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UNIVERSITATEA TEHNICĂ A MOLDOVEI

**AMELIORAREA CALITĂȚII
ALIMENTELOR PRIN
BIOTEHNOLOGIE ȘI INGINERIE
ALIMENTARĂ**

MONOGRAFIE COLECTIVĂ

CHIȘINĂU, 2023

CZU 606:663/664
A 45

Monografia colectivă „*Ameliorarea calității și siguranței alimentelor prin biotehnologie și inginerie alimentară*” a fost realizată în cadrul proiectului cu cifra 120.80009.5107.09 „Ameliorarea calității și siguranței alimentelor prin biotehnologie și inginerie alimentară” din cadrul Programului de Stat (2020-2023) Prioritatea strategică II „Agricultură durabilă, securitate alimentară și siguranța alimentelor”.

Monografia este recomandată pentru editare de către Senatul Universității Tehnice a Moldovei (proces-verbal nr.4 din 24 octombrie 2023).

Lucrarea este destinată specialiștilor din industria alimentară, domeniul vitivinicol, operatorilor economici care se ocupă cu producerea și procesarea materiilor prime horticoale, de promovare și marketing. Sunt analizate diferite aspecte de sporire a valorii biologice a produselor alimentare prin aplicarea tehnologiilor avansate de protecție a compușilor biologic activi în timpul fabricării și păstrării. Concepția de bază constă în valorificarea componentelor naturale din materii prime vegetale prin metode eficiente de tratare, extracție și încorporare în matricea alimentelor. Sunt elucidate multitudinea factorilor, care pot influența calitatea produselor – influența factorilor tehnologici, metode de stabilizare și protecție a activității biologice a componentelor hidro- și liposolubile, optimizarea proceselor tehnologice de fabricare și păstrare. Tehnologiile propuse iau în considerare și posibilele modificări de textură și senzoriale, deoarece consumatorul reprezintă evaluatorul final al produselor alimentare.

Monografia colectivă „*Ameliorarea calității și siguranței alimentelor prin biotehnologie și inginerie alimentară*” este recomandată drept manual pentru studenții ciclului II (Masterat) și III (Doctorat) ale Facultăților Tehnologia Alimentelor și Științe Agricole, Silvice și ale Mediului.

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DESCRIEREA CIP A CAMEREI NAȚIONALE A CĂRȚII DIN RM

Ameliorarea calității alimentelor prin biotehnologie și inginerie alimentară: Monografie colectivă / Universitatea Tehnică a Moldovei; coordonatori: Rodica Sturza, Aliona Ghendov-Moșanu.
– Chișinău: Tehnica-UTM, 2023. – 267 p.: fig., tab.
Referințe bibliogr. la sfârșitul cap. – 100 ex.

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1. Industry Report: Natural Food Colors On The Rise. Disponibil online: <https://foodinstitute.com/focus/industry-report-natural-food-colors-on-the-rise/> (accesat la 01.10.2023)/
2. Jellies & Gummies Market Size, Share & Trends Analysis Report By Flavor (Cherry, Berries), By Distribution Channel (Store Based, Non-store Based), By Region, And Segment Forecasts, 2019 - 2025. Disponibil online: <https://www.grandviewresearch.com/industry-analysis/jellies-gummies-market/segmentation> (accesat la 01.10.2023).
3. Czyzowska, A.; Klewicka, E.; Pogorzelski, E.; Nowak, A. (2015). Polyphenols, vitamin C and antioxidant activity in wines from *Rosa canina* L. and *Rosa rugosa* Thunb. *Journal of Food Composition and Analysis* 2015, 39, 62-68.
4. Lattanzio, F.; Greco, E.; Carretta, D.; Cervellati, R.; Govoni, P.; Speroni, E. In vivo anti-inflammatory effect of *Rosa canina* L. extract. *Journal of Ethnopharmacology* 2011, 137, 880-885.
5. Ozturk Yilmaz, S.; Erclisi, S. Antibacterial and antioxidant activity of fruits of some rose species from Turkey. *Rom. Biotechnol. Lett.* 2011, 16, 6407-6411.
6. Rushforth, K. Collins wildlife trust guide trees: a photographic guide to the trees of Britain and Europe. HarperCollins, London, UK, 1999, 256.
7. Mlcek, J.; Rop, O.; Jurikova, T.; Sochor, M. F.; Balla, S.; Baron, M. Bioactive compounds in sweet rowanberry fruits of interspecific Rowan crosses. *Central European Journal of Biology* 2014, 9 (11), 1078-1086.
8. Bogatyrev, N. R.; Bogatyreva, O. A. Permaculture and TRIZ – Methodologies for Cross-Pollination between Biology and Engineering. *Procedia Engineering* 2015, 131, 644-650.
9. May Kruger, E. Options for Sustainability in Building and Energy: A South African Permaculture Case Study. *Energy Procedia* 2015, 83, 544-554.
10. Aladedunye, F.; Matthaus, B. Phenolic extracts from *Sorbus aucuparia* (L.) and *Malus baccata* (L.) berries: Antioxidant activity and performance in rapeseed oil during frying and storage. *Food Chemistry* 2014, 159, pp. 273-281.
11. Klimczak, I.; Malecka, M.; Szlachta, M.; Gliszczynska-Swiglo, A. Effect of storage on the content of polyphenols, vitamin C and the antioxidant activity of orange juices. *Journal of Food Composition and Analysis* 2007, 20 (3-4), 313-322.
12. Vizireanu, C. Procedee de conservare folosite în industria alimentară. Disponibil online: <http://www.agir.ro/buletine/32.pdf> (accesat la 3.04.2023).
13. Re, R.; Pellegrini, N.; Proteggente, A.; Pannala, A.; Yang, M.; Rice-Evans, C. Antioxidant activity applying an improved ABTS radical cation decolorization assay. *Free Radical Biology & Medicine* 1999, 26, 1231-1237.
14. Cristea, E. Regimuri tehnologice pentru asigurarea potențialului antioxidant al unor produse horticoale la păstrare și prelucrare. Teza de doctor. Technical University of Moldova, Chișinău, RM, 2018.
15. Cristea, E.; Ghendov-Mosanu, A.; Patras, A.; Socaciu, C.; Pintea, A.; Tudor, C.; Sturza, R. The Influence of Temperature, Storage Conditions, pH, and Ionic Strength on the Antioxidant Activity and Color Parameters of Rowan Berry Extracts. *Molecules* 2021, 26 (13), 3786.
16. Cristea, E.; Sturza, R.; Jauregi, P.; Niculaua, M.; Ghendov-Moșanu, A.; Patras, A.. Influence of pH and ionic strength on the color parameters and antioxidant properties of an ethanolic red grape marc extract. *Journal of Food Biochemistry* 2018, 43 (4), e12788.

