Melinda Fogarasi, Anca - C. Fărcaş, Sonia - A. Socaci

Faculty of Food Science and Technology, University of Agricultural Sciences and Veterinary Medicine from Cluj-Napoca, Strada Mănăștur, nr. 3-5, Cluj-Napoca, Romania

*corresponding author:andersina-simina.podar@usamvcluj.ro

Introduction: In the literature, Coenzyme Q_{10} (CoQ_{10}) usually is identified as a the only endogenously synthesized, lipid-soluble, antioxidant compound (Weber *et al*., 1997). Coenzyme Q_{10}, also referred as ubiquinone-10, is a member of the group of ubiquinones (Coenzymes Q), which are benzoquinone homologues, contained 10 isoprenoid units, widely distributed in all living organisms. It is well known that CoQ_{10} plays an important role as an essential electron carrier in the mitochondrial respiratory chain and energy production (in form of ATP, an essential component of respiration). In addition, it has been shown that CoQ_{10} (mainly in the reduced form) can act as an antioxidant, protecting numerous cellular membranes and plasma lipoproteins from free radical-induced damage and in preventing DNA damage (Mattila and Kumpulainen, 2001). Moreover, CoQ_{10} has become a popular coadjuvant in the treatment of heart disease as well as the object of study in the treatment of a number of other diseases such as Parkinson's and Alzheimer's.

CoQ_{10} is supplied from two sources; endogenous synthesis and exogenous sources (foods and supplements) (Ercan and El, 2011). Most animal-originated foods, such as meat, egg, and dairy products, are critical sources of CoQ_{10} (Bae et al., 2018). Other available food sources of CoQ_{10} are vegetables oil, fish, bee pollen and microorganisms. But the problem is correlated to the absorbability of CoQ_{10} which becomes more difficult with age, because of its higher molecular mass (863.7 Da) and poor water solubility, the efficiency of absorption and bioavailability of CoQ_{10} from foods is poor. However, the absorption of CoQ_{10} for oral administration is limited (Pyo, 2010) and in general, the recommended dosage is 100-200 mg/day CoQ_{10} to achieve a therapeutically beneficial effect in the body. (Tobin, *et al*., 2014).

Aims: This review focused on the health benefits of CoQ_{10} dietary supplementation and its bioavailability for human body.

Materials and Methods: In order to achieve the set goal, a screening of the scientific literature from the last 20 years dealing with this theme, was conducted. The literature screening was performed using: National Centre for Biotechnology Information (PubMed), Science Direct, Web of Science, Nature and Elsevier databases. Most researchers have used the method of direct solvent extraction and saponification to extract the CoQ_{10} from various food matrices and the quantification was performed by high performance liquid chromatography (HPLC) analysis using a diode array detection (DAD), photodiode array detection (PDA), or ultraviolet (UV) detection, setting the detector wavelength at 275 nanometer.

Results: Stress, migrains, headaches, infections, chronic inflamation, different illnesses, poor eating habits, and aging are only a few disorders which affect the organism`s ability to provide adequate amounts of CoQ_{10}. More than 200 clinical trials have investigated its use as a drug or dietary supplement and reported beneficial effects for human health.

Conclusion: Researches suggest that using CoQ_{10} supplements alone or in combination with other nutritional supplements may help to maintain the health of elderly people or treat some of the health conditions and diseases.

Acknowledgements: This work was supported by two grants of Ministry of Research and Innovation, CNCS - UEFISCDI, project number PN-III-P1-1.1-TE-2016-0973 and PN-III-P1-1.1-PD-2016-0869, within PNCDI III.

References

1. Bae G.S., Choi A., Yeo J.M., Kim J.N., Song J., Kim E.J., Chang M.B. (2018). Supplementing *Rhodobacter sphaeroides* in the diet of lactating Holstein cows may naturally produce coenzyme Q10-enriched milk. Asian-Australas J Anim Sci. Jan. 31(1): 40-46.
2. Ercan P. and El S.N. (2011). Changes in content of coenzyme Q10 in beef muscle, beef liver and beef heart with cooking and in vitro digestion. Journal of Food Composition and Analysis. 24(8): 1136-1140.
3. Mattila P. and Kumpulainen J. (2001). Coenzymes Q9 and Q10: contents in foods and dietary intake. Journal of Food Composition and Analysis. 14(4): 409-417.
4. Pyo Y.H. (2010). Coenzyme Q10 and Q9 contents in 6 commercial vegetable oils and their average daily intakes in Korea. Food Science and Biotechnology. 19(3): 837-841.
5. Tobin B.D., O'Sullivan M.G., Hamill R., Kerry J.P. (2014). Effect of cooking and in vitro digestion on the stability of co-enzyme Q10 in processed meat products. Food Chemistry. 150(May): 187-192.
6. Weber C., Bysted A., Hølmer G. (1997). Coenzyme Q10 in the diet-daily intake and relative bioavailability. Molecular Aspects of Medicine. 18 (Supplement 1): 251-254.

OC$_{10}$

Tomographic Analysis of *Magnolia x soulangiana* Soul. Bod. from the Historical Garden of the Baroque Palace in Oradea, Romania

Timea Kleszken, Daniela Sabina Pașta

University of Oradea - Faculty of Informatics and Science, Biology department

OC$_{11}$

Consumers' opinions on bovine milk, especially on raw milk sold directly

Dzsenifer Mária Ruzsa, Karoly Bodnar

Hungarian University of Agriculture anf Life Sciences

OC$_{12}$

Morphology of the skull in badger (*Meles meles*)

I. Crăciun, Ana-Maria Marin, C. Hulea, Crina Moșneang, M. Pentea

Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Veterinary Medicine

OC$_{13}$

Possibility of using grape pomace as an antifungal and antimycotxigenic agent in wheat for food consumption

Voichița Bota, Renata Maria Sumălan, Loredana Pluștea, Andrada Gavra, Diana Obistioiu, Monica Negrea, Antoanela Cozma, Ersilia Alexa*

Banat`s University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Food Engineering
*corresponding author email: ersiliaalexa@usab-tm.ro

The paper aims to study the antifungal and antimicotoxigenic effects of grape pomace extracts on wheat seeds. To test the protective effect of grape pomace, the grains of wheat naturally contaminated with deoxynivalenol (DON) have been sprayed with different concentrations of grape pomace extracts in 70 % ethanol, respectively 5 %, 6,5 % and 10 %. After 7 days and 14 days, the seed contamination Index (SCI) and the DON content were determined.

The results showed a different effect of grape pomace extracts on fungi and molds development depending on the strain and the time of treatment. As regards the antifungal effect against *Fusarium* developed on wheat seed, the results indicated that the administration of lower concentrations (5-6,5%) leads to the inhibitory effect even after 7 days of treatment.

Regarding the antimicotoxigenic effect, the level of DON decreases after treatment with grape pomace extracts in all experimental variants tested, with a higher decrease after 7 days compared to 14 days after treatment, depending on the concentration.

Due to high bio-activity and lack of toxicity, grape pomace can be used as a natural antifungal and anti-fungal agent in the protection of cereals in the context of the circular economy.

Keywords: antifungal, antimycotxigenic, circular economy

OC$_{14}$

The effects of including cinnamaldehyde or carvacrol on wethers' diets on their ruminal metabolism

Alexandra - Gabriela Oancea, Dragomir Catalin, Ana Cismileanu

INCDBNA, National Research-Development Institute of Biology and Animal Nutrition, Balotesti, Romania, jud. Ilfov

OC$_{15}$

Researches regarding the microbiota of the homemade „bors", as healthy source

Radu Ciobanu[1], Nicoleta Badaluta[1], Claudia Ungureanu[1], Ana-Maria Georgescu[2], Dumitra Raducanu[1*]

[1]Vasile Alecsandri'' University of Bacau, Faculty of Sciences, Department of Biology, Ecology and Environment Protection, 157 Calea Marasesti Street, 600115 Bacau, Romania;
[2]"Vasile Alecsandri" University of Bacău, Faculty of Engineering, Department of Chemical and Food Engineering, 157 Calea Mărăşeşti Street, 600115 Bacău, Romania
*corresponding author: dora.raducanu@ub.ro

The aims of this study is the quantitative and qualitative evaluation of the homemade bors microbiota, a microbiota developed after the fermentation of the mixture of cereals, herbs and huste.

Bors, a specific product for traditional Romanian gastronomy, is considered a real therapeutic remedy. It is a product rich in organic acids, minerals, vitamins and enzymes, resulting from the fermentation process of bran. The microbiota that helps fermentation, generates B vitamins, D vitamin, enzymes, minerals in easily assimilable forms (calcium, magnesium, phosphorus), and vital trace oligoelements for health: selenium, but especially chromium with important benefits in regulating blood sugar and lowering cholesterol.

Homemade bors (as grandmother used to do) has many benefits for the body compared to commercial products that may contain preservatives, flavor enhancers and various food additives, which alter its nutritional quality.

The objectives of this research were: identification in the literature of studies and researches on this product; identification of conditions and ways of preparation of homemade bors, realization of experimental variants of bors in laboratory conditions (9 experimental variants) and monitoring of their physico-chemical, organoleptic parameters and evaluation of the microbiota developed in each experimental variant. A questionnaire was applied regarding the preparation and consumption of this product.

The obtained results showed a quantitative differentiation of the microbiota, of the organoleptic qualities and a variation of the physico-chemical parameters of the bors samples, depending on the quantities of the huste, flour, corn and bran and the water properties used in the work.

Keywords: homemade bors, microbiota

P$_1$

Phytochemical characterization of red onion skin anthocyanins liposomes

Florina Stoica, Nicoleta Stanciuc, Iuliana Aprodu, Gabriela Elena Bahrim, Gabriela Rapeanu*

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galați, Domnească Street 111, Galați, România
*Corresponding author, e-mail: Gabriela.Rapeanu@ugal.ro

The onion (*Allium cepa* L., *Liliaceae*) is a vegetable that is the most widely cultivated species of the genus *Allium*, and the second (after tomatoes) most important horticultural crop worldwide.

The dried skin of red onions, representing the by-products of onion consumption and processing, consists of a large group of colored bioactive phenolics, some of which are not present in the edible part of the vegetable. The outer skins of red onions can be a potential source of fibers, the alk(en)yl cysteine sulfoxides and phenolic compounds (quercetin and anthocyanins), which are known to have health-promoting effects.

In the present work, anthocyanins, natural flavonoids with strong antioxidant properties, from red onion skins extract were incorporated in polymer-associated liposomes. Thus, anthocyanins were encapsulated by freeze-drying in soy phosphatidylcholine (SP) vesicles with the addition of polymers, such as carboxymethyl cellulose (CMC-V1) and soy proteins isolate (SPI-V2). The liposomes were then, characterized in terms of encapsulation efficiency, phytochemicals content, and colorimetric analysis (using the CIELAB method).

The results showed that the encapsulation efficiency of the liposomes varied from 84.56% for V1 to 81.15% for V2. V1 liposomes presented higher anthocyanin compounds content (305.17 ±2.41 μg C3G/g) with high antioxidant activity (51.41±0.12 mM TE/g) compared with V2. The color coordinates liposomes revealed that the V1 formulated with CMC had a deeper red (greater a* value, characteristic of anthocyanins) than the V2. These findings suggest that the polymer-associated vesicles loaded with red onion skin anthocyanins can be applied for functional food and nutraceutical applications.

Keywords: by-products, red onion skins, anthocyanins, liposomes, encapsulation efficiency

P2

Encapsulation of phenolic compounds from a red grape skin extract in whey protein isolate and pectin

Daniela Serea, Gabriela-Elena Bahrim, Iuliana Aprodu, Nicoleta Stanciuc, Oana Constantin, Gabriela Rapeanu*

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galati, Domneasca Street 111, Galati, Romania
*Corresponding author: Gabriela.Rapeanu@ugal.ro

The red grape skins by products are a valuable source rich in polyphenolic compounds that have high antioxidant properties. The purpose of the present study was to extract bioactive compounds from red grape skins (*Babeasca neagră* variety) using a ratio of 1:10 (96% ethanol and glacial acetic acid) and to encapsulate them in whey protein isolate and pectin using the lyophilization technique.

The microparticles obtained under optimal conditions of red grape skins extract showed 80% of EE. The total quantified anthocyanin content of the powder was 2.67 ± 0.22 mg C3G/g d.w., and the antioxidant activity had an inhibiting power of 82%. Color is an important attribute related to visual appeal and food quality. The color parameters of the analyzed sample were expressed as L *, a * and b *. The values (+ a * and -b *) for the studied powder were 3.65 ± 0.09 and -5.48 ± 0.11, suggesting a tendency towards blue and red, characteristic of anthocyanins. Due to growing concerns about the safety of synthetic dyes, the use of natural dye sources has been considered.

In conclusion, microencapsulation using the lyophilization technique is an effective strategy to protect the content of total monomeric anthocyanins, suggesting that they may be a stable dye alternative for use in the food industry.

Keyword: red grape skins, bioactive compounds, microencapsulation, encapsulation efficiency, colour.

P3

The influence of gum addition on colloidal stability and sensory characteristics of white wines (*Vitis vinifera* cv. Șarba)

Mihaela Manuela Hozoc (Nedelcu), Gabriela Răpeanu*, Nicoleta Stanciuc, Georgiana Horincar, Iuliana Aprodu, Gabriela Elena Bahrim

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galati, Domneasca Street 111, Galati, Romania
*Corresponding author: Gabriela.Rapeanu@ugal.ro

Gum arabic is a macromolecular colloid, consisting of a polysaccharide with a molecular weight of the order 10^6 Da. By acid hydrolysis, it releases D-galactose (40-45%), L-arabinose (25-30%), L-ramnose (10-15%) and D-glucuronic acid.

The purpose of this study was to evaluate the effect of gum arabic treatment on limpidity, colloidal stability as well as sensory characteristics.

After three days of treatment, a decrease in turbidity is observed compared to the turbidity of the wine after one day, so in the case of using the dose of 15 g/l Gomasol Instant it is found that the turbidity is reduced by 30% and in the case of using the dose 200 g/l Gomasol Instant the reduction of turbidity increases to the value of 40%.

The results showed that using higher doses of gum arabic, wine colloidal stability increases. Already at a normal dose of 0.5 g/l the effectiveness of the treatment is evident, and the stability values are higher when the dose exceeds 1 g/l.

By treating white wines with high purity microgranulated gum arabic, it leads to the production of expressive white wines that better highlight their olfactory character, typicality, fruitfulness and unctuousness.

***Keywords*:** white grapes, colloidal stability, turbidity, sensorial characteristics

P4

Value added mayonnaise enriched with red beetroot peels powder

Silvia Lazăr (Mistrianu)*, Horincar Georgiana, Andronoiu Doina Georgeta, Stănciuc Nicoleta, Constantin Oana Emilia, Râpeanu Gabriela

Faculty of Food Science and Engineering, University of "Dunărea de Jos", Galati, Domneasca Street 111, Galati, Romania
Corresponding author: silvia.lazar@ugal.ro

Mayonnaise is one of the most used dressings which can be consumed with several foods such as: salads, meat, sandwiches, etc.

The main objectives of the study was to obtain a new functional mayonnaise, by adding the red beetroot peels powder, an important high functional source of biologically active compounds, with a high coloring potential.

The value added mayonnaise samples were formulated by adding different amounts of red beetroot peels powder (1.5, 3.0, 5.0 and 7.0%) and their phytochemical characteristics and antioxidant activity were evaluated.

As expected, the content of bioactive compounds increased with the increasing amount of red beet peels powder added to the mayonnaises. Thus, betalanins ranged from 1.32 to 5.61 mg/100g and phenolic content ranged from 197.10 to 325.9 mg GAE/100g for supplemented mayonnaise variants. The enriched mayonnaises have a higher nutritional quality than the control sample due to increase of betalains and polyphenols content.

The value added mayonnaise with the addition of red beet peels powder is an innovative product rich in bioactive compounds with high antioxidant activity being a product with real potential on the market.

Keywords: red beet by products, mayonnaise, betalains, polyphenolic compounds

P5

Reasons for using rosehips in the food industry as a source of natural antioxidants

Sebastian Vesa, Anamaria Tobica, Diana Moigradean, Diana Raba, Delia Dumbrava, Mariana-Atena Poiana*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: marianapoiana@usab-tm.ro

The purpose of this study is to summarize the literature data on the valuable chemical composition of rosehips, theirs health-promoting benefits and the potential to be used in the food industry as a source of natural antioxidants. Rosehips (Rosa Canina) have been used for century in traditional medicine. These fruits are rich in vitamins C, A, P, K, B, sugar, manganese, iron, phosphorus, zinc, potassium, magnesium, sulfur, antioxidants and selenium as well as large amounts of essential fatty acids. Also, these fruits are very rich in antioxidant compounds, the most important being the ascorbic acid, which can be found at a level over 2000 mg/100 g of fruit. Other important antioxidant compounds found in rosehips include certain anthocyanins and carotenoids, flavonoids and flavonoid glycosides. Rosehips have a proved antidiabetic effect, being effective in stabilizing the blood sugar levels. They also have a positive effect on cardiovascular diseases, and help improve the strength of capillaries, ensure proper functioning of blood circulation in the brain, and reduce inflammation in the gastrointestinal tract. The rosehip beans are used for flavoring teas and syrups, jams and sweetness. Also, the rosehips powder can be included as a valuable ingredient in various food products recipes with a high functional potential. Due to the high content of natural antioxidants, rosehips are widely used in the pharmaceutical industry in the form of creams, oils and tinctures. It is well known that rosehip bark extracts have almost twice the antioxidant effect than those obtained from rosehip kernels. Given all these findings, rosehips have the potential to be used in the food industry as a rich source of antioxidants and minerals with multiple health promoting benefits.