17. Ghendov-Moşanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Niculaua, M. Rose Hips, a Valuable Source of Antioxidants to Improve Gingerbread Characteristics. *Molecules* 2020, 25 (23), 5659.
18. Valadon, L. R.; Mummery, R. S. Carotenoids of Rowan Berries. *Annals of Botany* 1972, 36 (3), 471-474.
19. Yungyuen, W.; Ma, G.; Zhang, L.; Futamura, M.; Tabuchi, M.; Yamawaki, M. Regulation of carotenoid metabolism in response to different temperatures in citrus juice sacs in vitro. *Scientia Horticulturae* 2018, 238, 384-390.
20. Sanchez, C.; Baranda, A. B.; Martinez de Marañon, I. The effect of high pressure and high temperature processing on carotenoids and chlorophylls content in some vegetables. *Food Chemistry* 2014, 163, 37-45.
21. Dias, M. G.; Camões, M. F.; Oliveira, L. Carotenoid stability in fruits, vegetables and working standards - effect of storage temperature and time. *Food Chemistry* 2014, 156, 37-41.
22. Woodall, A. A.; Lee, S. W.; Weesie, R. J.; Jackson, M. J.; Britton, G. Oxidation of carotenoids by free radicals: relationship between structure and reactivity. *Biochim Biophys Acta* 1997, 1336 (1), 33-42.
23. Haas, K.; Obernberger, J.; Zehetner, E.; Kiesslich, A.; Volkert, M.; Jaeger, H. Impact of powder particle structure on the oxidation stability and color of encapsulated crystalline and emulsified carotenoids in carrot concentrate powders. *Journal of Food Engineering* 2019, 263, 398-408.
24. Bell, T.; Almazad, R.; Graf, B. A. Effect of pH on the chemical stability of carotenoids in juice. *Proceedings of the Nutrition Society* 2016, 75, E94.
25. Melendez-Martinez, A. J.; Vicario, I. M.; Heredia, F. J. Stability of Carotenoids in Pigment Foods. *Arch Latinoam Nutr* 2004, 54 (2), 209-215.
26. Cristea, E.; Sturza, R.; Patraş, A. The influence of temperature and time on the stability of the antioxidant activity and colour parameters of grape marc ethanolic extract. *The Annals of the University Dunarea de Jos of Galati, Fascicle VI – Food Technology* 2015, 39 (2), 96-104.
27. Cristea, E. The influence of thermal treatments on the antioxidant activity and colour of the chokeberry (*Aronia melanocarpa*) extract. *International Journal of Food Studies* 2016, 5, 224-231.
28. Patras, A.; Brunton, N. P.; Da Pieve, S.; Butler, F. Impact of high pressure processing on total antioxidant activity, phenolic, ascorbic acid, anthocyanin content and colour of strawberry and blackberry purées. *Innovative Food Science and Emerging Technologies* 2009, 10, 308-313.
29. Patras, A.; Brunton, N.P.; Da Pieve, S.; Downey, G. Effect of thermal and high pressure processing on antioxidant activity and instrumental colour of tomato and carrot purées. *Innovative Food Science and Emerging Technologies* 2009, 10, 16-22.
30. Cristea, E. The influence of temperature and time on the antioxidant activity and color parameters of dog-rose (*Rosa Canina*) ethanolic extract. *Journals, Reviews and Scientific Publications from University of Bacau* 2016, 17 (2), 189-197.
31. Casati, C. B.; Sanchez, V.; Baeza, R.; Magnani, N.; Evelson, P.; Zamora, M. C. Relationships between colour parameters, phenolic content and sensory changes of processed blueberry, elderberry and blackcurrant commercial juices. *International Journal of Food Science & Technology* 2012, 47 (8), 1728-1736.
32. Patras, A. Stability and colour evaluation of red cabbage waste hydroethanolic extract in presence of different food additives or ingredients. *Food Chemistry* 2019, 275, 539-548.
33. Ghendov-Moşanu, A.; Cristea, E.; Sturza, R.; Niculaua, M.; Patras, A. Synthetic dye's substitution with chokeberry extract in jelly candies. *Journal of Food Science and Technology* 2020, 57, 4383–4394.
34. Lemanska, K.; Szymusiak, H.; Tyrakowska, B.; Zielinski, R.; Soffers, A.E.; Rietjens, I.M. The influence of pH on antioxidant properties and the mechanism of antioxidant action of hydroxyflavones. *Free Radical Biology & Medicine* 2001, 31, 869-881.
35. Understanding Color. Disponibil online: <https://www.rgbworld.com/>; <https://www.rgbworld.com/color.html> (accesat la 12.04.2023).

36. Cunja, V.; Mikulic-Petkovek, M.; Zupan, A.; Stampar, F.; Schmitzer, V. Frost decreases content of sugars, ascorbic acid and some quercetin glycosides but stimulates selected carotenes in *Rosa canina* hips. *Journal of Plant Physiology* 2015, 178, pp. 55-63.
37. Gonnet, J. F. Colour effect of co-pigmentation of anthocyanin revisited-3. A further description using CIELab differences and assessment of matched colours using the CMC model. *Food Chemistry* 2001, 75, 473-485.
38. Martinez, J. A.; Melgosa, M.; Perez, M. M.; Hita, E.; Neguerela, A. I. Note. Visual and Instrumental Color Evaluation in Red Wines. *Food Science and Technology International* 2011, 439-444.
39. Lo Faro, E.; Salerno, T.; Montavecchi, G.; Fava, P. Mitigation of Acrylamide Content in Biscuits through Combined Physical and Chemical Strategies. *Foods* 2022, 11, 2343.
40. De Smet, S.; Vossen, E. Meat: The balance between nutrition and health. A review. *Meat Sci.* 2016, 120, 145–156.
41. Pereira, P.M.; Vicente, A.F. Meat nutritional composition and nutritive role in the human diet. *Meat Sci.* 2013, 93, 586–592.
42. Becker, T. Defining meat quality. In *Meat Processing. Improving Quality*; Kerry, J., Kerry, J., Ledward, D., Eds.; Woodhead Publishing Limited: Cambridge, UK, 2002; 464p.
43. Organisation for Economic Co-operation and Development (OECD). Disponibil online: <https://data.oecd.org> (accesat la 1.04.2022).
44. EUROSTAT. Disponibil online: <https://ec.europa.eu> (accessed la 2 aprilie 2023).
45. Soren, N.M. *Methods for nutritional quality analysis of meat*. In: *Meat Quality Analysis Advanced Evaluation Methods, Techniques, and Technologies*, 1st ed.; Biswas, A.K., Mandal, P., Eds.; Academic Press: London, UK, 2020, 21–36.
46. Listrat, A.; Lebret, B.; Louveau, I.; Astruc, T.; Bonnet, M.; Lefaucheur, L.; Picard, B.; Bugeon, J. How Muscle Structure and Composition Influence Meat and Flesh Quality. *Sci. World J.* 2016, 2016, 3182746.
47. Scollan, N.; Hocquette, J.-F.; Nuernberg, K.; Dannenberger, D.; Richardson, I.; Moloney, A. Innovations in beef production systems that enhance the nutritional and health value of beef lipids and their relationship with meat quality. *Meat Sci.* 2006, 74, 17–33.
48. Ismail, I.; Hwang, Y.-H.; Bakhsh, A.; Joo, S.-T. The alternative approach of low temperature-long time cooking on bovine semitendinosus meat quality. *Asian-Australas J. Anim. Sci.* 2019, 32, 282–289.
49. Hocquette, J.-F.; Ellies-Oury, M.-P.; Lherm, M.; Pineau, C.; Deblitz, C.; Farmer, L. Current situation and future prospects for beef production in Europe-A review. *Asian-Australas. J. Anim. Sci.* 2018, 31, 1017–1035.
50. Bender, A. *Meat and Meat Products in Human Nutrition in the Developing World*. In: *Food and Nutrition Paper*; FAO: Rome, Italy, 1992; p. 53.
51. Banu, C.; Alexe, P.; Vizireanu, C. *Procesarea industrial a cărnii*; Tehnica: Bucuresti, România, 2003; p. 642.
52. Trbovich, V. The Effects of Sous Vide Cooking on Tenderness and Protein Concentration in Young Fed Beef and Cow Semitendinosus Muscles. Master Thesis. The Ohio State University, Columbus, OH, USA, 2017.
53. Corbin, C.H.; O'Quinn, T.G.; Garmyn, A.J.; Legako, J.F.; Hunt, M.R.; Dinh, T.T.N.; Rathmann, R.J.; Brooks, J.C.; Miller, M.F. Sensory evaluation of tender beef strip loin steaks of varying marbling levels and quality treatments. *Meat Sci.* 2015, 100, 24–31.
54. Brooks, J.C.; Belew, J.B.; Griffin, B.D.; Gwartney, D.L.; Hale, D.S.; Henning, W.R.; Johnson, D.D.; Morgan, J.B.; Parrish, F.C., Jr.; Reagan, J.O. National beef tenderness survey-1998. *J. Anim. Sci.* 2000, 78, 1852–1860.
55. Kahraman, H.A.; Gurbuz, U. Aging Applications on Beef Meat. *MANAS J. Eng.* 2018, 6, 7–13.
56. Campbell, R.E.; Hunt, M.C.; Levis, P.; Chambers, E. Dry-aging effects on palatability of beef longissimus muscle. *J. Food Sci.* 2001, 66, 196–199.

57. Kemp, C.M.; Sensky, P.L.; Bardsley, R.G.; Buttery, P.J.; Parr, T. Tenderness—An enzymatic view. *Meat Sci.* 2010, 84, 248–256.
58. Colle, M.J.; Richard, R.P.; Killinger, K.M.; Bohlscheid, J.C.; Gray, A.R.; Loucks, W.I.; Doumit, M.E. Influence of extended aging on beef quality characteristics and sensory perception of steaks from the biceps femoris and semimembranosus. *Meat Sci.* 2016, 119, 110–117.
59. Ahnstrom, M.L.; Seyfert, M.; Hunt, M.C.; Johnson, D.E. Dry aging of beef in a bag highly permeable to water vapor. *Meat Sci.* 2006, 73, 674–679.
60. Stenström, H.; Li, X.; Hunt, M.C.; Lundström, K. Consumer preference and effect of correct or misleading information after aging beef longissimus muscle using vacuum, dry aging, or a dry aging bag. *Meat Sci.* 2014, 96, 661–666.
61. Dashdorj, D.; Tripathi, V.K.; Cho, S.; Kim, Y.; Hwang, I. Dry aging of beef; Review. *J. Anim. Sci. Technol.* 2016, 58, 20.
62. Savell, J.W. Dry-Aging of Beef, Executive Summary; National Cattlemen’s Beef Association: Texas, USA, 2008; p. 16.
63. Lee, H.J.; Choe, J.; Kim, K.T. 2017. Analysis of low-marbled Hanwoo cow meat aged with different dry-aging methods. *Asian-Australas. J. Anim. Sci.* 2017, 30, 1733–1738.
64. Schroeder, J.W.; Cramer, D.A.; Bowling, R.A.; Cook, C.A. Palatability, shelf life and chemical differences between forage-and grain-finished beef. *Sci. J. Anim. Sci.* 1980, 5, 852–859.
65. Miller, M.F.; Davis, G.W.; Ramsey, C.B. Effect of subprimal fabrication and packaging methods on palatability and retail case life of loin steaks from lean beef. *J. Food Sci.* 1985, 50, 1544–1560.
66. HG No. 696 from 04-08-2010 pentru aprobarea Cerințelor privind producerea, importul și plasarea pe piață a cărnii - materie primă. Disponibil online: <http://lex.justice.md/index.php?action=view&view=doc&id=335616>.
67. ISO 6658:2017; Sensory Analysis—Methodology—General Guidance. International Organization for Standardization: Geneva, Switzerland, 2017. Disponibil online: <https://www.iso.org/standard/65519.html>.
68. Ruiz-Capillas, C.; Herrero, A.M.; Pintado, T.; Delgado-Pando, G. Sensory Analysis and Consumer Research in New Meat Products Development. *Foods* 2021, 10(2), 429.
69. ISO 1442:1997; Meat and Meat Products—Determination of Moisture Content (Reference Method). International Organization for Standardization: Geneva, Switzerland, 1997.
70. ISO 1443:1973; Meat and Meat Products—Determination of Total Fat Content. International Organization for Standardization: Geneva, Switzerland, 1973.
71. ISO 937:1978; Meat and Meat Products—Determination of Nitrogen Content (Reference Method). International Organization for Standardization: Geneva, Switzerland, 1978.
72. Joo, S.T.; Kaufman, R.G.; Kim, B.C.; Park, G.B. The relationship of sarcoplasmic and myofibrillar protein solubility to colour and water-holding capacity in porcine longissimus muscle. *Meat Sci.* 1999, 52, 291–297.
73. ISO 3496:1994; Meat and Meat Products—Determination of Hydroxyproline Content. International Organization for Standardization: Geneva, Switzerland, 1994.
74. Sen, A.R.; Naveena, B.M.; Muthukumar, M.; Vaithyanathan, S. Colour, myoglobin denaturation and storage stability of raw and cooked mutton chops at different end point cooking temperature. *J. Food Sci. Technol.* 2014, 51, 970–975.
75. Overview of Texture Profile Analysis. Disponibil online: <https://texturetechnologies.com/resources/texture-profile-analysis#tpa-measurements>.
76. Batina, L.; Gierlichs, B.; Prouff, E.; Rivain, M.; Standaert, F.-X.; Veyrat-Charvillon, N. Mutual Information Analysis: A Comprehensive Study. *J. Cryptol.* 2011, 24, 269–291.
77. Bulgaru, V.; Popescu, L.; Netreba, N.; Ghendov-Moșanu, A.; Sturza, R. Assessment of Quality Indices and Their Influence on the Texture Profile in the Dry-Aging Process of Beef. *Foods* 2022, 11, 1526.

78. Maqsood, S.; Abushelaibi, A.; Manheem, K.; Kadim, I.T. Characterisation of the lipid and protein fraction of fresh camel meat and the associated changes during refrigerated storage. *J. Food Compos. Anal.* 2015, 41, 212–220.
79. Huff-Lonergan, E.; Zhang, W.; Lonergan, S.M. Biochemistry of postmortem muscle, Lessons on mechanisms of meat tenderization. *Meat Sci.* 2010, 86, 184–195.
80. Feiner, G. *Meat Products Handbook Practical Science and Technology*, 1st ed.; Woodhead Publishing Limited: Cambridge, UK, 2006; 648p.
81. Kim, M.; Choe, J.; Lee, H.J.; Yoon, Y.; Yoon, S.; Jo, C. Effects of aging and aging method on physicochemical and sensory traits of different beef cuts. *Food Sci. Anim. Resour.* 2019, 39, 54–64.
82. Nishimura, T. Role of extracellular matrix in development of skeletal muscle and postmortem aging of meat. *Meat Sci.* 2015, 109, 48–55.
83. Warner, R.; Greenwood, P.; Pethick, D.; Ferguson, D. Genetic and environmental effects on meat quality. *Meat Sci.* 2010, 86, 171–183.
84. Koohmaraie, M.; Geesink, G. Contribution of postmortem muscle biochemistry to the delivery of consistent meat quality with particular focus on the calpain system. *Meat Sci.* 2006, 74, 34–43.
85. Ustuner, H.; Arrdicli, S.; Arslan, O. Determination of the alterations in quality parameters and consumer preference of dry-aged beef based on different periods of ageing using a purposive incubator. *J. Hell. Vet. Med. Soc.* 2021, 72, 2669–2676.
86. Ardicli, S. Impact of Genetic and Postmortem Mechanisms on Beef Colour Parameters. *Uludag Univ. J. Fac. Vet. Med.* 2018, 37, 49–59.
87. Perry, N. Dry aging beef. *Inter. J. Gastron. Food Sci.* 2012, 1, 78–80.
88. Spanier, A.M.; Flores, M.; McMilli, K.W.; Bidne, T.D. The effect of post-mortem aging on meat flavor quality in Brangus beef. Correlation of treatments, sensory, instrumental and chemical descriptors. *Food Chem.* 1997, 59, 531–538.
89. Cho, S.; Kang, S.M.; Kim, Y.S.; Kim, Y.C.; Van Ba, H.; Seo, H.W.; Lee, E.M.; Seong, P.N.; Kim, J.H. Comparison of Drying Yield, Meat Quality, Oxidation Stability and Sensory Properties of Bone-in Shell Loin Cut by Different Dry-aging Conditions. *Korean J. Food Sci. Anim. Resour.* 2018, 38, 1131–1143.
90. Lee, C.W.; Lee, S.H.; Min, Y.; Lee, S.; Jo, C.; Jung, S. Quality improvement of strip loin from Hanwoo with low quality grade by dry aging. *Korean J. Food Nutr.* 2015, 28, 415–421.
91. Laster, M.A.; Smith, R.D.; Nicholson, K.L.; Nicholson, J.D.W.; Harris, K.B.; Miller, R.K.; Griffin, D.B.; Savell, J.W. Dry versus wet aging of beef: Retail cutting yields and consumer sensory attribute evaluations of steaks from ribeyes, strip loins, and top sirloins from two quality grade groups. *Meat Sci.* 2008, 80, 795–804.
92. Kim, Y.H.B.; Kemp, R.; Samuelsson, L.M. Effects of dry-aging on meat quality attributes and metabolite profiles of beef loins. *Meat Sci.* 2016, 111, 168–176.
93. Smith, A.M.; Harris, K.B.; Griffin, D.B.; Miller, R.K.; Kerth, C.R.; Savell, J.W. Retail yields and palatability evaluations of individual muscles from wet-aged and dry-aged beef ribeyes and top sirloin butts that were merchandised innovatively. *Meat Sci.* 2014, 97, 21–26.
94. Page, J.; Wulf, D.; Schwotzer, T. A survey of beef muscle color and pH. *J. Anim. Sci.* 2001, 79, 678–687.
95. Lee, H.; Jang, M.; Park, S.; Jeong, J.; Shim, Y.; Kim, J. Determination of Indicators for Dry Aged Beef Quality. *Food Sci. Anim. Resour.* 2019, 39, 934–942.
96. Obuz, E.; Akkaya, L.; Gök, V.; Dikeman, M.E. Effects of blade tenderization, aging method and aging time on meat quality characteristics of Longissimus lumborum steaks from cull Holstein cows. *Meat Sci.* 2014, 96, 1227–1232.
97. Alexe, P. *Transformarea animalului viu în carne*; Mirtun: Bucuresti, Romania, 2000.
98. Maqsood, S.; Manheem, K.; Gani, A.; Abushelaibi, A. Degradation of myofibrillar, sarcoplasmic and connective tissue proteins by plant proteolytic enzymes and their impact on camel meat tenderness. *J. Food Sci. Technol.* 2018, 55, 3427–3438.