Keywords: rosehips, antioxidant compounds, health promoting benefits, food industry applications

P6

Correlations between the health status of pregnant women and eating habits - review

Teodora - Alexandra Iordache*, Fulvia - Ancuța Manolache, Adriana Macri

National Research and Development Institute for Food Bioresources, Dinu Vintila 6, RO-021102, Bucharest, Romania

*Corresponding author: manasia.teodora@yahoo.com

Eating habits, along with a healthy lifestyle can have a great influence on improving people's lives by preventing the occurrence of 21st century diseases [1]. World Health Organization (WHO) strives to raise awareness regarding the healthy diet topic, which proved to be essential in our daily living. However, this subject becomes even more necessary to be understood, mostly applied, when it comes to vulnerable groups, children, elderly people or pregnant women [1, 2]. Pregnancy is a special condition, involving a lot of changes, critical for baby's growth and development. Most of these are related to eating habits. Women's nutrition has to be adapted to this state, even prior to conception. The nutrients, macro (proteins, lipids and fats) and micro (vitamins and minerals), one's level, has to be seriously straighten or supplemented, otherwise foetus will suffer from serious deficiencies. Authorities on food and health or specialists, nutritionists, gynaecologists, recommend balanced, nutrient-rich meals, as a sustained energy intake level during pregnancy for a healthy status, for the mother, as for her child. Guidelines, recommendations, which were not available centuries ago, have been now developed and approved to raise consciousness related to dietary patterns improvement during pregnancy [1-3].

References:

1. Zugravu C., Macri A., Manolache F., Iordache T., Ghid nutrițional pentru femei însărcinate, Editura Printech, București **2021**.
2. [2World Health Organization, WHO recommendations on antenatal care for a positive pregnancy experience, **2016**, *https://www.who.int/publications/i/item/9789241549912* - accessed 10 November 2021.
3. Laila Meija, Dr. Dace Rezeberga, Proper maternal nutrition during pregnancy planning and pregnancy: a healthy start in life, Recommendations for health care specialists, **2017**.

P7

Effect of enzyme treatments on red wines colour (*Feteasca neagra* variety)

Elena Iosip (Dragomir)*, Gabriela Rapeanu1, Gabriela Elena Bahrim, Nicoleta Stanciuc, Oana Emilia Constantin, Iuliana Aprodu

Faculty of Food Science and Engineering,"Dunărea de Jos" University of Galati, 111Domneasca Street, Galati, Romania
Romania
*Corresponding author: ela_drag@yahoo.com

The extraction of phenolic compounds from grapes is achieved by prolonged contact of the must with the berry skins, a process known in winemaking as maceration – fermentation. The acceleration of the process occurs through the circulation of must in contact with the mash, the periodic immersion of the mash in the must and the use of pectolytic enzymes.

The purpose of the study undertaken in micro-winemaking conditions was to evaluate the effect of the maceration enzymes addition on: improving the degree of extraction of anthocyanins, increasing the yield in wine, as well as on the composition of the final wines.

The results revealed that the use of maceration enzymes directly on grapes leads to the production of wines with an anthocyanins content of about 50% higher. The tannin content of the wine obtained by using maceration enzymes on grapes is lower than that of wine obtained without the addition of enzyme preparation.

An increase in the yield free run wine by almost 20% and a decrease in the yield of pressing wine, by about 5%, as well as an increase in the total yield in wine, by 9%, compared to the control variant was achieved. The wines obtained from grapes treated with enzymatic maceration preparations are distinguished by superior contents of non-reducing extract, glycerol, esters, and lower values of acetaldehyde content and volatile acids.

Keywords: red grapes, anthocyanins, polyphenolic compounds, maceration enzyme

P8

Obtaining and sensory characterization of a spicy apricot sauce

Izabella Balasz-Kercso, Nicoleta Daiana Bardan, Grigore Alexandru Bălțatu, Mădălina Mărășescu, Delia Gabriela Dumbravă, Moldovan Camelia, Mărioara Drugă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*Corresponding author: mary_druga@yahoo.co.uk

The factors that led to the creation of this sauce are the complex and profound transformations in the food field in trying to maintain the health of consumers, openness to innovation, accelerating change and accepting it. The spicy apricot sauce can be eaten with steaks, vegetables or various salty snacks.

The innovative character of this product consists in choosing apricot fruits to create the sauce, but also in the spices used to concentrate the sauce.

The purpose of this paper is to obtain a spicy apricot sauce and compare it with a commercial sauce, from a sensory point of view.

The sensory analysis of the apricot sauce was done by a group of 10 people, by the points method, compared to a similar sauce bought from the trade, a ketchup. The sensory analysis was followed by the consistency, color, smell and taste of the two sauces.

Conclusions: Analyzing the evaluation method of each taster, we can say with certainty that all the sensory characteristics analyzed and evaluated were more appreciated for the spicy apricot sauce prepared and obtained at home than the ketchup bought from supermarket.

Keywords: sensory characterization, apricot sauce.

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P9

The quality of some meat products - the gypsy muscle

Yasmine Alexandra Goian, Mădălin Dorin Santa, Avărvarei Alexandra, Camelia Moldovan, Ariana Velciov, Mărioara Drugă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: mary_druga@yahoo.co.uk

The purpose of this paper was to determine the critical control points for obtaining a certain quantity from the assortment of gypsy muscles and conducting a comparative informational study for this product range. To carry out this study, we purchased three types of gypsy muscle from different companies (Unicarm, Vascar, Matache Măcelaru) which we analyzed from the organoleptic point of view, the informational content and the nutritional characteristics presented on the package.

Conclusions: 1. The organoleptic characteristics of the three types of gypsy muscle are according to the admissibility standards for this type of product. 2. The labels of the three types of gypsy muscles are according to the legislation in force and the necessary information can be found according to preferences or needs. 3. Gypsy muscles manufacturing technology can pose dangers during the technological process, but can be eliminated by using food safety systems such as the HACCP system. 4. From a nutritional point of view, the highest quality gypsy muscle is the one produced by Matache Măcelaru, which has the highest protein content; from an energy point of view, the highest value was calculated for the Vascar product.

***Keywords**:* comparative informational study, gypsy muscle

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P10

The quality of telemea cheese sold in the supermarket

Mădălin Dorin Santa, Yasmine Alexandra Goian, Tabita Oana Iacob, Roxana Mihaela Dumitrescu, Camelia Moldovan, Mărioara Drugă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: mary_druga@yahoo.co.uk

The purpose of this paper was to calculate a balance of materials for Telemea cow cheese and to conduct a comparative study for this category of cheese.

To carry out the study, we purchased three types of Telemea cheese obtained from cow's milk, from three different producers (Hochland, President and Delaco), which we analyzed from an organoleptic point of view and verified the informational content and nutritional statements, presented on the back of the package.

CONCLUSIONS: 1. The organoleptic characteristics of the three brands of telemea studied fall within the admissibility conditions for telemea cheese; 2. The labels of the three companies are in accordance with the mandatory requirements, the necessary information being found on all three labels of the manufacturers. 3. The most valuable telemea from a plastic and nutritional point of view is the one produced by the President company, and the lowest quality is the one produced by the Delaco company. 4. From an energy point of view, the values declared on the packaging do not correspond to those resulting from the calculations, the calculated differences being quite consistent, aspects which are important for the consumer interested in the caloric intake of the food consumed.

Keywords: telemea cheese, quality

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P11

Obtaining and characterizing a spreadable paste from pumpkin seeds

Daliana-Cornelia Trainic, Ruth-Brighita Gal, Iulia Gabriela Mihai, Delia Gabriela Dumbravă, Ariana Velciov, Mărioara Drugă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: mary_druga@yahoo.co.uk

The aim of this paper was to obtain a spreadable paste from dehydrated pumpkin seeds, garlic and tomato and its comparative sensory analysis with a similar paste from sunflower seeds, by the points method.

The product was analyzed from a sensory point of view by a group of 10 people, compared to the product obtained by the same technique, pate from sunflower seeds. The sensory analysis followed the appearance, consistency, color, smell and taste. CONCLUSIONS: 1. Pumpkin seed pates with dehydrated tomatoes and garlic are light spreads, with a pleasant, spicy taste, and can be eaten at any age. 2. The innovative nature of these pumpkin seed pastes is the use of dehydrated tomatoes, which gives them extra flavor and consistency. 3 Following the sensory analysis compared to the sunflower seed pate, the pumpkin seed pate was much better appreciated by the evaluators for all the evaluated characteristics, the best appreciated being the consistency, color and taste. 4. From the point of view of the assessment of each assessor, it was relatively uniform and almost unanimously more favorable as regards the sensory characteristics of the pumpkin seed pate.

Keywords:spreadable paste, pumpkin seeds.

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P12

Innovative assortments of bread with mushrooms – obtaining and analysig the proximate composition

Raphael Gregor Ursu, Alexandra Furdui, Lavinia Popa, Izabela Dumitrache, Camelia Moldovan, Mariana Atena Poiană, Delia - Gabriela Dumbravă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*Corresponding author: delia_dumbrava@yahoo.com

The first purpose of the work was to obtain some assortments of white bread with the addition of dried mushrooms in powder form to improve the nutritional value of the bread. Thus, three bread variants were obtained: one with the addition of *Ganoderma lucidum* powder (1.75%) - B1, the second with the addition of *Boletus edulis* powder (1.75%) – B2 and the third with the addition of a mixture (3.50%) of *Boletus edulis* (1.75%) and *Ganoderma lucidum* (1.75%) powder – B3. A second aim of the paper was to determine the proximate composition and energy value for the three variants of bread with mushrooms and to compare the results between them and with a control bread obtained without the addition of mushrooms. The three varieties of bread with mushroom powder obtained are very close in terms of both the proximate composition and the energy value. Bread B1 and bread B3 had the same energy value (233.08 kcal /100 g), and bread B2 had a slightly higher energy value (234.24 kcal /100 g). The B3 bread variant was the richest in protein (7.41 g/100 g) and dietary fiber (2.54 g/100 g). B2 bread had the highest content of total lipids (3.2 g / 100 g) and total carbohydrates (45.95 g/100 g).

Keywords: bread, *Ganoderma lucidum*, *Boletus edulis*, proximate composition, energy value.

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P13

An overview on the use of sea buckthorn bioactive potential in the food industry

Anamaria Tobica, Sebastian Vesa, Camelia Moldovan, Diana Dogaru, Adrian Rivis, Mariana - Atena Poiana*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: marianapoiana@usab-tm.ro

This work represents an overview on literature data to reveal the bioactive potential of sea buckthorn for further use in the development of various food product formulas. Sea buckthorn (*Hippophae rhamnoides* L.) is an aromatic fruit, but it cannot be consumed in its natural form, due to its bitter and astringent taste. The fields of application are extremely wide for sea buckthorn, obtaining spectacular effects mainly in food industry, cosmetics and the pharmaceutical industry. Sea buckthorn fruits must be harvested at full maturity, and either processed quickly or frozen after harvesting, as they oxidize easily, changing color and flavor. The skin and seeds have a high oil content. The vitamin C content of sea buckthorn exceeds not only all native fruit, such as black currants, rose hips, but even citrus fruits. In the highest mountainous regions, sea buckthorn varieties can have a content of vitamin C over 1.500 mg/100 g, significantly surpassing rose hips. Vitamin E is found in sea buckthorn oil in amounts of over 200 mg/100 g. Other vitamins contained in the fruit with a particular nutritional value and therapeutic benefits are provitamin A, B1, B2, B6, B9, K, P, F. It also be find cellulose, beta-carotene, trace elements such as phosphorus, calcium, magnesium, potassium, iron, and sodium, oil complexes, inositol, acids (malic, citric, malonic, succinic, tartaric, citric) and sugars (15.5%) and proteins (1.4%). The high content of flavonols, L-ascorbic acid, and lipophilic compounds, including carotenoids, tocopherols, fatty acids, and phytosterols, provides unique health-promoting properties, thus enabling a wide range of applications, such as juices, beverages, jams, oils, teas, medicines, cosmetics, dairy and spirits, as well as fodder are produced from fruits, leaves, bark, and sea buckthorn seeds. This information proves the bioactive potential of sea buckthorn, which strongly recommend it to be valorized for obtaining food products with a high level of bioactive compounds.

Keywords: sea buckthorn, essential nutrients, bioactive potential, food industry applications

P14

Effect of blackberry byproducts extract addition on thermo - oxidative stability of sunflower oil

Cristina-Ramona Metzner Ungureanu, Ileana Cocan, Diana Moigradean, Ioana-Alina Pop, Diana Dogaru, Adrian Rivis, Mariana-Atena Poiana*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: marianapoiana@usab-tm.ro

This study was performed to investigate the effect of blackberry freeze-dried byproduct extract addition in sunflower oil on lipid oxidation during high-temperature treatment, compared to butylated hydroxytoluene (BHT). Blackberries (*Rubus fruticosus* L.) from Romanian spontaneous flora coming from Zugau (Arad County) were collected and after juice extraction, the processing byproduct was conditioned at a moderate temperature of 60°C for 12 h, and then, it was processed to obtain a freeze-dried blackberry byproducts extract (BBE). The oil samples were supplemented with 200, 500 and 800 ppm of BBE. Also, a sample with 200 ppm BHT was prepared. As a control (C) was used an additive-free oil sample. The frying conditions were simulated by convective heating of oil samples at 180°C up to 12 h. To monitor the thermo-oxidative lipid degradation, the peroxide value (PV), p-anisidine value (p-AV), the total oxidation (TOTOX) value and the inhibition of oil oxidation (IO), were evaluated after 3, 6, 9 and 12 h. The results revealed that BBE induced a strong inhibitory response, dose-dependent, in sunflower oil exposed to heating, proving the inhibition of lipid oxidation. After 12 h of high-temperature exposure, the oil sample with 800 ppm BBE showed a significant decrease of the investigated indices compared to the control sample. The index for primary lipid oxidation, PV, registered a decreased with 32% in sample with 200 ppm BHT, respectively 44% in sample were 800 ppm BBE was added. The maximum PV was recorded after 3 h of heating, and after that, its value decreased, the rate of hydroperoxides generation being exceeded by the rate of their decomposition to secondary oxidation products. The inhibitory effect of BBE and BHT on primary lipid oxidation expressed as IO, revealed that 800 ppm BBE displayed an inhibitory effect significantly higher than BHT.

At the end of treatment, p-AV, as a measure of secondary lipid oxidation, showed a decrease with 16% for samples with 200 ppm BHT and 17% for samples supplemented with 800 ppm BBE. TOTOX value was decreased with 19% in sample with BHT, respectively with 20%, in sample where the highest level of BBE was added. Our data showed that the dose of 800 ppm BBE induced an antioxidant response higher than that registered by oil supplementation with 200 ppm BHT, and thus, BBE can be recommended as an effective natural antioxidant to obtain sunflower oil with improved thermo-oxidative stability.

***Keywords*:** freeze-dried extract, blackberry processing byproducts, lipid thermo-oxidation, inhibitory response, thermo-oxidative stability

P15

Current trends in the use of unconventional raw materials for the development of value-added food products

Ioana-Alina Pop, Ersilia Alexa, Diana Raba, Cristina Metzner Ungureanu, Daniela Stoin, 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, Calea Aradului 119, Timisoara 300645, Romania
*Corresponding author: marianapoiana@usab-tm.ro

In recent years, people everywhere have shown increasing interest towards nutrition and health. This has driven a lot of research in the field of food development, nutrition enrichment and generated a wave of interest, and studies being made regarding the use of unconventional raw materials. The main purpose of the research is to gather information from existing literature about unconventional raw materials that have been insufficiently capitalized or even not used at all, in order to identify unconventional resources, and to exploit their potential, whether technological, biological, chemical or physical, and using said potential for the purpose of diversifying and improving human food. Chestnut flour could be used as raw material in various food recipes, taking into account its health benefits, as well as its nutritional and flavor properties.

Chestnut flour is gluten-free, does not contain additive addition and is prepared naturally, by freeze drying or scalding drying methods. Chestnut flour can be used for celiac patients due to being gluten-free as well as its nutritious properties. It shows high protein content, high amount of sugar (20-32%), starch (50-60%), dietary fiber (4-10%), essential amino acid (4- 7%), and low amounts of fat (2-4%). Chestnut flour is also rich in vitamins B, C and E and potassium, magnesium and phosphorus. The use of chestnut flour is thought to be beneficial at this stage since most of the gluten free products are insufficient in terms of vitamin B, iron and fibers. Chestnuts contain water (52%), starch (27-39%), mono and disaccharides (12-14%), proteins (3-5%), fats (4-5%), mineral salts 1.03% (a lot of potassium - 50% of ashes), provitamin A, vitamins B1, B2, C, PP, and more. This information are useful to highlight the high potential of chestnut flour to be used as a valuable and versatile ingredient to design innovative food

products formulas with improved nutritional value. The introduction of new products formulated by using the chestnut flour in the market would contribute to increasing the diversity of functional products.

Keywords: chestnut flour, essential nutrients, added nutritional value, innovative food products.

P16

Current trends in obtaining low-sugar fruit jam

Ionela Sandru, Roxana Diadora Gruiescu, Gabriela Pupaza, Petrica Gosa, Diana Moigradean, Monica Negrea, Mariana-Atena Poiana*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: marianapoiana@usab-tm.ro

The development of products with health benefits has been in the attention of the researchers in recent decades and it comes as a result of accepting the idea that food has a key role in the prevention and treatment of many diseases. Jams as well as the gelled products are obtained from fresh, frozen or semi-processed fruit in the form of fruit marc and pulp by boiling with sugar or others sweeteners, with or without the addition of acids and pectin, up to the required content of total soluble solids.