99. Mudalal, S.; Babini, E.; Cavani, C.; Petracci, M. Quantity and functionality of protein fractions in chicken breast fillets affected by white striping. *Poult. Sci. J.* 2014, 93, 2108–2116.
100. Iida, F.; Miyazaki, Y.; Tsuyuki, R.; Kato, K.; Egusa, A.; Ogoshi, H.; Nishimura, T. Changes in taste compounds, breaking properties, and sensory attributes during dry aging of beef from Japanese black cattle. *Meat Sci.* 2016, 112, 46–51.
101. Banu, C.; Ionescu, A.; Bahrim, G.; Dorin, S.S.; Vizireanu, C. *Biochimia, Microbiologia și Parazitologia cărnii*; AGIR: Bucuresti, Romania, 2006.
102. Colle, M.J.; Richard, R.P.; Killinger, K.M.; Bohlscheid, J.C.; Gray, A.R.; Loucks, W.I.; Day, R.N.; Cochran, A.S.; Nasados, J.A.; Doumit, M.E. Influence of extended aging on beef quality characteristics and sensory perception of steaks from the gluteus medius and longissimus lumborum. *Meat Sci.* 2015, 110, 32–39.
103. Kim, J.H.; Kim, T.K.; Shin, D.M.; Kim, H.W.; Kim, Y.B.; Choi, Y.S. Comparative effects of dry-aging and wet-aging on physico-chemical properties and digestibility of Hanwoo beef. *Asian-Australas J. Anim. Sci.* 2020, 33, 501–505.
104. Toldra, F. Proteolysis and lipolysis in flavour development of dry-cured meat products. *Meat Sci.* 1998, 49S, 101–110.
105. Claeys, E.; De Smet, S.; Balcaen, A.; Raes, K.; Demeyer, D. Quantification of fresh meat peptides by SDS–PAGE in relation to ageing time and taste intensity. *Meat Sci.* 2004, 67, 281–288.
106. Szczesniak, A.S. Texture is a sensory property. *Food Qual. Prefer.* 2002, 13, 215–225.
107. Campo, M.M.; Santolaria, P.; Sañudo, C.; Lepetit, J.J.; Olleta, L.; Panea, B.; Albertí, P. Assessment of breed type and ageing time effects on beef meat quality using two different texture devices. *Meat Sci.* 2000, 55, 371–378.
108. Zhang, S.X.; Farouk, M.M.; Young, O.A.; Wieliczko, K.J.; Podmore, C. Functional stability of frozen normal and high pH beef. *Meat Sci.* 2005, 69, 765–772.
109. Olivera, D.F.; Bambicha, R.; Laporte, G.; Cárdenas, F.C.; Mestorino, N. Kinetics of colour and texture changes of beef during storage. *J. Food Sci. Technol.* 2013, 50, 821–825.
110. Weston, A.R.; Rogers, R.W.; Althen, T.G. Review: The Role of Collagen in Meat Tenderness. *Prof. Anim. Sci.* 2002, 18, 107–111.
111. Ripoll, G.; Alcalde, M.J.; Córdoba, M.G.; Casquete, R.; Argüello, A.; Ruiz-Moyano, S.; Panea, B. Influence of the Use of Milk Replacers and pH on the Texture Profiles of Raw and Cooked Meat of Suckling Kids. *Foods* 2019, 8, 589.
112. Vasanthi, C.; Venkataramanujam, V.; Dushyanthan, K. Effect of cooking temperature and time on the physico-chemical, histological and sensory properties of female carabeef (buffalo). *Meat Sci.* 2007, 76, 274–280.
113. Pematilleke, N.; Kaur, M.; Adhikari, B.; Torley, P.J. Relationship between instrumental and sensory texture profile of beef semitendinosus muscles with different textures. *J. Texture Stud.* 2022, 53, 232–241.
114. Bao, G.; Zhang, L.; Sun, B.; Xie, P.; Wang, L.; Niu, J.; Ma, J. The Correlation Research on Yak Meat Texture Profile Analysis (Tpa) And Freshness Parameters During Refrigerated Storage. *MOJ Food Process. Technol.* 2015, 1, 00020.
115. Ghendov-Moșanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Niculaua, M. Rose hips, a valuable source of antioxidants to improve gingerbread characteristics. *Molecules* 2020, 25, 5659.
116. Ghendov-Moșanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Padureanu, S.; Deseatnicova, O.; Turculet, N.; Boestean, O.; Niculaua, M. Potential Application of Hippophae Rhamnoides in Wheat Bread Production. *Molecules* 2020, 25, 1272.

CAPITOLUL II

1. Sabate, J. Nut consumption and body weight. *Amer J Clinical Nutr* 2003, 78, pp. 647–650.
2. Gülsoy, E.; Pehlivan, M.; Şimşek, M. Determination of Fatty Acids, α -Tocopherol, β -Caroten, Minerals, and Some Pomological Properties of Walnut Genotypes Selected from Aras Valley (Eastern Turkey). *Iran J Chem Chem Eng* 2019, 38 (3), 211-221.
3. Popovici, C. Soxhlet extraction and characterisation of natural compounds from walnut (*Juglans regia* L.) byproducts. *Ukr Food J* 2013, 2 (3), 328-336.
4. Savage, G.P.; Dutta, P.C. The sterol composition of nuts grown in New Zealand. *Plant Foods for Human Nutrition*, 2002, 56, 75-82.
5. Daironas, J.V. Experimental and Theoretical Study, Standardization of Vegetal Raw Materials with Naphthoquinones. *Doctor in Pharmacology Thesis*. Moscow, 2017, 389 [in Russian].
6. Tatarov, P. Chemistry of Foods. *Chişinău, „MS Logo”, 2017, 450 [in Russian].*
7. Ivanova, R.; Tatarov, P. Polyphenolic content and antioxidant capacity of extracts from pellicle of walnut kernels. *In: 2nd Int Symp “Secondary Metabolites: Chemistry, Biology, Biotechnology”, Moscow. Abstract Book, 2014, 104.*
8. Ogunmoyole, T.; Kade I.J.; Korodele B. In vitro antioxidant properties of aqueous and ethanolic extracts of walnut (*Juglans regia*). *J Med Plants Res* 2011, 5 (31), 6839-6848.
9. Sandulachi, E.; Bulgaru, V.; Tatarov, P. Study of the Light Influence on the Walnuts Oil Quality. *Asian Food Sci J* 2019, 10 (1), Article No. AFSJ 49653, 1-10.
10. Masek, A.; Latos-Brozio, M.; Chrzescijanska, E.; Podsedek A. Polyphenolic Profile and Antioxidant Activity of *Juglans regia* L. Leaves and Husk Extracts. *Forests* 2019, 10 (11), 988.
11. Grosso, A.L.; Asensio, C.M.; Grosso, N.R., Nepote, V. Sensory Quality Preservation of Coated Walnuts. *J Food Sci* 2017, 82 (1), 185-193.
12. Box, G.E.; Hunter, W.G.; Hunter, J.S. Statistics for Experimenters. Design, Innovation and Discovery. *Wiley- Interscience, Hoboken, N.J., 2005, 633.*
13. Available:<https://www.sigmaaldrich.com/content/dam/sigmaaldrich/docs/Sigma/Datasheet/6/47641dat.pdf>
14. Rappoport Z. (Editor). The Chemistry of Phenols. *John Wiley and Sons, 2003, 1506.*
15. Merín, M.G.; Martín, M.C.; Rantsiou, K.; Cocolin, L.; Ambrosini, V.I. Characterization of pectinase activity for enology from yeasts occurring in Argentine Bonarda grape. *Braz J Microbiol* 2015, 46 (3), 815–823.
16. Asgari K.; Labbafi, M.; Khodaiyan, F.; Kazemi, M.; Hosseini, S.S. High-methylated pectin from walnut processing wastes as a potential resource: Ultrasound assisted extraction and physicochemical, structural and functional analysis. *Int J Biol Macromolecules* 2014, 152, 1274-1282.
17. Verejan A.; Baerle A.; Tatarov P.; Mitina T. Dynamics of Walnuts Humidity and Rehydration. *In: Proceedings of the Int. Conf. „Modern Technologies in the Food Industry”, 236-237.*
18. Cosmulescu, S.; Trandafir, I.; Achim, G.H.; Botu M., et al. Phenolics of Green Husk in Mature Walnut Fruits. *Notulae Botanicae Horti Agrobotanici, Cluj-Napoca, 2010, 38 (1), 53-56.*
19. Badalica-Petrescu, M.; Dragan, S., Ranga, F.; Fetea, F.; Socaciu, C. Comparative HPLC-DAD-ESI(+)-MS Fingerprint and Quantification of Phenolic and Flavonoid Composition of Aqueous Leaf Extracts of *Cornus mas* and *Crataegus monogyna*, in Relation to Their Cardiotoxic Potential. *Notulae botanicae Horti Agrobotanici Cluj-Napoca, 2014, 42 (1), 9-18.*
20. Ogunmoyole, T.; Kade, I.J.; Korodele, B. In vitro antioxidant properties of aqueous and ethanolic extracts of walnut (*Juglans regia*). *J. Med. Plants Res* 2011, 5 (31), 6839-6848.
21. Starodubtsev, S.I.; Baerle, A.V.; Brestechko, A.L.; Makari, A.V. Spectrophotometric Modelling of Greenhouse Films Properties. *Meridian Ing* 2010 (2), 29-31.
22. Baerle, A.; Tatarov, P.; Sandu, Iu. Polyphenols and naphthoquinones extraction from walnuts pellicula: the impact on kernels quality. *J Eng Sci* 2020, XXVII (2), 145-153.
23. Technical University of Moldova. Patent application „Process for the removal of phenolic compounds and naphthoquinones from the pellicle of the *Juglans Regia* L kernels”. Inventors:

Alexei Baerle, Pavel Tatarov, Iuliana Sandu. Depozit No.: S 2020 0118.

24. Atares Huerta, L.; Perez-Masia, R.; Chilart, A. The role of some antioxidants in the HPMC film properties and lipid protection in coated toasted almonds. *J Food Eng (Valencia)*, 2011, 649-656.
25. Merín, M.G.; Martín, M.C.; Rantsiou, K.; Cocolin, L.; Ambrosini, V.I. Characterization of pectinase activity forenology from yeasts occurring in Argentine Bonarda grape. *Braz J Microbiol* 2015, 46(3), 815–823.
26. Dobre, A.; Gagiú, V.; Niculita, P. Preliminary studies on the antimicrobial activity of essential oils against food borne bacteria and toxigenic fungi. *In: The Annals of the University Dunarea de Jos, Fascicle VI – Food Technology*, 2011, 35 (2), 16-26.
27. Ghendov-Moşanu, A.; Cristea, E.; Sturza, R.; Niculaua, M.; Patraş, A. Synthetic dye's substitution with chokeberry extract in jelly candies. *J Food Sci Technol* 2020, 57 (12), 4383-4394.
28. Radu, O. Compoziții alimentare pe baza uleiului de nucă (*Juglans regia L.*) rezistente la degradări oxidative. *Teza de doctor în tehnică*. Ch., UTM, 2020, 150.
29. Zelazko, A. RGB colour model. *Enc Brit* 21, <https://www.britannica.com/science/RGB-colour-model> ; accesat 01.04.2023.
30. <http://colorizer.org/> ; (accesat 25.04.2021).
31. Baerle, A.; Savcenco, A.; Tatarov, P.; Fetea, F.; Ivanova, R.; Radu, O. Stability limits of a red Carthamin–cellulose complex as a potential food colourant. *Food Func* 2021 (2), 8037-8043.
32. Yang, Y.P.; Zhang, Y.; Lang, Y.X.; Yu, M.H. Structural ATR-IR analysis of cellulose fibers prepared from a NaOH complex aqueous solution. *In: IOP Conf Ser: Mater Sci Eng* 2017, 213 (012039).
33. Hospodarova, V.; Singovszka E.; Stevulova N. Characterization of cellulosic fibers by FTIR spectroscopy for their further implementation to building materials. *Am J Analytical Chem* 2018, 9, 303-310.
34. Savcenco, A. Spectral and Chromatographic Characterisation of the Yellow Food Dye from Safflower. *Journal of Engineering Science*, 2022, 29, (3), 189-195.
35. Cho, M.H.; Paik, Y.S.; Hahn T.R. Enzymatic Conversion of Precarthamin to Carthamin by a Purified Enzyme from the Yellow Petals of Safflower. *J Agric Food Chem* 2000, 48, 3917-3921.

CAPITOLUL III.