The jam manufacture consists of the fruits conditioning, cutting or dividing, boiling and gel formation. The most common sweetener used in the traditional recipes of fruit jam is sucrose. Considering the health benefits as well as the medical restrictions, an increasing number of consumers turn to low-sugar fruit jam, in which a lower amount of sugar is used or the sugar substitutes with a lower caloric value than sucrose are used. The work methodology to obtain jams with a high content of bioactive compounds and a low sugar content, supposes the standardization of the raw material to a certain level of total soluble solids, by partial removing of water from the fruit marc by boiling. The amount of sweetener required to be added to the standardized fruit puree is calculated on the basis of the material balance ratios. Citric acid will be used to adjust the pH value to 2.8-3.3 to ensure gelatinization of the pectin. Also, calcium citrate or calcium chloride will be added during the technological process of obtaining the jam to provide the calcium ions needed in the gelling process with low-methoxylated pectins. For jams

with a low total soluble solids content, below 50°Brix, the use of low-methoxylated pectin is recommended. It is well outlines the idea that the antioxidant and sensory characteristics of low-sugar fruit jam are strongly influenced by the quality of the raw material, the manufacturing recipe, technological process as well as the storage conditions.

Keywords: low-sugar fruit jam, low-methoxylated pectins, jam manufacturing recipe, work methodology.

P17

Study on the possibility of using soluble oat fiber in bakery industry to obtain functional products

Ramona Carmen Rominescu, Roxana Diadora Gruiescu, Mariana-Atena Poiana, Ersilia Alexa, Adrian Rivis*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: adrianrivis@usab-tm.ro

Due to the international and national tendency to increase the consumption of bakery products with health benefits, which have a high percentage of fiber in composition, present work presents the study of the possibility of obtaining bakery products enriched in soluble fiber, with minerals or vitamins in the composition. In the developed countries, the insufficient intake of dietary fiber has been widely reported. As a result, an important trend in food industry is to design and develop products with a high fiber content, to meet the consumers' demand. The oat bran is rich in β-glucan, a soluble fiber that has gained attention in the last decades for both its high functionality and nutritional properties. On the Romanian market, there are already some bakery products with the addition of soluble fiber. The addition of fibers to the flour causes a series of changes in its technological parameters, changes that directly affect the quality of finished products. Bread is a food suitable for the addition of functional ingredients such as cholesterol-lowering β-glucan and prebiotic inulin. Knowing the effects of the addition of soluble fiber from the oat bran on the rheology of the doughs and the quality of the bread, it can be processed industrial white flour or semi-white wheat flour to obtain products with improved quality and nutritional value through the fiber intake in the manugacturing recipe. The difficulty of developing a bread with a high level of β-glucan consists in a significantly decrease in volume and an increased firmness of the crumb. In this regard, the determining of the optimal doses and the type of recommended fibers is stiil a current research topic.

***Keywords**:* bread, soluble oat fiber, beta-glucan, hypocaloric, functional products

P18

The use of gooseberries for the development of food products with high bioactive properties

Roxana Diadora Gruiescu, Ramona Carmen Rominescu, Despina-Maria Bordean, Adrian Rivis, Mariana-Atena Poiana*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: marianapoiana@usab-tm.ro

Nowadays, by increasing food diversity, we referee to increasing both, the amount and range, of foods rich in micronutrients consumption. In practice, this requires the implementation of programs that improve the availability, and access to different types of foods that are rich in micronutrients, such as animal products, fruits and vegetables, in adequate quantities. This action should be included especially among those who are presenting risk of malnutrition. Increasing the diversity of the diet, is the preferred way to improve the nutrition of a population, because it has the potential to improve the intake of many nutrients, not just micronutrients. Ongoing research suggests that foods rich in micro- and macronutrients also provide a number of antioxidants and probiotics that are important for protection against metabolic diseases and for improving the immune system. One of the objectives of this work, is the fully use of gooseberries to obtain products with high bioactive properties. The gooseberries have been used to obtain different products such as beverages, jams as well as nutraceuticals. The preservation of the nutritional values of these fruits in the final products is due to the manufacture process and the absence of the added sugar. Thus, the jam obtained can be consumed in various combinations, such as pancake filling, sauces, or as such. The fruits used for jam need to be well ripened, because then they are very sweet, their aroma is more pronounced and does not require the addition of sweeteners. Fruit mixes are also very popular, both in terms of the special taste that results from combining the fruit, and due to the fact that the sweeter fruits can replace the sweetener in the combination with more sour fruits. Gooseberries can be combined with any fruit sweeter than them and very well ripened, such as aromatic pears or plums. This may be useful in the development of foods containing an efficacious dose of bioactive compounds.

Keywords: gooseberries, non-added sweeteners, increasing food diversity, high nutritional values

P19

Ice cream - a healthy food product?

Denisa-Camelia Borza, Ramona Hegheduș-Mîndru, Mădălina-Ioana Stînga, Diana Vîrsta, Mihaela Cazacu, Daniela Stoin, Ducu-Sandu Ștef*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
Corresponding author: ducustef@usab-tm.ro

In recent years, the interest of consumers has increased for food products which has in their composition fruit rich in antioxidant compounds. There is at least two reasons for this desire. First, the fruit are rich in vitamins. One the other hand, the fruit contain a significant amount of antioxidant compounds which protect food against oxidative degradation, especially caused by lipids. Ice cream is a popular and nutritious dairy product which is consumed by various categories of consumers (especially children and elderly), at all seasons. Its quality depends on mix formulation and processing. 3000 years before Christ, ice cream was a beneficial product for health, being obtained from a mixture of fruit (fruit syrup) and snow or ice. Is it also beneficial nowaday. The purpose of this paper was multiple, namely: conducting a market study for fruit ice cream, a product with potential beneficial effects on consumers; sensory appreciation of some types of ice cream; highlighting the nutritional value based on data provided by producers. Twelve types of different ice cream with fruits were analysed. The labeling mode, the prices and the ingredients were registered for them. Six kind of ice cream were selected and analysed from sensorial and nutritional point of view. The labeling of ice cream by processors was, in most cases, insufficient. No nutritional value data are specified and the description of the components is ambiguous. The complete lack of the content of vitamins or minerals, which could be a strong element of promotion, puts the consumer in a position to not know what to buy. From sensorial point of view the differences among the six products examined are relatively large, the variation range being between 3.07 points (from max. 5) and 5.00

points. The energy value of the analyzed products varies in very wide limits (91 - 253 kcal per 100g), which could be beneficial to some categories of consumers, or harmful to others.

The carbohydrate content of ice cream, between 12.1 and 34.68% is provided in full or mostly by added sugar. Our recommendation is to try to educate consumers, who through the buying behavior to bring processators to the point where they emphasize the increase of the nutritional value of the products offered for sale, or, at least, on the correct and complete information of consumers.

Keywords: Ice cream, healthy, food

P20

Research on the sensory characteristics of some fruit and vegetable chips

Paula Meilă, Robert Rece, Diana Vârsta, Paul Bakos, Andreia Cristea, Mirela Popa, Delia Dumbravă, Camelia Moldovan*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: kmimol@gmail.com

This paper presents some aspects regarding the production of chips from two fruits (banana and apple) and two vegetables (carrot and beetroot). After obtaining them (by drying in an oven at 60°C or by frying), the chips were analyzed from a sensory point of view (by the hedonic method). The results show that the chips obtained by frying were tastier, crispier and with a more pleasant smell than those obtained by drying. The appearance of the chips obtained by drying was better appreciated than those obtained by frying. If fresh fruits / vegetables initially had a water content of 69-88%, by frying, the moisture of the chips was between 2.8-4%, while by drying (under same conditions), the chips had a water content between 11.4-15%. Although tastier, with a higher energy value, with lower water content, fried chips are not the healthiest choice for consumers, their keeping and preservation requiring further studies, it is known that the presence of incorporated fats can seriously affect the properties of chips.

Keywords: chips, drying, frying, sensory characteristics.

P21

Characterization of muffins obtained from almond and coconut flour

Mihaela Cătana, Romina Hiriș, Karla Vieriu, Romeo Vărzaru, Delia Dumbravă, Camelia Moldovan*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: kmimol@gmail.com

The aim of this paper was to obtain and characterize gluten free muffins from almond and coconut flour. Three varieties of muffins were obtained: exclusively from almond flour (var. 1), from the mixture 50:50 almond flour: coconut flour (var. 2), respectively 80:20 almond flour : coconut flour (var. 3). The muffins obtained were characterized from an organoleptic, physico-chemical and nutritional point of view. The sensory characteristics were evaluated by the hedonic method. The aroma and taste of the muffins, regardless of the variant, were appreciated with maximum score. The humidity of the analyzed samples did not vary significantly in the three variants, but the porosity and the height / diameter ratio registered significant differences. Replacing almond flour with coconut flour decreased carbohydrate content, but increased lipid levels; the highest lipid content was recorded in variant 2 muffins which had an equal ratio of almond and coconut flour. Variant 3 muffins showed that coconut flour added by 20% reduced the protein content.

Keywords: muffins, almond flour, coconut flour, organoleptic characteristics, nutritional value

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P22

Virșli: implementation of the HACCP system

Augusta Andreea Mărginean, Alexandra Andreea Predica, Nicoleta Daiana Bardan, Laura Rădulescu, Corina Iuliana Megyesi*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: corina.megyesi@usab-tm.ro

The meat industry is of great importance in the food industry, due to the particularities regarding the raw and auxiliary materials, but also due to the equipment that are used to obtain meat products.

"Virșli" sausages are a traditional type of sausage from Hunedoara County, city of Brad, where they are known as "Virșli of Brad" and are mostly sold in fairs and markets. Virșli sausages are obtained from mutton or goat meat mixed with beef, lard, spices (salt, pepper, paprika and chilli). The mixture obtained is filled in a natural membrane (from pig or sheep). They have a reddish-brown color, fine and smoky aroma, slightly spicy, thin diameter and a length of about 15-20 cm.

The HACCP system is mandatory for all companies, especially for companies that produce, store and sell food products.

The flow chart was made in order to implement the HACCP plan and to determine the critical control points. Three critical control points were identified: at the stage of storage of raw materials, at the stage of maturation and at the stage of storage of the finished product. The critical limits for each CCP were established and the preventive actions were specified.

Keywords: HACCP system, virșli, Hunedoara County

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P23

Homemade smoked sausages with the addition of red wine

Valeriu Constantin Miron Mezdrea, Bianca Daniela Naherneac, Gheorghe Florin Samulescu, Laura Rădulescu, Corina Iuliana Megyesi*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: corina.megyesi@usab-tm.ro

From a long time ago, the major problem of the population has been food security. A firm intervention was required from industry and agriculture to solve this problem.

The meat processing sector constitutes a significant share of the structure of the food industry and presents a set of particularities of the equipment used and of the raw material.

The sensory properties of meat are important in achieving the quality of meat, along with nutritional, technological and hygienic factors.

The quality of the raw material is what gives humans a healthy diet because it transmits to the finished product, calories and various substances, which guarantees a good development of biological processes that take place in human nutrition.

The presented paper aimed to evaluate the quality characteristics of a home-made sausage with the addition of red wine (merlot).

Following the sensory analysis, it can be highlighted that this type of sausage was appreciated first of all because of its taste, then because of its appearance and consistency.

Keywords: Homemade, smoked sausages, red wine

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P24

Obtaining potato bread with the addition of pumpkin seeds - implementation of the HACCP system

Bianca Daniela Naherneac, Valeriu Constantin Miron Mezdrea, Iulia Alexandra Mihart, Laura Rădulescu, Corina Iuliana Megyesi*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: corina.megyesi@usab-tm.ro

Bakery specialties and bread are the essential products that people consume, which are the basis of the nutritional pyramid. Bakery products provide the human body a large number of substances that are useful in its vital activity, preserving work capacity and maintaining good health.

The present paper aimed to obtain potato bread with the addition of pumpkin seeds, as well as the implementation of the HACCP system for this product.

Potato bread with the addition of pumpkin seeds is an important source of vitamins, especially vitamin K, thiamine, folic acid and niacin, but also of minerals, among which the most common are selenium, sodium, zinc and iron. Also, this type of bread reduces the risk of cardiovascular disease and diabetes and has a low content of saturated fats and cholesterol.

For the implementation of HACCP plan and in order to determine the critical points, a flow chart has been created. For each technological stage it has been made the risk analysis, thus determining the types of risk and the class of risk. Moreover, the types of risk and the system of control have been described.

While implementing the HACCP plan, two critical control points have been found: at the technological operations of sifting and baking.

Keywords: potato bread, pumpkin seeds, HACCP system

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P25

Sensory analysis of chickpea salami - implementation of the HACCP system

Alexandra Andreea Predica, Augusta Andreea Mărginean, Denisa Florentina Haiduc, Alexandru Erne Rinovetz, Corina Iuliana Megyesi*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*corresponding author: corina.megyesi@usab-tm.ro

In this study, the technological process of obtaining chickpea salami is presented. It is described the technological scheme and the simulation of the HACCP plan for obtaining this product, which emphasizes the need for an efficient approach to obtain products of superior quality, in conditions of proper hygiene and a technological flow whose stages take place in optimal conditions. These will ultimately lead to a proper safety of the obtained food product.

The amino acid composition of chickpeas is well balanced.

Regular consumption of chickpeas and chickpea flour is a good way to increase fiber intake. Being such an important source of fiber, consuming chickpeas, but also other types of legumes can reduce the risk of coronary heart disease, diabetes and some cancers.

The flow chart was prepared in order to implement the HACCP plan and to determine the critical control points. Also, it was performed the risk analysis for each technological phase and it was described the types of risk and the control mode.

When applying the HACCP plan, two critical control points were found. These can be found in the technological operations of storage and filling.

Keywords: sensory analysis, chickpea salami, HACCP system

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P26

Innovative raw-vegan dessert with *Ganoderma lucidum* – obtaining and nutritional profile analysis

Alexandra Furdui, Raphael Gregor Ursu, Lavinia Popa, Cristian Alin Costescu, Camelia Moldovan, Diana-Nicoleta Raba, Delia - Gabriela Dumbravă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: delia_dumbrava@yahoo.com

Raw-vegan desserts, especially those enriched with various plant additives with high therapeutic value, have gained more and more interest from consumers around the world in recent years. *Ganoderma lucidum*, known as "Lingzhi" in China or "Reishi" in Japan, is a well-known medicinal mushroom in traditional Chinese medicine, which has been used to prevent and treat bronchitis, allergies, hepatitis, immune disorders and cancer. The aim of this paper was to create an innovative raw-vegan and no added sugar dessert with the addition of *Ganoderma lucidum* (5%) powder to increase the protective quality and nutritional value of the product. Two varieties of product were obtained, both based on figs, dates, *Ganoderma lucidum* powder, in one variant adding cocoa and rum essence (GRWD1), and in the second, coconut flakes and vanilla essence (GRWD 2). For each finished product the proximate composition and energy value were determined. The GRWD 1 vegan dessert variant with cocoa powder is slightly lower in calories (273.57 kcal/100g) than the GRWD 2 version with coconut flakes (298.77 kcal/100g), the second being richer in lipids and total carbohydrates (2.07 g/100g-total lipids, 57.14 g/100g-total carbohydrates, of which 44.29 g/100g sugars) than the first (1.14 g/100g-total lipids, 55 g/100g total carbohydrates, of which 40 g/100g sugars). However, variant GRWD 1 is richer in total protein and dietary fiber (3.93 g/100g-protein, 9.28 g/100g dietary fiber) than variant GRWD 2 (2.07 g/100g-protein, 7.86 g/100g-dietary fiber). For both product variants, a control test without the addition of *Ganoderma lucidum* was performed, also determining the energy value and the proximate composition. Control samples (C1 and C2) were poorer in calories, protein and dietary fiber than those with the addition of *Ganoderma lucidum.*

Keywords: raw-vegan dessert, *Ganoderma lucidum*, nutritional profile analysis

P27

Sensory characteristics of gluten-free cookies prepared with rice flour and pumpkin flour

Cadrin Svetozar-Rusalin Nicolescu, Diana-Lenuța Vîrsta, Maria-Mădălina Zamoștean, Ioana-Marinela Daminescu, Călin Jianu, Ariana – Bianca Velciov, Daniela Stoin*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*corresponding author: danielastoin@yahoo.com

The objective of this study was the development and sensory evaluation of a gluten-free floury product using rice flour and pumpkin flour as raw material. The orientation towards such a theme was imposed by the need for gluten-free flour products, of different types, to cover a wide range of consumption needs and diversity of people with gluten intolerance and people who want to adopt a healthy diet. Diet is the major therapeutic solution for gluten intolerance. Four types of gluten-free cookies were obtained using different flour ratios: rice flour (RF): pumpkin flour (PF) - 100%:0%, 90%:10%, 80%:20%, 70%:30%. The partial replacement of RF with PF resulted in a novel flour product with superior sensory characteristics of gluten-free products obtained from common gluten-free flours. Centralizing the results obtained in terms of sensory analysis, the sample of cookies with 20% PF was the most appreciated by the evaluators, showing a uniform golden-yellow color, without deformation, the taste, smell and aroma being very appealing.