1. Studiul „Analiza internă și externă a sectorului producției de fructe în Republica Moldova”. Disponibil online: http://madr.gov.md/sites/default/files/Documente%20atasate%20Advance%20Pagines/Studiu%20Sector%20Pomicol%20RM%20-%20%20APM_FARM%20final.pdf (accesat 2.03.2023).
2. Patel, S. Grape seeds: Agro-industrial waste with vast functional food potential. In: *Emerging Bioresources with Nutraceutical and Pharmaceutical Prospects*; Patel, S., Ed. Springer Int Pub AG, 2015, 3, 53–69. <https://www.springerprofessional.de/en/grape-seeds-agro-industrial-waste-with-vast-functional-food-pote/2319050>
3. Gaina, B.; Cobirman, G.; Golubi, R. By-products of viticultural origin and their use. (Informative study). *Akademios* 2018, 1(48), 70-74.
4. Duca, Gh. *Produse vinicole și secundare*. Știința: Chișinău, RM, 2011, 352 p.
5. Thorngate, J.H.; Singleton, V.L. Localization of procyanidine in grape seeds. *Am. J of Enol. and Vit.* 1994, 45, 259-262.
6. Rombaut, N.; Savoie, R.; Thomasset, B.; Castello, I.; Van Hecke, E.; Lanoisellè, J.L. Optimization of oil yield and oil total phenolic content during grapeseed cold screw pressing. *Ind. Crops Prod.*, 2015, 63, 26–33.
7. Maier, T.; Schieder, A.; Kammerer, D.R.; Carle, R. Residues of grape (*Vitis vinifera* L.) seed oil production as a valuable source of phenolic antioxidants. *Food Chem.* 2009, 112, 551–559.
8. Xia, E.Q.; Deng, G.F; Guo, Y.J.; Li, H.B. Biological activities of polyphenols from grapes. *Int J Molec Sci.* 2010, 11, 622–646.
9. Scalbert, A.; Manach, C.; Morand, C.; Rémésy, C.; Jiménez, L. Dietary polyphenols and the prevention of diseases. *Critical Rev Food Sci Nutr.* 2005, 45(40), 287–306. DOI: <http://dx.doi.org/10.1080/1040869059096>
10. Garrido, I.; Uriarte, D.; Hernandez, M.; Llerena, J.L.; Valdes, M.E.; Espinosa, F. The evolution of total phenolic compounds and antioxidant activities during ripening of grapes (*Vitis vinifera* L., cv. *Tempranillo*) grown in semiarid region: Effects of cluster thinning and water deficit. *Int. J. Molec. Sci.* 2016, 17, 1923. DOI: <https://doi.org/10.3390/ijms17111923>
11. Reynolds, A.G. *Managing wine quality: Viticulture and wine quality*. Andrew G. Reynolds: Cambridge, United Kingdom, 2010, 365-444. ISBN 978-1-84569-484-5. DOI: <https://doi.org/10.1533/9781845699284.3.365>
12. Gawel, R.; Day, M.; Van Sluyter, S. C.; Holt, H.; Waters, E. J.; Smith, P. A. White wine taste and mouthfeel as affected by juice extraction and processing. *J. Agr. and Food Chem.* 2014, 62(41), 10008-10014. DOI: <https://doi.org/10.1021/jf503082v>
13. Mohamed, H.B.; Duba, K.S.; Fiori, L.; Abdelgawed, H.; Tili, I.; Tounekti, T.; Zrig, A. Bioactive compounds and antioxidant activities of different grape (*Vitis vinifera* L.) seed oils extracted by supercritical CO₂ and organic solvent. *LWT-Food Sci. Tech.* 2016, 74, 557-562. DOI: <https://doi.org/10.1016/j.lwt.2016.08.023>
14. Ghouila, Z.; Laurent, S.; Henoumont, C.; Vander, E.; Muller, R.; Baaliouamer, A. Rich extract on total polyphenols and antioxidant activity obtained by conventional and non-conventional methods from *Ahmeur bouamer* grape seed. *J. Fund. Appl. Sci.* 2016, 8(3), 692-711. DOI: <http://www.jfas.info>
15. Mandic, A.I.; Dilas, S.M.; Četković, G.S.; Čanadanović-Brunet, J.M.; Tumbas, V.T. Polyphenolic composition and antioxidant activities of grape seed extract. *Int. J. Food Prop.* 2008, 11(4), 713–726. DOI: <https://doi.org/10.1080/10942910701584260>
16. Dwyer, K.; Hosseinian, F.; Rod, M. The Market Potential of Grape Waste Alternatives. *J. Food Res.* 2014, 3(2). URL: <http://dx.doi.org/10.5539/>
17. Ratnasooriya, Ch.; Rupasinghe, V.; Jameison, A.R. Juice quality and polyphenol concentration of fresh fruits and pomace of selected Nov Scotia-grown grape cultivars. *Canadian J. Plant Sci.* 2010, 90(2), 193-205. DOI: [10.4141/CJPS09137](https://doi.org/10.4141/CJPS09137)
18. Chen, J.; Thilakarathna, W.; Astatkie, T.; Rupasinghe, V. Optimization of Catechin and

- Proanthocyanidin Recovery from Grape Seeds Using Microwave-Assisted Extraction. *Biomol.* 2020, 10, 243. doi:10.3390/biom10020243
19. Pan, Z.; Qu, W.; Ma, H.; Atungulu, G.G.; McHugh, T.H. Continuous and pulsed ultrasound-assisted extractions of antioxidants from pomegranate peel. *Ultrason. Sonochem.* 2012, 19, 2, 365-372. <https://doi.org/10.1016/j.ultsonch.2011.05.015>.
20. Vergara-Salinas, J.R.; Bulnes, P.; Zúñiga, M.C.; Pérez-Jiménez, J.; Torres, J.L.; MateosMartín, M.L.; Agosin, E.; Pérez-Correa, J.R. Effect of pressurized hot water extraction on antioxidants from grape pomace before and after enological fermentation. *J Agric Food Chem.* 2013, 61, 6929–6932. <https://doi.org/10.1021/jf4010143>
21. Fiori, L.; de Faveri, D.; Casazza, A.A.; Perego, P. Grape by-products: extraction of polyphenolic compounds using supercritical CO₂ and liquid organic solvent—a preliminary investigation Subproductos de la uva: extracción de compuestos polifenólicos usando CO₂ supercrítico y disolventes orgánicos líquidos—una investigación preliminar. *CyTA J Food* 2009, 7, 163–171. <https://doi.org/10.1080/11358120902989715>
22. Kalli, E.; Lappa, I.; Bouchagier, P.; Tarantilis, P.A.; Skotti, E. Novel application and industrial exploitation of winery by-products. *Biores. and Biopr.* 2018, 5(46). DOI: <https://doi.org/10.1186/s40643-018-0232-6>.
23. Xu, C.; Yagiz, Y.; Lu, Zhao, L.; Simonne, A.; Lu, J.; Marshall, M.R. Fruit quality, nutraceutical and antimicrobial properties of 58 muscadine grape varieties (*Vitis rotundifolia* Michx.) grown in United States. *Food Chem.* 2017, 15(215), 149-156. DOI: <https://doi.org/10.1016/j.foodchem.2016.07.163>
24. Iannone, M.; Mare, R.; Paolino, D.; Gagliardi, A.; Froio, F.; Cosco, D.; Fresta, M. Characterization and *in vitro* anticancer properties of chitosan-microencapsulated flavan-3-ols-rich grape seed extracts. *Int. J. Biol. Macrom.* 2017, 104, 1039–1045. DOI: <https://doi.org/10.1016/j.ijbiomac.2017.07.022>
25. Ferri, M.; Rondini, G.; Calabretta, M.M.; Michelini, E.; Vallini, V.; Fava, F.; Roda, A.; Minnucci, G.; Tassoni, A. White grape pomace extracts, obtained by a sequential enzymatic plus ethanol-based extraction, exert antioxidant, anti-tyrosinase and anti-inflammatory activities. *New Biotech.* 2017, 39, 51–58. DOI: <https://doi.org/10.1016/j.nbt.2017.07.002>
26. Vaisman, N.; Niv, E. Daily consumption of red grape cell powder in a dietary dose improves cardiovascular parameters: A double blind, placebo-controlled, randomized study. *In. J Food Sci Nutr.* 2015, 66, 342–349. DOI: <http://dx.doi.org/10.3109/09637486.2014.1000840>
27. Ismail, A.F.M.; Salem, A.A.M.; Eassawy, M.M.T Hepatoprotective effect of grape seed oil against carbon tetrachloride induced oxidative stress in liver of gamma-irradiated rat. *J Photochem. Photobiol.* 2016, 160, 1–10. DOI: <http://dx.doi.org/10.1016/j.jphotobiol.2016.03.027>
28. Wesseler, A.R.; Bast, A. Masquelier's grape seed extract: from basic flavonoid research to a well-characterized food supplement with health benefits. *Wesseler and Bast Nutr. J.* 2017, 16(5), 1-19. DOI: <https://nutritionj.biomedcentral.com/articles/10.1186/s12937-016-0218-1>
29. ISO 665:2020 Oil seeds. Determination of moisture and volatile matter content. <https://standards.iteh.ai/catalog/standards/sist/caf9695f-bca8-4bb8-afeeba613cdbf714/iso-665-2020>
30. ISO 749:1977 - Oilseed residues. Determination of total ash. <https://www.iso.org/standard>.
31. Oils and Fats. Manual of Methods of Analysis of Foods. *A.O.A.C 17th ed., 2015*, 96 p. https://old.fssai.gov.in/Portals/0/Pdf/Draft_Manuals/OILS_AND_FAT.pdf
32. 26. ISO 1740:2004 | Specifies a method for the determination of the acidity of the fat contained in milkfat products and in butter. <https://cdn.standards.iteh.ai/ISO-1740-2004>
33. Gutfinger, T. Polyphenols in olive oils. *J. Am Oil Chem. Soc.* 1981, 1, 966-968. DOI: <https://doi.org/10.1007/BF02659771>
34. Bouyahya, A.; Dakka, N.; Talbaoui, A.; Moussaoui, N.E.; Abrini, J.; Bakri, Y. Phenolic contents and antiradical capacity of vegetable oil from Pistacia lentiscus (L). *J. Mat. Env. Sci.* 2018, 9(5), 1518-1524. DOI: <https://doi.org/10.26872/jmes.2018.9.5.167>

35. Singleton, V.; Rossi, J. Colorimetry of total phenolic compounds with phosphomolybdic-phosphotungstic acid reagents. *Am. J. of Enol. Vit.* 1965, 16, 144-158. DOI: <http://garfield.library.upenn.edu>
36. Paulpriya, K.; Packia Lincy, M.; Tresina Soris, P.; Veerabahu Ramasamy, M. *In vitro* antioxidant activity, total phenolic and total flavonoid contents of aerial part extracts of *Daphniphyllum neilgherrense* (wt.) Rosenth. *Ethnopharm. J. Bio Innov.* 2015, 4(6), 257-268. ISSN 2277-8330 DOI: www.jbino.com
37. Gurev, A.; Dragancea, V.; Baerle, A.; Netreba, N.; Boeştean, O.; Haritonov, S.; Gaina, B. Properties of winemaking by-products of feteasca neagra grape seeds. *Chem J Moldova*, 2022, 17(2), 50-61. ISSN (p) 1857-1727 ISSN (e) 2345-1688, <http://cjm.ichem.md> <http://dx.doi.org/10.19261/cjm.2022.946>
38. ISO 5725-1:1994, Accuracy (trueness and precision) of measurement methods and results. <https://www.iso.org/standard/11833.html>
39. Codex Standard for Named Vegetable Oils (CODEX-STAN 210 - 1999). Essential Composition and Quality Factors. DOI: <https://www.jhnfa.org/k166.pdf>
40. Shinagawa, F.B.; Santanae, F.G.; Ias Araujo, I.; Purgatto, D.J.; Mancini-filho, J. Chemical composition of cold pressed Brazilian grape seed oil. *Food Sci.Tech.* 2018, 38(1). DOI: <https://doi.org/10.1590/1678-457X.08317>
41. Szydłowska-Czerniak, A.; Trokowski, K.; Karlovits, G.; Szlyk, E. Effect of refining processes on antioxidant capacity, total contents of phenolics and carotenoids in palm oils. *Food Chem.* 2011, 129, 1187–1192. doi:10.1016/j.foodchem.2011.05.101
42. Tang, G.Y.; Zhao, C.N.; Liu, Q.; Feng, X.L.; Xu, X.Y.; Cao, S.Y.; Meng, X.; Li, S.; Gan, R.Y.; Li, H.B. Potential of Grape Wastes as a Natural Source of Bioactive Compounds. *Molecules* 2018, 23, 2598, doi: [10.3390/molecules23102598](https://doi.org/10.3390/molecules23102598)
43. Georgiev, V.; Ananga, A.; Tsołova, V. Recent advances and uses of grape flavonoids as nutraceuticals. *Nutrients*, 2014, 6(1), 391–415. Doi: [10.3390/nu6010391](https://doi.org/10.3390/nu6010391)
44. Teixeira, N.; Mateus, N.; Freitas, V.; Oliveira, J. Wine industry by-product: Full polyphenolic characterization of grape stalks. *Food Chem.* 2018, 268, 110–117. doi: [10.1016/j.foodchem.2018.06.070](https://doi.org/10.1016/j.foodchem.2018.06.070)
45. Maante-Kuljus, M.; Rätsep, R.; Ulvi Moor, U.; Mainla, L.; Pöldma, P.; Koort, A.; Karp, K. Effect of Vintage and Viticultural Practices on the Phenolic Content of Hybrid Winegrapes in Very Cool Climate. *Agriculture* 2020, 10, 169. DOI: [10.3390/agriculture10050169](https://doi.org/10.3390/agriculture10050169) www.mdpi.com/journal/agriculture
46. Reshef, N.; Walbaum, N.; Agam, N.; Fait, A. Sunlight modulates fruit metabolic profile and shapes the spatial pattern of compound accumulation within the grape cluster. *Frontiers in Plant Sci.* 2017, 8(70). DOI: [10.3389/fpls.2017.00070](https://doi.org/10.3389/fpls.2017.00070)
47. Haselgrove, L.; Botting, D.; van Heeswijck, R.; Høj, P.B.; Dry, P.R.; Ford, C.; Land, P.G.I. Canopy microclimate and berry composition: The effect of bunch exposure on the phenolic composition of *Vitis vinifera* L. cv. Shiraz grape berries. *Australian J. of Grape and Wine Res.* 2000, 6,141-149. DOI: <https://doi.org/10.1111/j.1755-0238.2000.tb00173.x>
48. Ursu, A. Solurile Moldovei. Ştiinţa: Chişinău, 2012, 324 p. ISBN: 978-9975-67-647-2.
49. Gurev, A.; Dragancea, V.; Baerle, A.; Netreba, N.; Boeştean, O.; Haritonov, S.; Gaina, B. Properties of winemaking by-products of feteasca neagra grape seeds. *Chemistry Journal of Moldova*, General, Industrial and Ecological Chemistry. 2022, 17(2), pp. 50-61. ISSN (p) 1857-1727 ISSN (e) 2345-1688, <http://cjm.ichem.md> <http://dx.doi.org/10.19261/cjm.2022.946>
50. Guendez, R; Kallithraka, S; Makris, D.; Kefalas, P. Determination of low molecular weight polyphenolic constituents in grape (*Vitis vinifera* sp.) seed extracts: Correlation with antiradical activity. *Food Chem.* 2005, 89, 1-9. DOI: [10.1016/j.foodchem.2004.02.010](https://doi.org/10.1016/j.foodchem.2004.02.010)
51. Özcan, M.M.; Al Juhaimi, F.; Gülcü, M.; Uslu, N.; Geçgel, Ü. Determination of Bioactive Compounds and Mineral Contents of Seedless Parts and Seeds of Grapes. *South African J. Enol. And Vit.* 2017, 38(2), 212-220. DOI: <http://dx.doi.org/10.21548/38-2-1605>
52. Ratnasooriya, Ch.; Rupasinghe, V.; Jameison, A.R. Juice quality and polyphenol