Keywords: gluten-free cookies, rice flour, pumpkin flour, sensory evaluation

P28

Hippophae rhamnoides essential oil: chemical composition and in silico study a of its biological activities

Mihaela Agavriloaei, Maria Mădălina Zamostean, Ioana Marinela Daminescu, Cadrin Svetozar-Rusalin Nicolescu, Daniela Stoin, Călin Jianu*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*corresponding author: calin.jianu@gmail.com

In the present study, the *Hippophae rhamnoides* essential oil (HREO) was extracted by hydrodistillation from freshly pressed peel and pulp, a food waste generated by pressing sea buckthorn (H. rhamnoides) juice. The 0.11% (v/m) extraction yield suggests that food waste generated by sea buckthorn processing may be a significant source of active ingredients. GC-MS performed the identification of volatile compounds and revealed that isoamyl isovalerate (6.92%), isoamyl caproate (6.21%), ethyl caproate (35.99%), benzoate of isoamyl (19.72%), isoamyl octanoate (5.51%), cis-5-dodecenoic acid methyl ester (4.18%), dodecenoic acid (5.473%) are the major oil constituents. Moreover, we employed computational approaches (Prediction of Activity Spectra for Substances and DockThor) to assess possible biological targets for the main compounds of the HREO. Computational methods showed that dodecenoic acid and cis-5-dodecenoic acid methyl ester might be a potential source of antiseptics for the treatment of microbial diseases and the food industry.

***Keywords*:** *Hippophae rhamnoides*, essential oil, hydrodistillation, GC-MS, model docking, dodecenoic acid and cis-5-dodecenoic acid methyl ester

Acknowledgement: The authors are thankful to OncoGen Centre, County Hospital "Pius Brânzeu" Timișoara, Romania, for their support during our study.

P29

The effect of incorporating spirulina in *Mozzarella* cheese as a functional food

Zorica Voșgan*, Anca Dumuta, Monica Marian, Lucia Mihalescu

Technical University of Cluj-Napoca, Faculty of Sciences, Department of Chemistry and Biology, 76 Victoriei Street, 430122 Baia Mare, Romania
*corresponding author: zori_v13@yahoo.com

Microalgae (including spirulina) contain valuable bioactive compounds that act as potential antimicrobial agents. Spirulina incorporation in the dairy products has become a fairly common practice due to its sensory effects, but also to the functional properties that gives to food. The aim of the current study was to prepare a functional *Mozzarella* cheese from cow's milk with incorporated spirulina and to analyze its effects on the microflora and on the sensory and physico-chemical properties. The spirulina presence in the Mozzarella cheese influenced significantly its color and taste, and also generated a higher moisture content. Considering the microbiological aspects, after the determination of the total number of germs and coliforms, the antibacterial effect was observed as a result of the spirulina addition; also the staphylococci, yeasts and molds presence was limited, and the inhibitory effect was accentuated by the addition of salt. *Spirulina platensis* has been shown to have antimicrobial activity against many pathogens (bacteria and fungi) and at the same time it increases the nutritional value of food.

Keywords: spirulina, *Mozzarella* cheese, functional food

P30

Study on the preparation technique of onion jam

Bianca - Maria Laichici, Andrei - Laurențiu Șerban, Mihaela Cazacu*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: cazmih@yahoo.com

Onion jam is obtained from crushed onions, plus honey and brandy. It is not served as a classic jam, but in the form of sauce for various dishes, especially for steaks. Due to brandy jam has a special taste.

Onions can vary depending on size, shape, color and flavor. The most common types are red, yellow and white onions. The flavors can be sweet and juicy, spicy and pungent. Red onions contain more quercitin than white and yellow onions, a nutrient with antioxidant powers not found in other foods. This antioxidant protects cells from the formation of malignant tumors and promotes blood circulation.

The purpose of this paper was to obtain three kinds of onion jam: white, yellow and red onions and their characterization from a sensory point of view, being tested the following sensory parameters: appearance, color, smell, taste and consistency.

Following the sensory analysis and the grades obtained, the most appreciated variant was the red onion jam, despite the specific smell and taste.

Keywords: onion jam, brandy, sensory analysis.

P31

Obtaining and characterizing assortments of cheeses: Jintița

Roxana - Bianca Luca, Claudiu - Rafael Blănaru, Mihaela Cazacu*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: cazmih@yahoo.com

„Jintița" or ricotta of the Romanian shepherds is obtained from the whey resulting from the processing of sheep's milk in curd or 'Telemea' cheese.

„Jintița", like other cheeses, is a source of nutrients, these being represented by casein, minerals, almost all lipids and fat-soluble vitamins in milk from which they come and various amounts of water-soluble constituents, represented by lactose.

Whey proteins such as beta-lactoglobulin, albumin, lactoferrin are very rich in glutamyl-cysteine, one of the most powerful cellular antioxidants, an important defense mechanism against free radicals.

„Jintița", a by-product of pastoral craft, is increasingly finding its place, in raw form, on tables dominated by standardized cheeses. On the other hand, many of the Romanian dishes with a historical tradition are inconceivable without intent, and the culinary imagination of our lands brings it to the forefront of the ingredients of some recipes confirmed by the application.

In essence, „jintița" is a nutritious and multilateral food that can play a important role in an adequate, balanced diet, especially in the unfermented state.

Keywords: Jintița, nutrients, minerals, whey, food product, milk.

P32

Development of low glycemic index products using psyllium husk and wheat bran fractions

Roxana – Lavinia Țuțuman, Didier-- Makindu Mabibi, Loredana Rusu, Ileana Cocan, Ersilia Alexa, Monica Negrea*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: negrea_monica2000@yahoo.com

Bread has been a staple food for thousands of years and is consumed daily in most countries of the world. However, classic wheat flour bread is not recommended for consumption by people on a low-carbohydrate diet. Psyllium husk is a type of dietary fiber that results from the seeds of the plant *Plantago ovata*. This plant grows all over the world, and producers obtain fiber by grinding the outer layers (ie "shells") of psyllium seeds. Psyllium contains a hemicellulose fiber called arabinoxylan, a type of water-soluble viscous fiber that attracts and binds to water and forms a gel-like substance that increases in volume by up to 10x the starting volume.

In the first part of the research, a literature study was carried out on the origin, nutritional value and use of phyllium husk and wheat bran in bakery products, as well as the description of the technology for obtaining hypoglycemic / dietary bakery products.

The original contribution of the research refers to the establishment of the recipe for the manufacture of hypoglycemic bread, the elaboration of the technological scheme, the description of the technological stages and the obtaining of two bread products with psyllium husk and a control sample only with wheat bran.

The sensory evaluation of the studied breads was performed by 17 people (6 women and 11 men) aged between 21 and 53 years. The method used for sensory evaluation was the 5-point hedonic scale, for the characteristics: appearance, smell, texture / porosity, taste and general acceptability. Psylium bread obtained 4,971 points in *General acceptability* criteria, being much more appreciated compared to bread

with wheat bran which obtained 4,945 points, falling on the scoring scale very close to maximum of 5 points: like extremely.

The nutritional value of the studied hypoglycemic products was obtained based on the recipe, calculating the physico-chemical indices of the raw materials using the online calorie calculator (https://klorii.ro/). The carbohydrate level in the low glycemic bread studied was 47.80 g / 100 g (bread with wheat bran) and 20.69 g / 100 g (bread with psyllium husk).

The novelty of the research results from the fact that psyllium husk bread is a valuable product from a nutritional and functional point of view with high sensory characteristics.

Keywords: glycemic index, psyllium, wheat

P33

Valorizing the nutritional potential of quinoa and chia seeds

Mihai Milos, Marcela-Maria Cioara (Stancu), Elena Adelina Beuran, Alexandra Daniela Avirvarei, Liana Maria Alda, Despina-Maria Bordean*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: despinabordean@usab-tm.ro

The purpose of this paper was to assess the nutritional potential of quinoa and chia seeds, based on the study of the literature and various databases in order to identify superior ways to capitalize on these extraordinary seeds. We insisted on studying two varieties of seeds, chia and quinoa, which were analyzed in terms of nutritional characteristics.

The study was performed based on numerous databases and scientific papers. Quinoa seeds *Chenopodium quinoa* and chia *Salvia hispanica* are among the staple diet of Aztec civilization, both categories of seeds are considered as superfoods, i.e. nutritious and very rich in antioxidants and bioactive compounds. Quinoa contains a very large amount of fiber, almost twice as much as other cereals, and in addition, it contains essential proteins and minerals (iron, magnesium, manganese), as well as an amino acid called lysine, known for its important role in tissue repair. Chia seeds are rich in protein and fiber, without the gluten, but have a high content of calcium and omega 3, known to prolonging the feeling of satiety and supporting the health of the brain and heart, as well as accelerating metabolism.

We suggestively highlighted what chia and quinoa seeds are, where they come from, what beneficial values they can bring to consumers, energy values, as well as their structure and chemical composition. Chia seeds have gained in recent years, recognition for their nutritional properties, being recommended as an essential food, but also as plant protection products.

In order to create a food rich in carbohydrates it is recommended to use a mixture of seeds in the proportion of 60% quinoa and 40% chia, and in case of creating a

food rich in minerals, example, for magnesium we recommend the use of a mixture of 38% quinoa seeds and 62% chia seeds.

Keywords: nutritional potential, quinoa, chia seeds

P34

Evaluation of the antioxidant and mineral characteristics in some varieties of nuts

Monica-Manuela Marean, Darius-Lucian Ilioni, Sorin Marius Gilorteanu, Andrei Catargiu, Liana Maria Alda, Despina-Maria Bordean*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*Corresponding author: despinabordean@usab-tm.ro

The study with the topic "Evaluation of the antioxidant and mineral characteristics in some varieties of hazelnuts", includes a review to evaluate the antioxidant and mineral characteristics in some types of plant products such as: hazelnuts (*Corylus avellana* L.) , peanuts (*Arachis hypogaea),* Brazil nuts *(Bertholletia excelsa)* and common walnuts (*Juglans regia*).

Carrying out this case study aims to obtain a mix of nuts that provide an increased intake of minerals, vitamins and antioxidant compounds. The case study presents an assessment of the nutritional characteristic, focusing on the values of the mineral composition in some varieties of nuts, such as hazelnuts, peanuts, Brazil nuts and common walnuts.

The cluster analysis highlights the similarity between the chemical composition of hazelnuts with peanuts, as well as the dissimilarity in Brazil nuts. A mix characterized by high mineral content of 10% Brazil nuts and 10% peanuts, 30% hazelnuts and 50% common nuts is recommended.

Keywords: antioxidant, mineral, nuts

P35

Harnessing the nutritional potential of pomegranate fruits and peels

Alexandru Morariu, Ariana Cseke, Delia Ionela Patricia Ivanis, Liana Maria Alda, Despina-Maria Bordean*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: despinabordean@usab-tm.ro

The cultivation and consumption of pomegranate (*Punica granatum*) can be dated back to at least 3000 BC. Historically, pomegranate has served as a symbol of fertility and prosperity.

Following numerous specialized studies, the present study highlights the benefits that pomegranate brings to the consumer, both fruits and peels. The benefits are due to nutrient intake, bioactive compounds and antioxidants.

The main classes of compounds identified are: sugars, organic acids, fatty acids, phenolic and enolic, hydroxybenzoic, hydroxycinnamic, phenylpropanoid compounds, flavonoids and glycosides, anthocyanins and anthocyanidins, amino acids, tannins, indolamines, alkaloids, phenols and g -aliphatic. Pomegranate is an important source of vitamins such as: folic acid, vitamins A, B5, C, E and K, but also minerals such as Ca, K, Mg and Fe.

The statistical analysis shows that vitamin A, Cu, Mg, K, Na exist in greater quantities in pomegranate peels compared to its arils and it is recommended to find ways to use nutrients from pomegranate peels, as they bring an increased intake of minerals and vitamins. The study shows that the optimisation of food products based on pomegranate, can be achieved by adding 10-30% pomegranate peels.

Keywords: nutritional potential, pomegranate, fruits, peels

P36

The study of antioxidant and mineral characteristics of various root vegetables

Paul Marian Petridean, Andreea Dobrin, Lucas Carolin Livitchi, Dan Raican, Liana Maria Alda, Despina-Maria Bordean*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: despinabordean@usab-tm.ro

Root vegetables such as Carrot, Parsley and Celery are staple food in human diet due to the rich content of vitamins and minerals present in them, and also high in antioxidants. Root vegetables possess many health benefits, such as improving the immune system through the presence of antioxidants, preventing some forms of cancer, strengthening the cardiovascular system and also regulating glucose levels to aid in the management of diabetes.

The purpose of this study was to determine vitamin and mineral contents and also assess the antioxidant capacity of various root vegetables.

This study was conducted taking into account the vitamin and mineral contents reported in various databases and also gathered from different studies performed previously and obtaining an overview of the nutritional potential of these various root vegetables.

One of the main objectives of this study was also the development of a type of vegetable powder mix.

Based on the reported data and the PCA analysis, it was concluded that from a nutritional point of view, the use of wild celery and wild carrot in greater quantity would yield a superior product.

Keywords: nutritional potential, vegetable mix

P37

Characterization of the mineral and nutrient content of some fresh meat products assortments („Mici” and sausages)

Andrei-Razvan Potocean, Andreea Dobrin, Mihai Milos, Livia Maria Tomescu, Laura Radulescu, Liana Maria Alda, Despina-Maria Bordean*

Faculty of Food Engineering, Banat’s University of Agricultural Sciences and Veterinary Medicine “King Michael I of Romania” from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*Corresponding author: despinabordean@usab-tm.ro

The aim of this paper is to analyze, data from the literature, data obtained from some producers and the nutrition label, the variation of the content, in macro and microminerals (Na, K, Mg, Fe and Zn) and in the main nutritional elements (total protein, lipids, saturated and unsaturated fatty acids, vitamins) from several assortments of fresh meat („mici” and sausages).

We chose this subject because these items are intensely consumed in Romania, but on the nutritional label the composition is rarely detailed regarding the elements studied and presented by us. Based on these data, we can highlight the contribution of these varieties in the daily diet and make the necessary recommendations for a healthy diet.

The "sausages" show higher energy load than the "mici" varieties.The protein content is relatively similar in both types of dishes and lower than in the types of meat used.The highest fat content was determined in the 'sausages' range, being generally higher in both varieties than the 'meat' type raw material from which they were made.

The total mineral content is slightly lower in both types of fresh produce than in meat or bacon raw materials.Among the natural macroelements, potassium predominates, followed by sodium and magnesium. Overall, however, sodium predominates, which is introduced through the manufacturing process in the form of sodium chloride, a preservative additive.Among the microelements, zinc predominates, followed by iron, especially from sheep and beef.The total mineral content reflected in% ash is also higher in beef and sheep and decreases in the meat, especially those which are only based on pork.

If from a microbiological point of view there is a rigorous control at producer level, the same cannot be said about the control of minerals, even toxic ones. Data on these are missing from nutrition labels.

Keywords: meat products, micro and macroelemets, nutritional profile

P38

Possibilities to reduce the oxidation degree in meat products

Constantin Puiu, Majd Hasan, Alexandra Rus, Diana-Andreea Oprițescu, Monica-Mihaela Margan, Monica Negrea, Ileana Cocan

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: ileanacocan@usab-tm.ro

Meat and meat products are the main components of the human diet due to the high content of nutrients (proteins, vitamins, fats, mineral salts) but also the high digestibility and their many possibilities for preservation.

Lipid oxidation of food is considered a risk factor for human health. Certain lipid products are considered atherogenic agents with mutagenic and carcinogenic properties. Lipid oxidation is responsible for the development of unpleasant taste and odor, as well as for color changes, rheological properties and the formation of toxic compounds. The search for alternative methods to delay the oxidative processes in meat and meat products has led researchers to investigate natural antioxidants. The addition of antioxidants in meat products is known to be effective in metmioglobin formation and lipid oxidation [1]. Synthetic antioxidants are not recommended due to their toxicological and carcinogenic effects. The addition of natural antioxidants is one of the ways to extend the shelf life of meat and meat products [2].

Thus, recently in the food industry is trying to replace synthetic antioxidants with natural products rich in antioxidants. These natural antioxidants contain certain active compounds that exert an antioxidant potential in meat and meat products through various mechanisms of action.

The efficient extraction of these antioxidants from natural sources, together with the establishment of antioxidant activity in vitro and in products, has been a great challenge for researchers involved in this field [3].

The main purpose of the paper was to obtain a salami product in which to replace the artificial antioxidant with rosemary, it is known that it is an important source of antioxidants. The obtained product was subsequently analyzed from a sensory and physico-chemical point of view in the physico-chemical analysis laboratory within the Interdisciplinary Research Platform, U.S.A.M.V.B. TIMISOARA.From a sensory point of view, the appearance, consistency and taste were followed. From a physico-chemical point of view, the following were observed: the content of water, dry matter, ash, fat, NaCl and the determination of the degree of oxidation of animal fats.

After evaluating the oxidative capacity, it can be concluded that the lipid oxidation process that occurs over time can be reduced by the addition of rosemary, and as a result it can be used as an antioxidant in order to improve the oxidative stability of fats over time.

References:

1. Sajad, A., Rather, F.A., Masoodi, R.A., Jahangir, A., Rather, K., Shiekh, A., 2016, Advances in use of natural antioxidants as food additives for improving the oxidative stability of meat Products, Madridge J Food Tech., 1(1), pp. 10-17. doi: 10.18689/mjft.2016-102.
2. Karwowska, M.Z., Dolatowski, J., 2007, The effect of natural antioxidants on the oxidative processes in beef, Acta Sci. Pol., Technol. Aliment. 6(1), pp. 17-25.
3. Varzakas, T., Zakynthinos, G., Verpoort, F., 2016, Plant Food Residues as a Source of Nutraceuticals and Functional Foods, Foods, 5, pp. 88. doi:10.3390/foods5040088.

P39

The influence of the processing conditions on the Salty cheese with *Propionibacterium shermanii* addition

Anca Dumuţa*, Zorica Voşgan, Cristina Mihali, Lucia Mihalescu, Alina Groşan

Technical University of Cluj-Napoca, Faculty of Sciences, Department of Chemistry and Biology, 76 Victoriei Street, 430122 Baia Mare, Romania

*Corresponding author: codre_anca@yahoo.com

In this study it was analysed the way in which the salting and ripening operations influence the characteristics of a Salty cheese assortment in which *Propionibacterium shermanii* was inoculated. This type of bacteria is used in the Swiss cheese type production, and it is able to synthesize amino acids and vitamins, especially vitamin B12, thus bringing a functional role to the products in which it is added. The *Propionibacterium shermanii* bacteria used in the research were isolated from an Emmental cheese.

Keywords: Salty cheese, *Propionibacterium shermanii*

P40

Homogeneity assessment. The critical role in certified reference material production

Ovidiu Mărculescu[1,2], Floarea Serbancea[2]

[1]University Politehnica of Bucharest, România, National Research and
[2]Development Institute for Food Bioresources – IBA Bucharest
*Corresponding author: marculescu.ovidiu90@gmail.com

Reference material is a generic term given to a sufficiently homogeneous and stable material, referring to one or more characteristics specified and determined to be suitable for the intended use in a measurement process. The quality of reference materials must be assessed by homogeneity studies. and stability. Thus, homogeneity is a critical parameter for any reference material. This paper presents the experimental study on the evaluation of the homogeneity of a reference material recommended for determining the ash content in wheat flour.

Ash is one of the major indicators of the quality of wheat flour and consists of mineral compounds of phosphorus, calcium, magnesium, iron, potassium, zinc and copper. In the experimental study, the ash content was measured by incineration at 550^0C, according to the reference method described in the ISO 2171: 2007 standard. Results obtained in the experimental homogeneity study indicate that wheat flour, with minimal technological processing, can be successfully used to obtain the reference materials used in the evaluation of measurement performance in ISO 17025: 2018 accredited analytical laboratories.

Keywords: reference material, homogeneity of reference materials, wheat flour, ash content

P41

Modern aspects in the world of food engineering

Ovidiu Mărculescu [1,2*], Maria-Roxana Marinescu [3], Augustin Semenescu [4,5]

[1]University Politehnica of Bucharest, România;
[2]National Research and Development Institute for Food Bioresources – IBA Bucharest, https://bioresurse.ro/en
[3]National Institute for Research and Development in Microtechnologies – IMT Bucharest, https://www.imt.ro/
[4]Faculty of Materials Sciences and Engineering, University POLITEHNICA Bucharest, 313 Splaiul Independenței, 060042 Bucharest, Romania, http://www.upb.ro
[5]Academy of Romanian Scientists, 3 Ilfov, 050044, Bucharest, Romania, http://www.aosr.ro
*Corresponding author: marculescu.ovidiu90@gmail.com

Health has become a major concern for people during the Covid-19 pandemic, bringing healthy food in one of the leading places among the areas of major importance.

Food engineering has an outstanding contribution from food production, preservation and stabilization to safety, health, innovation, diversity, and sustainable production. Engineers constantly search for new economically and efficiently solutions to create optimal conditions for all these stages. A real help for these are the sensors used to monitor various parameters, such as temperature, humidity, smell, soil moisture and sunlight exposure. Another tool used in food engineering are certified reference materials which can be a multipurpose tool that can increase the degree of confidence in testing agri-food products, but also in quality assurance and quality control. The purpose of this paper is to highlight the importance of food engineering and its role in the modern world.

The modern world relies on technology that is constantly evolving and on smart devices. Storage and food packaging are two important categories of food technology that, used together, can reduce food waste. With help from indicators and sensors that are applied in the packaging, changes in physiological variations of the foods cand be detected.

***Keywords*:** food engineering; reference materials; monitoring;

P42

Sensory properties of some red wines from different wine regions of Romania

Martina Necula, Iasmina-Ximena Iliopol, Andreea-Georgiana Ancas, Mirabela-Codruta Latcu, Mariana-Atena Poiana, Liana-Maria Alda, Diana Moigradean*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: dianamoigradean@usab-tm.ro

The purpose of this paper is to investigate the sensory properties of two red wines obtained from Romanian local black grapes varieties Pinot Noir and Feteasca Neagra, produced in the wine-growing regions of Romania. At national level, Romania has eight wine-growing regions named in accordance with their geographical position: Transylvania Hills, Banat Hills, Moldavian Hill, Muntenia and Oltenia Hills, Dobrogea Hills, Crisana and Maramures Hills, Danube Terraces, Sands and other Lands of the South of the country. A great Pinot Noir wine have complexity, elaborate aroma, refined texture, freshness, silky tannins and finesse. Pinot Noir wine has, in generally, the following sensory properties: appearance (clear liquid, without deposits), color (rose, light ruby), smell and taste (pleasant with a fine aroma without foreign taste and smell), sound (abundant, with small bubbles starting from the bottom of the glass). Red wine Feteasca Neagra, in generally have the following sensory properties: appearance (clear liquid, without deposits or suspended particles), color (ruby red), smell and taste (tasting plums notes complemented of red fruits like black cherries, ripe cherries, blackberries, black currants and blueberries; are specific to the Feteasca Neagra grapes variety). Pinot Noir and Feteasca Neagra are both tannic red wines with similar flavors of berry fruit.

Keywords: wine regions of Romania, red wines, sensory properties

P43

Economic technical study of the natural storage of some vegetal raw materials. Parsnip

Ilie Nedelcu, Dorin Otiman, Alexandru Mitrache, Alexandru Corcionivoschi, Sisa Renata, Ioan David, Gabriel Bujancă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: gabrielbujanca@usab-tm.ro

Parsnip is one of the world's largest sources of vitamin K, and this vitamin, on its own, produces many health benefits. This means that half a spoonful of parsnip can be strong enough to provide a positive change for health.

In addition to vitamins and nutrients, parsnip also contains a huge amount of nutrients. These include antioxidants and other phytonutrients that can improve health. They are present in notable quantities in just half a teaspoon of fresh parsnip.

In the first part of the paper, we conducted specialized studies on the use of parsnip in everyday food, the chemical composition and its therapeutic effects.

Laboratory tests were carried out to identify the process of drying the plant material (parsnip) during storage.

The shelf life and storage conditions, both in mechanically ventilated warehouses, as well as in cold storage, depend on their storage resistance, chemical composition, and structural-textural strength characteristics.

After harvesting these products, metabolic processes continue using their own enzymes as it is, which involves directing microclimate factors such as temperature, relative humidity, light. Optimal storage analyzes are: temperature (-1 ° ... + 1 °), relative humidity (75-80), storage space (6-7 months).

***Keywords**:* parsley, storage, thermo-gravimetric analysis, dry plant

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P44

Cooking at high temperatures - effects on human health

Tudor Stricescu, Andrei – Marius Gherman, Ionela Anișoara Ponoran, Georgeta Sofia Popescu, Daniela Stoin, Ariana-Bianca Velciov*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: arianavelciov@usab-tm.ro

Food is our fuel, and we cannot live without it. In order to become edible, most of the food must be cooked. Nowadays, favorites culinary techniques are grilling, pan-frying or deep frying, that are causing chemical changes through the food components. All these changes that take place in food compounds, (amino acids, proteins, sugars, carbohydrates, vitamins and lipids), caused by treatments at very high temperatures, have raised questions about their consequence, about the decrease in nutritional value, but also related to the formation of potentially toxic chemicals, such as polycyclic aromatic hydrocarbons or nitrosamines. Among the reactions that occur during food processing, we can mention the Maillard reaction, which has an important role in the formation of various chemicals (some toxic).

Above 125ºC, the Maillard reaction start to develop very slowly with the peak at 150ºC, and, if the temperature is higher than this, other compounds are generated, called Heterocyclic Aromatic Amines (HAAs). Heterocyclic amines are potential mutagens and carcinogens being in general responsible for inducing several types of cancer and DNA damage after accumulation in the body. Synthesis of this these carcinogenic compounds is linked with the meat products that are subjected to high temperature during processing for longer periods of time. White meat is more susceptible to the production of HAAs during cooking as compared to the red meat. Level and quantity of HAAs is influenced by several factors like method of cooking, time of cooking and cooking intensity. There are two main classes of HAAs: Aminoimidazole-azaarenes (AIAs) and Amino carbolines (ACs). AIAs componds are produced as a reaction between creatine, creatinine and hexose during conventional cooking (150-300ºC), while ACs are formed due to pyrolytic reaction between proteins and amino acids at higher temperatures.

The mechanism behind the production of HAAs is that the muscle proteins react with the sugar at higher temperature which result in the development of these carcinogens as a further extension of Maillard reaction. The major factors that contribute to HAAs production include: water level, pH range of meat, cooking temperature, time of heat contact, concentration and characteristics of precursors.The risk of developing the harmfull effects can be reduced by adding different spices, fruits and vegetable extracts and other antioxidants.

Keywords: Heterocyclic Aromatic Amines (HAAs), Maillard reaction, high temperature

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P45

Evaluation of mineral micronutrients from native plums

Ionela Andreea Birtea, Iasmina Madalina Anghel, Adelina Avrămuş, Andreea Inoveanu, Georgeta Sofia Popescu, Antoanela Cozma, Ariana-Bianca Velciov*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: arianavelciov@usab-tm.ro

The purpose of this experimental study was to determine some mineral micronutrients from native plum fruits taken from an area with old traditions in the cultivation of fruit trees and to estimate their mineral intake.

Iron, manganesse, zinc and copper concentration from summer plums cultivated in orchards located in hilly areas from Caras - Severin County (Romania) were determined. The validate Flame Atomic Absorption Spectrometry method was used.

The obtained results show that the analyzed fruits contain significant amounts of essential elements: 3.67 - 4.82 mg/kg Fe, 0.74 - 1.82 mg/kg Mn, 0.94 – 2.41 mg/kg Zn and 1.02 - 1.31 mg/kg Cu.

When evaluating the mineral intake, we found that under the conditions of the present experiment, a consumption of 400 g of fresh plums (edible part) covers appreciable percentages of the daily mineral requirement recommended for adults (19 – 50 ages): 8.80 -19.80 % Fe, 22.05 – 28.18 % Mn, 5.91 – 8.12 % Zn and 52.80 % Cu. Experimental data show that the fruits analyzed could be considered as sources of essential trace elements, especially from the point of view of Cu and Zn and even Fe.

***Keywords*:** micronutrients, iron, manganesse, zinc, copper, mineral intake.

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P46

Study of the technological process of obtaining the fruit jam

Delia Mihaela Bădescu, Robert Costinel Mutici, Andreea Annemarie Kiss, Daniel Bogdan Platon, Ana-Maria Găină, Gabriel Heghedűş-Mîndru, Ramona Heghedűş-Mîndru*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: ramonaheghedus@usab-tm.ro

Jam-type products are those products that are obtained by gelling fresh or semi-preserved fruits, which are boiled with sugar to which pectin and acid are added or not. Jam is that preparation which is named after the fruit from which it is prepared or that product which is called 'assorted' if it is prepared from two or more varieties of fruit. It will have to have a certain consistency, without fragmenting when it is spread on the bread. Also the shape of the fruit must be recognized in the mass of the product. Based on the technological scheme and the manufacturing recipe, a mathematical model was designed and developed based on the Microsoft Office Excel program.

From the mathematical model designed and made based on the technological scheme and the manufacturing recipe regarding the use of berries (rosehips and hawthorn) in the technological process of obtaining the jam resulted a specific consumption of 1.20 Kg and a manufacturing yield of 83.26 %. Based on the mathematical model, losses, specific consumption and manufacturing efficiency can be calculated for different production quantities.

Keywords: jam, fresh fruits, technological flow, manufacturing efficiency, mathematical program.

P47

Assessment of the nutritional potential of raw and paraboiled rice

Ionut Adelin Bobiti, Delia Ionela Ivănis, Orsolya Izabela Kulcsar, Bianca Groza, Liana Maria Alda*, Despina Maria Bordean, Simion Alda

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: lianaalda@usab-tm.ro

The aim of this study was to evaluate the nutritional potential of four varieties of white, long-grain rice: enriched (raw or parboiled) and unenriched (raw or parboiled). USDA and FoodB databases nutritional data were used and the values were compared and analyzed using PAST and MVSP statistical programs.

For enriched rice, the changes are visible at the a*mino acids* contents levels.

Because of boiling heat treatment application, appear changes that are smaller in the case of improved rice compared to unimproved rice (logarithmic variations of improved rice are smaller if heat treatment is applied compared to unimproved rice). Following the application of the cluster analysis, the maximum influence is given by the improvement of rice, refereed as the characteristic that strongly influences rice's boiling behavior, and implicitly the variations of the nutritional values, aspect highlighted also by applying Principle Component Analysis (PCA).

Keywords: rice (*Oryza sativa*), boiling, statistical programs

P48

Study of the technological process of obtaining chocolate

Ana-Maria Găină, Daniel Bogdan Platon, Andreea Annemarie Kiss, Delia Mihaela Bădescu, Robert Costinel Mutici, Ramona Heghedűş-Mîndru, Gabriel Heghedűş-Mîndru*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*Corresponding author: gabrielheghedus@usab-tm.ro

Chocolate is a widely used product, both in medicine and in food, it is found in several forms of sale, both in liquid and solid form, with different spices, or simple. Most often, it is used in factories, confectioneries, for making cakes, creams, cakes. Based on the technological scheme and the manufacturing recipe, a mathematical model was designed and developed based on the Microsoft Office Excel program. With the help of this mathematical model can be determined, the losses on each operation in the technological flow, the specific consumption as well as the manufacturing efficiency within the technological process of obtaining chocolate. Following the bibliographic study, the manufacturing technology, the balance of materials and the HACCP system implemented in terms of chocolate processing, the following conclusions were drawn: once a week, chocolate consumption is beneficial for health, being associated with a decrease of 8% for coronary heart disease; increasing gait performance for patients with peripheral arterial disease; from the balance of materials achieved resulted a specific consumption of 1.15Kg of raw and auxiliary materials to obtain 1Kg of chocolate. The manufacturing yield was 86.25%.

Keywords: chocolate, hazard analysis and critical control points (HACCP), technological flow, manufacturing efficiency, mathematical program.

P49

Study of the technological process of obtaining pasta

Andreea Annemarie Kiss, Daniel Bogdan Platon, Delia Mihaela Bădescu, Robert Costinel Mutici, Ana-Maria Găină, Gabriel Heghedűş-Mîndru, Ramona Heghedűş-Mîndru*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*Corresponding author: ramonaheghedus@usab-tm.ro

Pasta is food products that have a relatively long shelf life, they are obtained from wheat flour of very good quality, having a high gluten content, with or without the use of additives such as: broth, eggs, carrot juice and spinach, etc. In this paper, several bibliographic data on raw materials, manufacturing technologies and equipment used for the manufacture of pasta have been studied. Based on the data resulting from the technological process of obtaining the products of the ladle noodles with broth and the ladle noodles with spinach (own production) and with the help of Microsoft Office Excel, a mathematical model was developed that aims to assess the losses, specific consumption and production yield. The resulting specific consumption was 1,307 Kg of raw and auxiliary materials to obtain 1Kg of pasta. The manufacturing yield was 76,456%. Also in this work was carried out the sensory evaluation of 8 samples of pasta, small feathers with broth, large feathers with broth, spindles with broth, wide noodles with broth – own production, small feathers with spinach, large feathers with spinach, spinach fussily and wide noodles with spinach – own production, the results obtained fall within the limits provided by the Quality Standard. The best results were obtained in the case of pasta samples own production, Sample 4 wider noodles with broth – own production – 4.81 points, respectively Sample 8 wider noodles with spinach – own production – 4,775 points. The lowest values were recorded in the samples, 5 Small feathers with spinach - 4,175 points. and 7 Spinach spindles - 4.15 points.

Keywords: pasta, pasta with broth, pasta with spinach, sensory evaluation, technological flow, manufacturing efficiency, mathematical program.

P50

Study on the technological process of obtaining meat products

Robert Costinel Mutici, Andreea Annemarie Kiss, Daniel Bogdan Platon, Delia Mihaela Bădescu, Ana-Maria Găină, Gabriel Heghedűş-Mîndru, Ramona Heghedűş-Mîndru*

Faculty of Food Engineering, Banat’s University of Agricultural Sciences and Veterinary Medicine “King Michael I of Romania” from Timisoara, Timisoara 300645, Romania

*Corresponding author: ramonaheghedus@usab-tm.ro

Meat is the most consistent and oldest food. Due to the fact that in antiquity the term "alteration" was not known, a very large number of people became ill. In our country the most consumed meat is pork. Pork was banned in some regions because pork was considered an "unclean animal." Based on the technological scheme and the manufacturing recipe, a mathematical model was designed and developed based on the Microsoft Office Excel program. With the help of this mathematical model can be determined, the losses on each operation in the technological flow, the specific consumption as well as the manufacturing efficiency within the technological process of obtaining smoked pork sausages. In this paper we have designed and developed a mathematical model for processing smoked pork sausages. We obtained a specific consumption of 1.11 Kg and a yield of 89.54%. With the help of the designed mathematical model, losses, manufacturing efficiency and specific consumption can be calculated for different production quantities.

Keywords: meat, pork sausages, technological flow, manufacturing efficiency, mathematical program.

P51

The study of the technological process of obtaining dairy products through traditional processes and technologies

Daniel Bogdan Platon, Andreea Annemarie Kiss, Delia Mihaela Bădescu, Robert Costinel Mutici, Ana-Maria Găină, Ramona Heghedűş-Mîndru, Gabriel Heghedűş-Mîndru*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

Corresponding author: gabrielheghedus@usab-tm.ro

As can be seen, matured cheeses have a fairly high percentage of fat and contain many calories in conclusion should be consumed constantly, but in moderation, 50 -100 g per day, no more. Thus we can benefit from the very good effects on health of a basic component of their composition: conjugated linoleic acids, which play an important role in human metabolism. In the present work were studied a series of bibliographical data from the point of view of the characteristics of raw material milk, technologies used for the manufacture of ripened cheeses from cow's milk. Based on the data obtained from the technological process of obtaining the product matured cow's cheese (own product) and with the help of the Program Microsoft Office Excel, a mathematical model was created that can determine, the losses on each operation in the technological flow, the specific consumption as well as the production yield. The specific consumption resulting from the production of ripened cheeses from cow's milk was 9,79 kg of milk/1 kg of matured cheese. The production yield was 10.2%. The sensory analysis of 5 samples of matured cow's milk cheese was performed: M matured cheese – control (own product); matured cheese A – Sibiu; matured cheese B – Sibiu – with cumin; matured cheese C – Alba with cumin and matured cheese D - Alba with basil. The results obtained in the case of the sensory analysis showed that all 5 samples of matured cow's milk cheese were within the limits laid down in the current standard.

The highest score in terms of sensory analysis was recorded in the sample of matured cheese M - control (own product) - 4.67 points. followed by samples of matured cheese A - Sibiu - 4.25 points, matured cheese C - Alba with cumin - 4.02 points, matured

cheese B - Sibiu - with cumin - 3.95 points respectively matured cheese D - White with basil - 3.8 points.

Keywords: dairy products, matured cheeses, sensory evaluation, technological flow, manufacturing efficiency, mathematical program.

P52

Sensory evaluation of the innovative product „Pasta biscuits"

Cristiana Dragotă, Cristina Zbirnea, Diana Oprițescu, Camelia Moldovan, Corina Mișcă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

Corresponding author: corinamisca@usab-tm.ro

„PASTA BISCUITS'' is an innovative product that uses flour made from bean pods instead of wheat flour. This dessert is aimed at a wide range of consumers - children, adults and the elderly, without health problems, but it is also intended for people with diabetes, those with gluten intolerance and people suffering from various diseases - anemia, apathy, cholesterol, because bean pods contain minerals - potassium, iron, calcium, amino acids - tryptophan and tyrosine, vitamins - folic acid and those who choose a healthier and fuller diet, because we found that consuming a single cookie, consumers were late meal for at least an hour. For overweight people, in order to establish an optimal diet, "PASTA BISCUITS" can be helpful due to the fibers contained that increases satiety, removing the feeling of hunger. The product obtained has organoleptic characteristics - appearance, color, consistency, taste and smell appreciated by consumers. Following the sensory analysis, which was attended by 27 people, our product obtained very good reviews. The grading range was between 1 and 10, and the score obtained for each parameter checked was as follows: appearance - one grade of 8, one grade of 9 and 25 grades of 10; color - one grade of 9 and 26 grades of 10; consistency - two grades of 8, five grades of 9 and 20 grades of 10; taste - two grades of 7, two grades of 8, seven grades of 9, 16 grades of 10; smell - one grade of 8, 10 grades of 9 and 16 grades of 10.

Following discussions with volunteers who participated in the evaluation of the product, we concluded that the lower taste notes were a consequence of the fact that the biscuits had a slightly astringent taste compared to a similar biscuit obtained using wheat flour, because it should be noted that the tastings - they did in parallel. At the same time, the general opinion was that an individual tasting of the product, without comparing it with another with which the consumer may be accustomed, could lead to better assessments.

***Keywords**:* bean pod flour, biscuits, celiac disease, hydration capacity

P53

The evaluation of microbiological and sensorial properties of a functional bakery product

Ciprian Mocan, Zlatan Milosevic, Mădălin Dorin Santa, Delia Dumbravă, Camelia Moldovan, Corina Mișcă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

*Corresponding author: corinamisca@usab-tm.ro

Functional products or nutraceuticals are foods that bring health benefits, beyond the nutritional basis they have. The paper is based on the microbiological and sensorial analysis of a bread product obtained from gluten-free flours, using natural sourdough as a leavening agent. The previous study was aimed to the production method of a bakery good labelled as a functional food product. Taking into consideration the nutritional values calculated based on the raw material used, the product the following properties: (1) high in fibre due to the bamboo fibres and psyllium barn used; (2) source of protein from the flour mix, Chlorella powder and the seeds mix. Further experiments would be necessary to determine the exact values of each nutrient, and to compare the results with the regulations in order to see if the claims would be met. Other properties that augment the product quality are represented by the gluten free flours which enlarge the consumers market and also by using the sourdough as a leavening agent. Better texture and flavour compared to the similar products in the market are expected be reached within this product, especially due to the use of sourdough. Moreover, a longer shelf life is associated to this leavening agent compared to industrial yeast. The greatest

challenge of this product is represented by its colour and taste, mainly associated to the Chlorella powder. However, algae are highly used nowadays in the food product development sector and an interest point for the novelty seekers, vegan consumers or people with dietary restrictions. Thus, microbiological and sensorial analysis will confirm or reject the hypothesis listed.

Keywords: functional food products, nutraceuticals, vegan consumers, sensorial analysis

P54

Functional foods - a challenge for the globalized food industry

Cristina Zbirnea, Zlatan Milosevic, Ciprian Mocan, Camelia Moldovan, Delia Dumbravă, Mirela Popa, Corina Mișcă*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

*Corresponding author: corinamisca@usab-tm.ro

Functional foods are foodstaffs, enriched or enhanced with minerals, vitamins, probiotics, prebiotics or other natural extracts, which bring proven health benefits to the consumer, when they are part of a constantly varied diet. Functional and conventional foods are similar in appearance, but the former have the ability to reduce the risk of chronic diseases, intervene in the treatment of diseases by correcting metabolic disorders and thus help increase the quality of life of consumers. Scientific research in recent years has shown the beneficial role of these functional foods, of which fermented products occupy a prominent place. Although the results of many studies highlight the health benefits of this group of foods, the population is not sufficiently informed about these issues. That is why we set out to conduct a survey among consumers to identify the level of knowledge of these foods, the attitude and buying behavior. For this purpose, we considered a group of 60 people, aged between 18 and 40, in which the questions focused on knowledge about functional products, how often they consume, the reason for their choice, trust or lack of trust in these products , the influence of the quality / price ratio on the purchase decision.

The results could be useful for manufacturers, distributors and last but not least for the school, which have to disseminate the scientific results about these products so that the decision to consume functional products to be taken having all the necessary information.

Keywords: functional foods, probiotic, prebiotic, microbial cultures, fermentation.

P55

Research on the quality characteristics of exotic fruit added biscuits

Raul Codoban, Izabela Kulcsar, Andreea Kallos, Anamaria Găină, Raveca Cozan, Aurica Borozan, Bogdan Rădoi, Camelia Moldovan*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

*corresponding author: kmimol@gmail.com

The aim of this paper was to obtain and characterize biscuits with improved nutritional value as a result of the addition, in different proportions (0, 5, 10, 15 and 20%), of mango and pineapple powder. After obtaining biscuits, sensory analysis was performed. Results show that the best acceptability was for the 10% fruit powder variant. Mango powder has contributed substantially to the color of the crust and the appearance of these biscuits, being very well accepted by evaluators up to the incorporation level of 10%. Above this level, color of biscuits was too dark, therefore less acceptable. Taste and aroma of biscuits were improved by incorporating mango powder up to a level of 20%, when biscuits acquired a slightly bitter taste. The addition of 5% of pineapple powder in biscuits determined the best sensory quality, with an overall acceptability score of 7.7 on a hedonic scale of 9. Texture of biscuits varied inversely with level of supplementation of fruit powder. The humidity of biscuits was in direct correlation with level of substitution of flour with fruit powders, varying between 1.82 and 4.63%. The energy value of fruit biscuits increased with level of supplementation, being between 1512 and 2873 kJ / 100 g.

Keywords: biscuits, pineapple, mango, sensory characteristics, humidity, acidity, nutritional value

P56

Evaluation of the quality characteristics and nutritional properties of desserts with grape pomace flour

Alexandra Oprea, Anamaria Țobîcă, Ionela Șandru, Călin Cureleac, Andreea Kiss, Drugă Mărioara, Atena Poiana, Moldovan Camelia*

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: kmimol@gmail.com

The aim of the work was to capitalize on grape pomace in a flour mix by obtaining muffins. The research aimed at developing an innovative food product, muffins with pomace flour, exploiting the maximum potential of grape pomace in obtaining flour and also obtaining a product appreciated and with an increased nutritional value. Three variants of muffins were obtained: without grape pomace flour (var. 1), with 20% grape pomace flour (var. 2), and with 20% grape pomace flour and added cranberries (var. 3). The muffins obtained were examined organoleptically (being assigned points between 1-10.). And physico-chemical. All the variants were highly appreciated, obtaining over 91 points out of 100 possible, a score that attests to the fact that the product had a very good acceptability. Variant 1 of muffins was undoubtedly the most appreciated, obtaining an average of 98.93 points. The muffins with 20% grape pomace flour with / without blueberries showed organoleptic changes compared to the sample of muffins without pomace flour, but the product was very well accepted by the evaluators. The evaluation of variant 1 of the product showed that the smell and taste were the most appreciated sensory indicators, while the color was the most pointed. In the evaluation of product variant 3, it was observed that the most appreciated sensory indicator was the smell, and the appearance per section was the most pointed. The porosity, elasticity and height / diameter ratio were reduced with the addition of cranberries. Humidity, acidity and nutritional value recorded the highest values in variant 3.

Keywords: grape pomace flour, muffins, sensory and physico-chemical characteristics.

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P57

Nutritional and chemical characterization of soymilk

Daniela-Florentina Marcu[1], Luiza Maria Ghigeanu[2], Adina Modoc[1], Georgeta- Sofia Popescu[2*], Ariana-Bianca Velciov[2], Florina Radu[2]

[1] "1 Decembrie 1918" University of Alba Iulia;
[2]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*corresponding author: sofia.pintilie@gmail.com

The soybean (*Glycine max*) is the most important bean in the world, providing a wide range of vegetable proteins. Soy milk is a colloidal solution obtained in the form of water extract from swollen and ground soybeans.

The objective of this study was to evaluate the chemical and physical characteristics of soy milk homemade prepared, and some types of soymilk purchased from Romanian supermarkets. The soybean used for soymilk has been purchased from Romanian supermarkets.

The soymilk has been prepared from analyzed grains and then some chemical and physical characteristics of milk have been assessed. Soymilk is a substitute for cow's milk. This kind of drink is especially used for vegetarian people, people with lactose intolerance, and those who hold religious fasting.

The aim of this study was to evaluate the chemical and nutritional characteristics of soybean grains used for soymilk. We investigated moisture and total dry content substance, fat, carbohydrates, and protein content. For soy milk, we established humidity, total solid content, refractive index, total mineral content, and sensory evaluation.

***Keywords*:** soybean, soymilk, ash, lipid content, protein content

P58

Possibilities to replace animal milk with vegetable milk

Iasmina Andreea Bordeanu, Oriana Dorina Jaba, Ionela Florentina Scurtu, Iosif Valentin Plesa, Diana Veronica Dogaru*, Camelia Moldovan, Delia Gabriela Dumbravă, Mariana Atena Poiană

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: dianadogaru@usab-tm.ro

An alternative to animal milk is vegetable milk which has had a rapid growth in the development of herbal products. Nowadays, cow's milk allergy, lactose intolerance and caloric concern have led consumers to choose vegetable milk over animal milk. What is worth considering refers to the fact that vegetable alternatives are not an invention of modernity, but, on the contrary, they have existed since the medieval period. In the past, this substitute was used because the milk of animal origin was either not found in abundance or could not be kept in optimal conditions to avoid its alteration. Some benefits of vegetable milk are: improved hormonal functions, improved digestion and a low degree of inflammation in the body, compared to milk of animal origin which is irritating to the gastrointestinal tract, supports hormonal imbalances and causes cardiovascular disease. Heat treatment was used as a processing method to prolong the shelf life but also to eliminate pathogenic microorganisms. Various heat treatments are used to increase the shelf life, such as: UHT and UHPH. Efforts are needed to develop products and by-products from vegetable milk that are equally tasty and nutritionally adequate. Plant-based milk alternatives are a rising trend, which can serve as an inexpensive alternate to poor economic group of developing countries. Types of plant-based milk alternatives: oat milk, soy milk, peanut milk, almond milk, sesame milk etc.

Keywords: Plant-based milk alternatives, lactose intolerance

P59

Characterization of some local cherry fruits assortments based on polyphenols content

Luiza Maria Ghigeanu[1], Daniela-Florentina Marcu[2], Emilia Copaci[2], Adina Modoc[1], Florina Radu[1], Ariana-Bianca Velciov[1], Georgeta-Sofia Popescu[1*]

[1]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania;
[2"]1 Decembrie 1918" University of Alba Iulia
*corresponding author: sofia.pintilie@gmail.com

The variability of biochemical components in fruits is relatively high, due to the many varieties of each species, to the applied technology, and not least due to environmental conditions.

The aim of this study was to establish the chemical composition of cherry fruits (*Prunus avium* and *Prunus cerasus)* grown in the West Region of Romania. In this study was investigated total mineral content (ash), dry matter, total polyphenols content, total antioxidant capacity, vitamin C (ascorbic acid), total soluble solids content. The interaction between fruit color and sampling location showed a significant effect on antioxidant capacity.

The content of total phenols and total antioxidant capacity from cherries were estimated by spectrophotometric methods. For total antioxidant capacity was using the CUPRAC method. Total polyphenols content was determined by the Folin-Ciocalteu method.

Cherry fruit contains several antioxidants and polyphenols that possess many biological activities, such as antineoplastic and anti-inflammatory properties.

Keywords: cherry species, minerals, total polyphenols, antioxidant capacities

P60

Constraints and disputes regarding the production and consumption of horse meat

Simina Varan, Izabela Firuț, Cristiana Dragotă, Ciprian Mocan, Mădălina Nicoleta Roșu, Viorica – Mirela Popa, Corina – Dana Mișcă, Petru Bogdan Rădoi

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*corresponding author: bogdanradoi@usab-tm.ro

In this paper are synthesized information and knowledge existing in the literature on the quality of horse meat and influences on human health.

Throughout human history, horse meat has been used in human food, and the use of horses in households depended on geographical regions, traditional customs and occupations.

There is an increase in the production of horse meat worldwide, so in some member countries of the European Union there is an average consumption of horse meat / inhabitant of 0.4 kg / year. In Europe, the Italians are the first in terms of horse meat consumption, with a quantity of 0.88 kg per capita per year, followed by the Belgians, with an annual consumption per capita of about 0, 5 kg.

In some countries, the use and consumption of horse meat as food is influenced by ethical and cultural considerations, the horse being considered a comrade, a companion of man, therefore the slaughter of horses, respectively the consumption of horse meat was stopped at certain moments in history due to religious, social or cultural perceptions. Therefore, it was not considered a popular category of meat and was usually associated with food shortages, poor social classes and the famine triggered by the numerous conflicts and wars that devastated the European continent.According to experts, horse meat is a valuable and sought-after raw material, has potential health benefits, such as low fat content and high content of unsaturated fatty acids compared to other types of meat, as well as attractive sensory properties.

Keywords: horse meat, consumption, production, human health

P61

Quality management and nutritional properties of appetizer waffles with coffee and bacon

Mădălina Stîngă, Andreea Pădurean, Bianca Groza, Csilla Kiss, Bianca Pascotescu, Diana Dogaru, Diana Raba, Camelia Moldovan

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: kmimol@gmail.com

In this paper, four variants of appetizer waffles were obtained: simple (var. 1), with bacon (var. 2), with coffee (var. 3), respectively with bacon and coffee (var. 4). The purpose of this paper was to obtain and to characterize by sensory point of view , the nutritional value was calculated and the HACCP plan was drawn up. Variant 4 was the most appreciated by the evaluators of the sensory characteristics. The nutritional and energy value of the four waffle variants was calculated, and the highest values were recorded by lime. 4 (1448 kJ), while variant 1 was at the opposite pole (1142 kJ). 7 critical control points (CCPs) were identified following the careful analysis of the technological flow and the answers with "Yes" or "No" to the four questions contained in the decision tree. For all 7 CCPs, critical limits, monitoring procedures, corrective actions, monitoring frequency, verification and registration procedures were established, depending on the possible risks. It was observed that biological risks (microbiological contamination, multiplication, cross-contamination) can occur in 14 of the 17 technological stages analyzed.

Keywords: appetizer waffles, sensory characteristics, HACCP.

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P62

Forgery food. Lipid complexes. Case study

P.I. Trifa, Petru Bogdan Rădoi, Gabriel Bujancă, Denisa Lațcu, Mihaela Eugenia Simescu, Alexandru Rinovetz

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

*corresponding author: alexandrurino@yahoo.com

Falsification *(substitution),* of raw/auxiliary materials, food is a major concern not only for the prevention of economic fraud, but also for traceability and food safety. Regulation CE No 178/2002 lays down the general principles and requirements of food law, states that: *„food falsification and consumer misinformation is considered an illegal practice"* [3]. In this context, *accidental impurification* ***of edible lipids*** or *deliberate substitution* is a recurring but topical problem. Some edible oils and fats, such as: olives, cocoa butter and milk fats, have high economic value and are tempting to falsify with other low-cost vegetable oils and fats to maximize profit [1]. Two more frequently accessed lipid complex substitution methods were identified: **1.** *simple mixing* of cold-pressed oil with refined oil; **2.** *substitution* of oils and fats with high biological value (expensive), with some low value (cheap). In some cases, lipid consumption has caused health problems (the case of the mixture of olive oil with rapeseed (inedible), known as the „Spanish Toxic Oil *Syndrome*", labelled as olive oil [2]. Thus, it is necessary to identify and standardize advanced techniques (e.g. NMR (^{13}C) - nuclear magnetic resonance spectroscopy, ultrasound, etc.)), adapted for the detection of forgery and method of falsification, by which can be *fingerprinted by major and minor components* as classification tools. Chemometric interpretation (e.g. PCA (principal component analysis)), enhances ***the applied technique*** and *verifies/identifies the forgery, the authenticity of the various* lipid *complexes. Confirmation* of the false/authenticity of lipid complexes is given by the *fatty acid profile.* However, it is not always possible to determine the forgery due to the *natural variation* of fatty acids because mixtures of oils with fatty acid compositions similar to the „*original*" can be obtained relatively easily.

The bibliographical study underlines the *limit* of techniques, even *advanced*, of the detection/interpretation of results, especially in the case of lipid mixtures, which require continuous effort to adapt/innovate new authentication techniques and to create a qualitative/quantitative structural lipid database as uniform as possible.

***Keywords*:** forgery food, lipids, fatty acids, deliberate substitution, fingerprinted, authentication techniques.

Reference:

1. Clemente T. E., Cahoon E.B., **2009**, *Soybean Oil: genetic approaches for modification of functionality and total content*. Plant Physiology, 151, 1030-1040.
2. Jee M., **2002**, *Adulteration and authentication of oils and fats: an overview.* In: Jee M. (Editor). *Oils and fats* authentication. CRC Press.
3. https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2002R0178:20090807:RO:PDF. Accessed 16.06.2021

P63

Study on the traditionality of sausage meat products in the gastronomy of Banat

Petru Bogdan Rădoi, Christine Dragomir

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*corresponding author: bogdanradoi@usab-tm.ro

Sausages in the gastronomy of Banat are indispensable on Romanian tables. The paper aims to study the elements which are hylighting the traditionality of the origin of the product, such as the quality, recipe and manufacturing process.

***Keywords*:** sausage meat, gastronomy, Banat.

P64

COVID-19 Pandemic crisis - major changes in the food industry

Isabela Firuț, Simina Varan, Ciprian Mocan, Alexandra Daniela Șandor, Viorica – Mirela Popa, Camelia Moldovan, Delia- Gabriela Dumbravă, Diana Nicoleta Raba

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: kmimol@gmail.com

The aim of this paper is to analyze and assess the impact of COVID-19 on the agricultural and food sector from an economic perspective on food supply, production and distribution activities, to highlight the recommendations needed to control the explosive rise in food prices, an increase caused by the Covid-19 pandemic. Throughout universal history, mankind has faced various pandemics, and the peak of pandemics is focused on their serious negative effects on global economic development, with repercussions on productive and commercial activities, at the macro and microeconomic level. In this context, the impact of the Covid-19 pandemic on the food industry is also highlighted. Given the food supply chain, one of the most important sectors of the economy, it has been observed that the COVID-19 pandemic has consequences for the entire food logistics route, from the agricultural producer to the consumer. In light of the recent challenges in the food supply chain, there is now considerable concern about food production, processing, distribution and demand.

The social distancing measures imposed by the Covid-19 pandemic have led to restrictions on the movement of employees, changes in the evolution of the food market, reconfiguring the relationship between food demand and supply, and this has led to changes in the attitude and behavior of consumers food. It should be noted that all these negative effects have led to restrictive policies in the food trade and have triggered financial pressures including on the food supply chain. Therefore, governments should improve the movement of employees, agricultural raw materials and food. In such a difficult situation caused by the medical crisis, small producers or vulnerable people should be financially supported.

Facilities should aim for optimal working conditions and maintain the health and integrity of employees through the implementation of new food safety measures. In conclusion, each country must be aware of the danger of the situation and implement economically, financially and socially acceptable measures, measures to stop the spread and evolution of the pandemic, but at the same time to support the citizens of the world.

Keywords: covid-19 pandemic, impact, food chain

P65

Study on the nutritional value of traditional sausages compared to industrial sausages

Teodor Ioan Trașcă, Elena Manuela Decă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

*corresponding author: teodortrasca@yahoo.com

The sausages product „Cârnați cu ambâț'' are a traditional product certified in 2014, very well known in Oltenia region, their area of origin, Mihăești commune, Stupărei village, Vâlcea county, Romania. The paper describes the origin of the product, the recipe, the raw and auxiliary materials, the technological production processes, identifying all the elements which are defining the product as a traditional food product.

Keywords: nutritional value, traditional sausages, industrial sausages

P66

Comparative studies on the sensory and nutritional properties of natural and probiotic yogurt

Cristina Popescu, Adina Modoc, Andreea Ghitulescu, Evelyn Voian, Maria L. Ghigeanu, Ioan Miclau, Florina Radu

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: florinaradu2001@yahoo.com

The purpose of this study was to comparatively evaluate probiotic and classical yogurts based on their nutritional, microbiological and sensory analysis. This research is a relatively recent one and probably important for the field of dairy science because, although some research has been done on comparing probiotic and standard yogurts, there is no research to compare them on so many levels. Dairy products are well known as healthy natural products. The most common functional dairy products are those with probiotic bacteria frequently enriched with prebiotics, such as yogurt. For this research, both qualitative and quantitative analyses were carried out.

The microbiological, nutritional, physico-chemical analysis were quantitative, and the sensory analysis based on the appreciation of the consumers was of a qualitative order. All yogurt samples were fresh and were purchased on the local market available from different places in Timisoara, such as Auchan, Profi, Carrefur, Kaufland, with an adequate expiration date. From collection to analysis, all samples were kept at refrigeration temperature (4°C). The obtained results showed that there is a significant difference between probiotic yogurt and the natural one in terms of texture, taste and appearance. The results of the nutritional composition cancel the hypothesis that the addition of the probiotic cultures influences the nutritional composition of the products.

This is because results show that each product has varied nutritional compositions, regardless of thebprobiotic cultures and brands of yogurt. This suggests that the nutritional composition of yogurts depends on the manufacturing process rather than on the added starter cultures. Most of the products have complied with the quality standards specified for the total number of viable bacterial cells.

However, some strains of the initial starter cultures (sample D), including probiotic ones, were no longer present at the time of consumption and this could be due to the fact that the organisms do not have the capacity to survive during the shelf life of the product.

Keywords: yogurt, probiotic foods, sensorial analysis, nutritional value

P67

Edible flowers in novel foods: primary studies in the manufacture of flower compote of acacia (*Robinica pseudoacacia*), rose (*Rosa damascena*) and elder (*Sambucus nigra*)

Maria Lidia Iancu

"Lucian Blaga" University of Sibiu, Faculty of Agricultural Sciences, Food Industry and Environmental Protection, 5-7, Ion Rațiu Street, Sibiu, 550012, Romania
*corresponding author: maria.iancu@ulbsibiu.ro

Conservation technique according to the biological principle of anabiosis, physioanabiosis is used for the preparation of innovative food, edible flower compote, roses, elder and acacia, individual and the well-known white grape compote, peaches, cherries, black grapes, chopped plums and quinces, as well as two samples of commercial peeled peach compote and apricot halves, a total of 11 samples. They were analyzed, the three new products, from edible flowers, compared to those already on the market. We used: sensory analysis, refractometric technique, analytical determinations, gravimetric to obtain the values of primary quality indicators. For new edible flower products, a database was created containing values for: the proportion of flowers 8-21%; TSS = 10.7-13.9 ^{o}Bx; pH = 3,328-3,738; titratable acidity 0.54-0.86 % w/w expressed in citric acid; kinematic viscosity 1,587-1,923 cSt; ^{o}Bx/acidity of 14-20 and sensory grade 27.7-30.76 points out of 45, as the main primary quality indicators. It is recommended to consume innovative edible flower products because they are a way to use free sources of raw materials.

Keyword: *Robinica pseudoacacia*; *Rosa damascena; Sambucus nigra*; compote technologie, physico-chemical indicators

P68

The influence of oxidases in baking

Iulia Bucurescu, Ioan David, Gabriel Bujancă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
*corresponding author: neda_university@yahoo.com

This study presents the influence of lipoxygenase on bread dough, which is an oxidase used commonly in bakery products. The positive effects of lipoxygenase on bakery products are demonstrated in many research articles and for better understanding the benefits, we analyzed and compared these improvements of lipoxygenase on the extensibility and elasticity of the dough, on the water absorption capacity and resistance to deformation. Besides the rheological properties of the dough we analyzed the action of oxidases on fats and proteins as well the improvements in the baking properties of the dough like better structure, texture and porosity of the core and volume increase. In baking, lipoxygenase by oxidation of polyunsaturated fatty acids has consequences on the bread flavor that changes due to the formation of volatile compounds obtained by cleaving hydroperoxides.

***Keywords**:* bread, rheological characteristics, oxidases, lipoxygenase

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P69

The action of hemicellulase in the manufacturing process of pasta products

Sanda Dragomir, Ioan David, Gabriel Bujancă

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: neda_university@yahoo.com

This study presents the influence of hemicellulase in the manufacturing process of pasta products. From different international research studies we used in analyzing and comparing we noticed the advantages of using hemicellulase and positive effects on the rheological properties of the dough: the resistance of the dough to deformation; extensibility and elasticity of the dough; water absorption capacity; tolerance and stability of the dough. Moreover great improvements were identified on the color and gloss, as well as reducing drying time of noodles, improving surface appearance and mechanical stability of noodles and pasta, and reducing raw material costs. This positively affects the quality of finished products by increasing tolerance to prolonged boiling, the cooked pasta firmness and helps reduce oil absorption of fried instant pasta. The addition of hemicellulase in dough influences the hemicellulose content by reducing the negative effect it has over the gluten chain. It also improves the quality of the finished product, the dough's stability, the elasticity of the gluten chain, increases the warranty period and improves freshness.

***Keywords**:* pasta, hemicellulase, dough stability, bleaching action

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P70

Study on the identification of critical control points on the technological flow of production of the traditional product "*Jambon de comuna Blandiana*”

Petru Bogdan Rădoi, Andreea Diana Ispas

Faculty of Food Engineering, Banat’s University of Agricultural Sciences and Veterinary Medicine “King Michael I of Romania” from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: bogdanradoi@usab-tm.ro

“*Jambon de comuna Blandiana*” is a traditional meat product made locally in Blandiana commune, located in the center of the country.

The paper describes the local recipe for obtaining this product, presenting step by step the way in which the risk factors that can affect the technological process, the quality of the product and the safety of the consumers are identified and prevented.

***Keywords**:* Jambon de comuna Blandiana, traditional product

P71

Study on the identification of critical control points on the technological flow of frozen dough manufacturing

Petru Bogdan Rădoi, Mădălina Roșu, Daniela Stoin

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania

*corresponding author: bogdanradoi@usab-tm.ro

Frozen doughs are based on a bakery technology whose manufacturing flow is aimed to obtain high quality products. In order to reach the high quality standard of a product, a HACCP system must be implemented, which consists of the identification of several critical control points through the manufacturing process. The paper aims to identify and describe the critical control points on the technological flow of manufacturing frozen doughs.

***Keywords**:* frozen dough, critical control points

P72

Study on the nutritional value of "*Ciocopinguin homemade chocolate*" compared to industrial chocolate

Ioan Teodor Traşcă, Alexandra Daniela Şandor

Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Timisoara 300645, Romania

*corresponding author: teodortrasca@yahoo.com

The *''Ciocopinguin homemade chocolate''* is a food product obtained from a mixture of cocoa, coconut milk, sugar, sometimes milk and some specific flavors. The paper project aims to identify and underline the difference between the different production technologies of chocolates, with consequences on the nutritional values.

***Keywords**:* nutritional value, Ciocopinguin homemade chocolate

P73

The influence of ecosystem, growing level and extraction method on the fatty acid profile of chia seed oil (*Salvia hispanica* L.)

Iulia Maria Galan[1,3], Anamaria Guran[3], Christine Alexandra Lucan (căs. Banciu)[1,3], Cristina Liliana Mitroi[3], Marius Daniel, Simandi[3], Tamara Vlăduţescu[3], Raymond Nandy Szakal[3], Lucian Radu[3], Nicoleta Gabriela Hădărugă[3*]

[1]Fornetti Romania, Timişoara, Romania;
[2]European Drinks SA, Stei, Bihor, Romania;
[3]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timişoara
*corresponding author: nicoletahadaruga@usab-tm.ro

Chia is a general term of some *Salvia* species, the most known being *S. hispanica* L. It is native from Central America, but now is cultivated all over the world. Its seeds are valuable for the contents on bioactive compounds such as flavonoids, isoflavonoids, cinnamic acid derivatives, and hydroxybenzoic acids as antioxidants or vitamins A and B1. Among these, chia seed oil is important for human diet due to its higher content on α-linolenic acid, an omega-3 fatty acid.

The goal of the study was to evaluate the fatty acid profile of seed oil obtained from chia growing in various geographical locations (ecosystems), harvested at different growing levels and separated using various extraction methods. The study was based on many primary literature data. An evaluation of the fatty acid profile (as methyl ester derivatives of the corresponding chia seed oil-containing glycerides) of chia seed oil from semi-arid, sub-humid and intermediate ecosystem reveals an α-linolenic acid content of 56.9-64.8%, the highest value being observed in Inter-Andean region [1]. Similar results were observed in chai seed oil samples from higher regions in South America [2,3]. Interesting results were observed for chia oil obtained from seeds at various growing stages. The highest α-linolenic content was observed at the vegetative stage [4]. The classical separation methods do not significantly influence the fatty acid profile of chia seed oil.

The supercritical carbon dioxide extraction provide similar results such as for cold pressing and Soxhlet extraction, with α-linoleic acid content of 66.1-66.8% [5]. If the chia oil was separated after enzymatic hydrolysis, this omega-3 fatty acid has an insignificant reduction of the relative concentration from 65.4 to 65.3% [6].

The conclusion is that the chia seed oil has slight variation on the fatty acid profile of only few percent for the main omega-3 α-linoleic acid. Moreover, chia oil has higher stability among middle processing and separation methods. The overall omega-3/omega-6 ratio is at higher level of 3.6 that is appropriate for a beneficial effect on human health.

References

1. Ayerza, R.; Coates, W., Protein content, oil content and fatty acid profiles as potential criteria to determine the origin of commercially grown chia (*Salvia hispanica* L.). *Industrial Crops and Products* **2011**, *34*, 1366-1371, http://dx.doi.org/10.1016/j.indcrop.2010.12.007
2. da Silva Marineli, R.; Moraes, É.A.; Lenquiste, S.A.; Godoy, A.T.; Eberlin, M.N.; Maróstica Jr., M.R. Chemical characterization and antioxidant potential of Chilean chia seeds and oil (*Salvia hispanica* L.), *LWT - Food Science and Technology* **2014**, *59*, 1304-1310, http://dx.doi.org/10.1016/j.lwt.2014.04.014
3. Martínez, M.L.; Curti, M.I.; Roccia, P.; Llabot, J.M.; Penci, M.C.; Bodoira, R.M.; Ribotta, P.D., Oxidative stability ofwalnut (*Juglans regia* L.) and chia (*Salvia hispanica* L.) oils microencapsulated by spray drying, *Powder Technology* **2015**, *270*, 271-277, http://dx.doi.org/10.1016/j.powtec.2014.10.031
4. Peiretti, P.G.; Gai, F., Fatty acid and nutritive quality of chia (*Salvia hispanica* L.) seeds and plant during growth, *Animal Feed Science and Technology* **2009**, *148*, 267-275, http://dx.doi.org/10.1016/j.anifeedsci.2008.04.006
5. Ishak, I.; Hussain, N.; Coorey, R.; Ghani, M.A., Optimization and characterization of chia seed (*Salvia hispanica* L.) oil extraction using supercritical carbon dioxide, *Journal of CO2 Utilization* **2021**, *45*, 101430, https://doi.org/10.1016/j.jcou.2020.101430
6. Di Marco, A.E.; Ixtaina, V.Y.; Tomás, M.C., Inclusion complexes of high amylose corn starch with essential fatty acids from chia seed oil as potential delivery systems in food, *Food Hydrocolloids* **2020**, *108*, 106030, https://doi.org/10.1016/j.foodhyd.2020.106030

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

P74

Fatty acid profile of the lipid fractions of various *Castanea* species

Răzvan Laurenţiu Drăghici[1], Claudia Izabela Oprinescu[1], Marius Ioan Cugerean[1], Dina Gligor (Pane)[1], Cristina Liliana Mitroi[1], Nicoleta Gabriela Hădărugă[1], Daniel Ioan Hădărugă[2*]

[1]Faculty of Food Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Calea Aradului 119, Timisoara 300645, Romania
[2]Department of Applied Chemistry, Organic and Natural Compounds Engineering, Polytechnic University of Timişoara, Carol Telbisz 6, 300001-Timişoara, Romania
*corresponding author: dan_hadaruga@yahoo.com

Chestnut is the generic name for *Castanea* species, which belong to Fagaceae botanical family. Only few species exist, which especially grow in the Northern Hemisphere with temperate climate. Chestnuts from some *Castanea* species are edible, the most known being *C. sativa* (sweet chestnut, European species). Other species are *C. dentata* (especially for wood, Northern America), *C. pumila* (Virginia, USA), *C. mollissima*, *C. henryi*, *C. seguinii*, *C. crenata* and *C. davidii* from Asia [1-4]. Chestnuts are valuable for their high content on carbohydrates, *C. sativa* being known as "bread tree". Among vitamins (C and E), proteins, fibers and minerals, chestnuts contain tannins that provide bitterness and astringency, antioxidants (especially in the chestnut shell), as well as lipid fractions [2,4].

The goal of the study was to evaluate the fatty acid profile of chestnut lipid fractions isolated from various *Castanea* species. The lipid fraction content varies from 1.70 % for *C. crenata* to 10.2 % for *C. mollissima* and *C. dentata*. European chestnut has an intermediate content of lipid fraction of 5.4 % [2,4]. The most important fatty acids (as glycerides) in chestnut lipid fractions are oleic, linoleic, palmitic and α-linolenic acids, with values of 29.6-47.0 %, 37.9-45.5 %, 8.0-17.3 % and 4.0-6.4%, respectively. A slight decrease of unsaturated fatty acid content simultaneously with an increase of saturated fatty acid content, especially for palmitic acid was observed during the boiling and frying of chestnuts [5,6]. Moreover, the most important triglycerides in *C. sativa* were identified as LLL, OLL, LLP, OLO, LOP and OOO (where L, O and P stand for linoleic, oleic and palmitic moieties), at relative concentrations between 9.8-24.5% for every triglyceride

[5]. Among *Castanea* species, oleic, linoleic and palmitic acids were identified in highest concentrations in *C. dentata* (57.3, 19.1 and 10.5 g/kg d.w., respectively), while α-linolenic acid was the most concentrated in *C. pumila* and *C. sativa* (1.7-1.8 g/kg d.w.) [7]. Other studies on chestnuts from the Western Europe reveals high content of α-linolenic acid as omega-3 fatty acid (4.40-10.02 %) [8]. The conclusion of the literature survey on *Castanea* species is that the European *C. sativa* has an important content of omega-3 α-linolenic acid in comparison with other edible *Castanea* chestnuts, which reveals the importance of this food product for the human health.

References

1. Conedera, M.; Tinner, W.; Krebs, P.; de Rigo, D.; Caudullo, G., *Castanea sativa* in Europe: distribution, habitat, usage and threats. In: *European Atlas of Forest Tree Species*, San Miguel Ayanz, J.; de Rigo, D.; Caudullo, G.; Houston Durrant, T.; Mauri, A. (Eds.), Publ. Off. EU, Luxembourg, **2016**; p. e0125e0120+
2. dos Santos Rosa, E.A.; Seixas Martins Morais, M.C.; Oliveira, I.V.; de Carvalho Gonçalves Macedo, B.M.; Calvão Moreira da Silva, A.P., Uses and health benefits of chestnuts. In: *Achieving sustainable cultivation of tree nuts*, Serdar, Ü.; Fulbright, D. (Eds.), Burleigh Dodds Science Publishing, Cambridge, **2019**, pp. 1-42, http://dx.doi.org/10.19103/AS.2018.0042.05
3. Neves, J.M.; Cunha, S., *Castanea sativa* Mill: A Brief Review. In: *Recent Advances in Biological Research*, Book Publisher International, London, **2019**, http://dx.doi.org/10.9734/bpi/rabr/v4pp. 100-105
4. Singh, S.R.; Rehman, M.U. Chestnut (*Castanea* sp.), **2019**, www.researchgate.net/publication/332571185_Chestnut_Castanea_sp_332571183
5. Barreira, J.C.M.; Casal, S.; Ferreira, I.C.F.R.; Oliveira, M.B.P.P.; Pereira, J.A., Nutritional, Fatty Acid and Triacylglycerol Profiles of *Castanea sativa* Mill. Cultivars: A Compositional and Chemometric Approach, *Journal of Agricultural and Food Chemistry* **2009**, *57*, 2836-2842, http://dx.doi.org/10.1021/jf803754u
6. Morini, G.; Maga, J.A., Changes in the fatty acid composition of roasted and boiled Chinese (*Castanea molissima*) and Italian (*C. sativa*) chestnuts grown at the same location. In: *Food Flavors: Generation, Analysis and Process Influence*, Charalambous, G. (Ed.), Elsevier Science B.V., Amsterdam, **1995**, pp. 563-568
7. Senter, S.D.; Payne, J.A.; Miller, G.; Anagnostakis, S.L., Comparison of Total Lipids, Fatty Acids, Sugars and Nonvolatile Organic Acids in Nuts from Four *Castanea* Species, *Journal of the Science of Food and Agriculture* **1994**, *65*, 223-227
8. Borges, O.P.; Carvalho, J.S.; Correia, P.R.; Silva, A.P., Lipid and fatty acid profiles of *Castanea sativa* Mill. Chestnuts of 17 native Portuguese cultivars, *Journal of Food Composition and Analysis* **2007**, *20*, 80-89, http://dx.doi.org/10.1016/j.jfca.2006.07.008

Acknowledgements: This work was supported by proving the equipment's of the Faculty of Food Engineering Timişoara – "*Food Science*"- Research Center.

Series: Food Engineering

ORGANIZING COMMITTEE

Prof. Dr. Ing. Adrian Riviș
Prof. Dr. Ing. Nicoleta Gabriela Hădărugă
Prof. Dr. Ing. Teodor Ioan Trașcă
Prof. Dr. Ing. Ing. Călin Ionel Jianu
Prof. Dr. Ing. Ducu Sandu Ștef
Conf.Dr. Ing. Diana Veronica Dogaru
Conf.Dr. Ariana Bianca Velciov
Conf. Dr.Ing. Gabriel Hegheduș – Mîndru

SCIENTIFIC COMMITTEE

Prof. Dr. Ing. Ionel Jianu
Prof. Dr. Ing. Adrian Riviș
Prof. Dr. Ing. Teodor Ioan Trașcă
Prof. Dr. Ing. Nicoleta G. Hădărugă
Prof. Dr. Ing. Ducu Sandu Ștef
Prof. Dr. Ing. Ersilia Alexa
Prof. Dr. Ing. Mariana Atena Poiană
Prof. Dr. Ing. Ducu Sandu Ștef
Prof. Dr. Ing. Călin Ionel Jianu
Conf.Dr. Ing. Diana Veronica Dogaru
Conf. Dr. Ing. Daniela Stoin
Conf.Dr. Corina Dana Mișcă
Conf.Dr.Ing. Ioan David
Conf.Dr. Ariana Binca Velciov
Conf. Dr. Ing. Florina Adriana Radu

ORGANIZING COMMITTEE SECRETARIAT

Conf. Dr. Ing. Ramona Cristina Hegheduş - Mîndru
Conf. Dr. Ing. Corina Iuliana Megyesi;
Conf.Dr. Mărioara Drugă;
Conf. Dr. Ing. Camelia Lidia Cioban
Conf.Dr. Ing. Despina Maria Bordean;
Conf. Dr. Ing. Gabriel Hegheduş – Mîndru
Conf.Dr. Ing. Alexandru Erne Rinovetz;
ŞL.Dr. Ing. Ileana Cocan;
ŞL.Dr. Ing. Delia Dumbravă
ŞL.Dr. Ing. Bogdan Petru Rădoi
ŞL. Dr. Ing. Gabriel Bujancă;
ŞL.Dr. Ing. Mihaela Cazacu
ŞL.Dr. Dacian Virgil Lalescu
ŞL. Dr. Ing. Camelia Moldovan;
ŞL. Dr. Ing. Diana Moigradean
ŞL. Dr. Ing. Liana Maria Alda;
ŞL. Dr. Ing. Mirela Viorica Popa
ŞL. Dr. Ing. Sofia Georgeta Popescu;
ŞL. Dr. Ing. Negrea Monica
ŞL. As. Dr. Ing. Laura Rădulescu,
As. Dr. Ing. Cristina Liliana Mitroi

List of participants

A

1 Agavriloaei Mihaela
2 Alda Liana Maria
3 Alda Simion
4 Alexa Ersilia
5 Altiparmak Burak
6 Ancas Andreea-Georgiana
7 Andronoiu Doina Georgeta
8 Anghel Iasmina Madalina
9 Aprodu Iuliana
10 Avărvarei Alexandra
11 Avirvarei Alexandra Daniela
12 Avrămuș Adelina

B

13 Badaluta Nicoleta
14 Bădescu Delia Mihaela
15 Bahrim Gabriela Elena
16 Bakos Paul
17 Balasz-Kercso Izabella
18 Bălțatu Grigore Alexandru
19 Bardan Nicoleta Daiana
20 Bardan Nicoleta Daiana
21 Beg Cristian
22 Beuran Elena Adelina
23 Birtea Ionela Andreea
24 Blănaru Claudiu - Rafael
25 Bobiti Ionut Adelin
26 Bordean Despina Maria
27 Bordeanu Iasmina Andreea
28 Borozan Aurica
29 Borza Denisa-Camelia
30 Bota Voichița
31 Bucurescu Iulia
32 Bujancă Gabriel

C

33 Camen Dorin
34 Cătana Mihaela
35 Catargiu Andrei
36 Cazacu Mihaela
37 Cioara (Stancu) Marcela-Maria
38 Ciobanu Radu
39 Cismileanu Ana
40 Cocan Ileana
41 Codoban Raul
42 Constantin Oana
43 Constantin Oana Emilia
44 Copaci Emilia
45 Corcionivoschi Alexandru
46 Cornea Olimpiu Ovidiu
47 Costescu Cristian Alin
48 Cozan Raveca
49 Cozma Antoanela
50 Crăciun I.
51 Crețu Ana-Maria
52 Cristea Andreia
53 Cseke Ariana
54 Cugerean Marius Ioan
55 Cureleac Călin

D

56 Daminescu Ioana Marinela
57 Dancea Lucrețiu
58 David Ioan
59 Decă Elena Manuela
60 Dobrin Andreea
61 Dodu Alina Maria
62 Dogaru Diana Veronica
63 Drăghici Răzvan Laurențiu
64 Dragomir Catalin
65 Dragomir Christine
66 Dragomir Sanda
67 Dragotă Cristiana
68 Drugă Mărioara
69 Dumbravă Delia Gabriela
70 Dumitrache Izabela
71 Dumitrescu Roxana Mihaela

72 Dumuta Anca
73 Dzsenifer Mária Ruzsa

E
74 Enea Cătălin-Ionuț

F
75 Fărcaș Anca
76 Firuț Isabela
77 Fogarasi Melinda
78 Furdui Alexandra

G
79 Găină Anamaria
80 Gal Ruth-Brighita
81 Galan Iulia Maria
82 Gavra Andrada
83 Georgescu Ana-Maria
84 Gherman Andrei – Marius
85 Ghigeanu Luiza Maria
86 Ghiorghe Alin-Ionel
87 Ghitulescu Andreea
88 Gilorteanu Sorin Marius
89 Gligor (Pane) Dina
90 Goian Yasmine Alexandra
91 Goina Claudia Alexandrina
92 Gosa Petrica
93 Gözeller Ayşe
94 Groșan Alina
95 Groza Bianca
96 Gruiescu Roxana Diadora
97 Guran Anamaria

H
98 Hădărugă Daniel Ioan
99 Hădărugă Nicoleta Gabriela
100 Haiduc Denisa Florentina
101 Hasan Majd
102 Heghedűș-Mîndru Gabriel
103 Heghedűș-Mîndru Ramona
104 Hiriș Romina
105 Horincar Georgiana
106 Hozoc (Nedelcu) Mihaela Manuela
107 Hulea C.

I
108 Iacob Tabita Oana
109 Iancu Maria Lidia
110 Ilhan Aysun
111 Ilie Leonard
112 Ilioni Darius-Lucian
113 Iliopol Iasmina-Ximena
114 Indri Iasmina Loredana
115 Inoveanu Andreea
116 Iordache Teodora - Alexandra
117 Iosip (Dragomir) Elena
118 Ispas Andreea Diana
119 Ivănis Delia Ionela Patricia

J
120 Jaba Oriana Dorina
121 Jianu Călin

K
122 Kallos Andreea
123 Karoly Bodnar
124 Kiss Andreea Annemarie
125 Kiss Csilla
126 Kleszken Timea
127 Kulcsar Orsolya Izabela

L
128 Laichici Bianca - Maria
129 Lațcu Denisa
130 Latcu Mirabela-Codruta
131 Lazăr (Mistrianu) Silvia
132 Livitchi Lucas Carolin
133 Luca Roxana - Bianca
134 Lucan (căs. Banciu) Christine Alexandra
135 Lungu Emanuela

M

136 Mabibi Didier-Makindu
137 Macri Adriana
138 Manolache Fulvia - Ancuța
139 Mărășescu Mădălina
140 Marcu Daniela-Florentina
141 Mărculescu Ovidiu
142 Marean Monica-Manuela
143 Margan Monica-Mihaela
144 Mărginean Augusta Andreea
145 Marian Monica
146 Marin Ana-Maria
147 Marinescu Maria-Roxana
148 Megyesi Corina Iuliana
149 Meilă Paula
150 Metzner Ungureanu Cristina-Ramona
151 Mezdrea Valeriu Constantin Miron
152 Miclau Ioan
153 Mihai Iulia Gabriela
154 Mihalescu Lucia
155 Mihali Cristina
156 Mihart Iulia Alexandra
157 Milos Mihai
158 Milosevic Zlatan
159 Minakova Irina
160 Mișcă Corina – Dana
161 Mitrache Alexandru
162 Mitroi Cristina Liliana
163 Mocan Ciprian
164 Modoc Adina
165 Moigradean Diana
166 Moldovan Camelia
167 Morariu Alexandru
168 Morariu Florica
169 Morariu Miruna Magda
170 Moșneang Crina
171 Mutici Robert Costinel

N

172 Naherneac Bianca Daniela
173 Necula Martina
174 Nedelcu Ilie
175 Negrea Monica
176 Nicolescu Cadrin Svetozar-Rusalin

O

177 Oancea Alexandra - Gabriela
178 Obistioiu Diana
179 Oprea Alexandra
180 Oprinescu Claudia Izabela
181 Oprițescu Diana-Andreea
182 Otiman Dorin

P

183 Pădurean Andreea
184 Pandur Ioana Dana
185 Pascotescu Bianca
186 Pentea M.
187 Peț Ioan
188 Petridean Paul Marian
189 Platon Daniel Bogdan
190 Plesa Iosif Valentin
191 Pluștea Loredana
192 Podar Andersina
193 Poiana Mariana-Atena
194 Ponoran Ionela Anișoara
195 Pop Ioana-Alina
196 Popa Lavinia
197 Popa Mirela
198 Popa Viorica – Mirela
199 Popescu Cristina
200 Popescu Georgeta-Sofia
201 Poșta Daniela Sabina
202 Potocean Andrei-Razvan
203 Predica Alexandra Andreea
204 Puiu Constantin
205 Pupaza Gabriela

R

206 Raba Diana-Nicoleta
207 Rădoi Petru Bogdan
208 Radu Florina
209 Radu Lucian
210 Raducanu Dumitra
211 Rădulescu Laura
212 Raican Dan
213 Rapeanu Gabriela
214 Raspopin Daniil
215 Rece Robert
216 Rinovetz Alexandru Erne
217 Rivis Adrian
218 Rominescu Ramona Carmen
219 Roșu Mădălina Nicoleta
220 Rus Alexandra
221 Rusu Loredana

S

222 Samulescu Gheorghe Florin
223 Sandor Alexandra Daniela
224 Sandru Ionela
225 Santa Mădălin Dorin
226 Scurtu Ionela Florentina
227 Semenescu Augustin
228 Semeniuc Cristina - A.
229 Serban Andrei - Laurențiu
230 Serbancea Floarea
231 Serea Daniela
232 Simandi Marius Daniel
233 Simescu Mihaela Eugenia
234 Sîrbu Beatrice Ana-Maria
235 Sîrbu Cătălin Bogdan
236 Sisa Renata
237 Socaci Sonia
238 Socaciu Maria
239 Stanciuc Nicoleta
240 Stef Ducu-Sandu
241 Stînga Mădălina-Ioana
242 Stoin Daniela
243 Stricescu Tudor
244 Sumălan Renata Maria
245 Szakal Raymond Nandy

T

246 Toader Cosmina-Simona
247 Toader George
248 Țobîcă Anamaria
249 Tomescu Livia Maria
250 Trainic Daliana-Cornelia
251 Trașcă Ioan Teodor
252 Trifa P.I.
253 Trifan Daniela
254 Türkmen Musa

Ț

255 Țuțuman Roxana – Lavinia

U

256 Ungureanu Claudia
257 Ursu Raphael Gregor

V

258 Varan Simina
259 Vărzaru Romeo
260 Vasiloni Alice
261 Velciov Ariana-Bianca
262 Vesa Sebastian
263 Vieriu Karla
264 Vîrsta Diana-Lenuța
265 Vlad Robert Florian
266 Vlăduţescu Tamara
267 Voian Evelyn
268 Voşgan Zorica

Y

269 Yipel Fulya Altinok
270 Yipel M.

Z

271 Zamostean Maria Mădălina
272 Zbirnea Cristina