- concentration of fresh fruits and pomace of selected Nov Scotia-grown grape cultivars. *Canadian J. Plant Sci.* 2010, 90 (2), 193-205. DOI: [10.4141/CJPS09137](https://doi.org/10.4141/CJPS09137)
53. Kupe, M.; Karatas, N.; Unal, M.S.; Ercisli, S.; Baron, M.; Sochor, J. Phenolic Composition and Antioxidant Activity of Peel, Pulp and Seed Extracts of Different Clones of the Turkish Grape Cultivar 'Karaerik'. *Plants*, 2021, 10, 2154. <https://doi.org/10.3390/plants10102154>
54. Fu, L.; Xu, B.T.; Xu, X.R.; Gan, R.Y.; Zhang, Y.; Xia, E.Q.; Li, H.B. Antioxidant capacities and total phenolic content of 62 fruits. *Food Chem.* 2011, 129, 345-356. DOI: <https://doi.org/10.1016/j.foodchem.2011.04.079>
55. Dobrovolschi, L. Dezvoltarea Durabilă A Pomiculturii Republicii Moldova Prin Prisma Managementului Performant. Teză de doctor în științe economice , 2020, 220 p. C.Z.U.: 631.15:634.1(478). http://www.cnaa.md/files/theses/2020/56536/ludmila_dobrovolschi_thesis.pdf
56. Freitas, C.M.P.; Coimbra, J.S.R.; Souza, V.G.L.; Sousa, R.C.S. Structure and Applications of Pectin in Food, Biomedical, and Pharmaceutical Industry: A Review. *Coatings* 2021, 11(8), 922. <https://doi.org/10.3390/coatings11080922>.
57. Gołębiewska, E.; Kalinowska, M.; Yildiz, G. Sustainable Use of Apple Pomace (AP) in Different Industrial Sectors. *Materials* 2022, 15, 1788, 1-32. <https://doi.org/10.3390/ma15051788> <https://www.mdpi.com/journal/materials>.
58. Vergara-Valencia, N.; Granados-Perez, E.; Agama-Acevedo, E.; Tovar, J.; Ruales, J.; Bello-Pérez, L.A. Fibre concentrate from mango fruit: characterization, associated antioxidant capacity and application as a bakery producingredient, *LWT – Food Sci. Technol.* 2007, 40, 722–729.
59. O'Neill, M.A.; Ishii, T.; Albersheim, P.; Darvill, A.G. *Annu. Rev. Plant Biol.* 2004, 55(1), 109. doi: [10.1146/annurev.arplant.55.031903.141750](https://doi.org/10.1146/annurev.arplant.55.031903.141750).
60. Voragen, A.G.; Coenen, G.J.; Verhoef, R.P.; Schols, H.A. Pectin, a versatile polysaccharide present in plant cell walls. *Struct. Chem.* 2009, 20 (2), 263-275. DOI 10.1007/s11224-009-9442-z.
61. Thakur, Beli R.; Singh, Rakesh K.; Handa, Avtar K.; Rao, M. A. Chemistry and uses of pectin- A review. *Food Sci. and Nutr.* 1997, 37(1), 47–73. <http://dx.doi.org/10.1080/10408399709527767>)
62. Sharma, B.R.; Naresh L.; Dhuldhoya, N.C.; Merchant, S.U.; Merchant, U.C. An Overview on Pectins. *Times Food Proc. J.* 2006, 23 (2), 44-51.
63. Zdunek, A.; Pieczywek, P.M.; Cybulska, J. The primary, secondary and structures of higher levels of pectin polysaccharides. *Compr Rev Food Sci Food Saf.* 2021, 20, 1101– 1117. <https://doi.org/10.1111/1541-4337.12689>
64. Wang, J.; Hu, Sh.; Nie, Sh.; Yu, Q.; Xie, M. Reviews on mechanisms of *In Vitro* Antioxidant Activity of Polysaccharides. *Oxid. Med. Cell. Longev.* 2016, 64, 1-13. <https://doi.org/10.1155/2016/5692852>
65. Wicker, L.; Kim, Y.; Kim, M.J.; Thirkield, B.; Lin, Z.; Jung, J. Pectin as a bioactive polysaccharide extracting tailored function from less. *Food Hydrocoll.* 2014, 42, 251–259. <https://doi.org/10.1016/j.foodhyd.2014.01.002>.
66. Yeoh, S.; Zhang, S.; Shi, J.; Langrish, T.A.G. A comparison of different techniques for water-based extraction of pectin from orange peels. *Chem. Eng. Commun.* 2008, 195, 511–520. DOI: [10.1016/j.desal.2007.02.018](https://doi.org/10.1016/j.desal.2007.02.018)
67. Raji, Z.; Khodaiyan, F.; Rezaei, K.; Kiani, H.; Hosseini, S.S. Extraction optimization and physicochemical properties of pectin from melon peel. *Int. J. Biol. Macromol.* 2017, 98, 709–716. DOI: [10.1016/j.ijbiomac.2017.01.146](https://doi.org/10.1016/j.ijbiomac.2017.01.146)
68. Canteri-Schemin, M.H.; Cristina, H.; Fertonani, R.; Waszczynskyj, N.; Wosiacki, G. Extraction of Pectin From Apple Pomace. *Braz. Arch. Biol. Tech.* 2005, 48, 259–266. DOI: [10.1590/S1516-89132005000200013](https://doi.org/10.1590/S1516-89132005000200013)
69. Sun, D.; Chen, X.; Zhu, C. Physicochemical properties and antioxidant activity of pectin from hawthorn wine pomace: A comparison of different extraction methods. *Int. J. Biol. Macromol.* 2020, 158, 1, 1239-1247. <https://doi.org/10.1016/j.ijbiomac.2020.05.052>.
70. Arrutia, F.; Adam, M.; Calvo-Carrascal, M.Á.; Mao, Y.; Binner, E. Development of a continuous-flow system for microwaveassisted extraction of pectin-derived oligosaccharides from

- food waste. *Chem. Eng. J.* 2020, 395, 125056. DOI: [10.1016/j.cej.2020.125056](https://doi.org/10.1016/j.cej.2020.125056)
71. Ponnurugan, K.; Al-Dhabi, N.A.; Maran, J.P.; Karthikeyan, K.; Moothy, I.G.; Sivarajasekar, N.; Manoj, J.J.B. Ultrasound assisted pectic polysaccharide extraction and its characterization from waste heads of *Helianthus annuus*. *Carb. Polym.* 2017, 173, 707–713. DOI: [10.1016/j.carbpol.2017.06.018](https://doi.org/10.1016/j.carbpol.2017.06.018)
72. Vorobiev, E.; Lebovka, N. Pulse Electric Field-Assisted Extraction. In *Enhancing Extraction Processes in the Food Ind.*; CRC Press: Boca Raton, FL, USA, 2016. ISBN 9781439845950
73. Wang, X.; Chen, Q.; Liu, X. Pectin extracted from apple pomace and citrus peel by subcritical water. *Food Hydrocoll.* 2014, 38, 129–37. DOI: [10.1016/j.foodhyd.2013.12.003](https://doi.org/10.1016/j.foodhyd.2013.12.003)
74. Wikiera, A.; Kozioł, A.; Mika, M.; Stodolak, B. Structure and bioactivity of apple pectin isolated with arabinanase and mannanase. *Food Chem.* 2022, 388, 133020. <https://doi.org/10.1016/j.foodchem.2022.133020>
75. Gharibzadeh, S.M.T.; Smith, B.; Guo, Y. Ultrasound-microwave assisted extraction of pectin from fig (*Ficus carica L.*) skin: Optimization, characterization and bioactivity. *Carb. Polym.* 2019, 222, 114992. doi: 10.1016/j.carbpol.2019.114992. Epub 2019 Jun 13. PMID: 31320048.
76. Abou-Elseoud, W.S.; Hassan, E.A.; Hassan, M.L. Extraction of pectin from sugar beet pulp by enzymatic and ultrasound-assisted treatments. *Carb. Polym. Tech. Appl.* 2021, 2, 100042.
77. Belkheiri, A.; Forouhar, A.; Ursu, A.V.; Dubessay, P.; Pierre, G.; Delattre, C.; Djelveh, Gh.; Abdelkafi, S.; Hamdam, N.; Michaud, P. Extraction, Characterization, and Applications of Pectins from Plant By-Products. *Appl. Sci.* 2021, 11, 6596.
78. Maran, J.P.; Priya, B.; Al-Dhabi, N.A.; Ponnurugan, K.; Moothy, I.; Sivarajasekar, N. Ultrasound assisted citric acid mediated pectin extraction from industrial waste of *Musa balbisiana*. *Ultrason. Sonochem.* 2017, 35, 204–209. <https://doi.org/10.1016/j.ultsonch.2016.09.019>
79. Zhang, L.; Xinqian, Y.; Ding, T.; Sun, X.; Xu, Y.; Liu, D. Ultrasound effects on the degradation kinetics, structure and rheological properties of apple pectin. *Ultrason. Sonochem.* 2013, 20(1), 222–231. <https://doi.org/10.1016/j.ultsonch.2012.07.021>
80. Calvete-Torre, I.; Muñoz-Almagro, N.; Pacheco, M.T.; Antón, M.J.; Dapena, E.; Ruiz, L.; Margolles, A.; Villamiel, M.; Moreno, F.J. Apple pomaces derived from mono-varietal Asturian ciders production are potential source of pectins with appealing functional properties. *Carb. Polym.* 2021, 264, 117980. <https://doi.org/10.1016/j.carbpol.2021.117980>
81. Tongkham, N.; Juntasalay, B.; Lasunon, P.; Sengkhampan, N. Dragon fruit peel pectin: microwave-assisted extraction and fuzzy assessment. *Agric. Nat. Resour.* 2017, 51, 262–267
82. Wang, S.; Chen, F.; Wu, J.; Wang, Z.; Liao, X.; Hu, X. Optimization of pectin extraction assisted by microwave from apple pomace using response surface methodology. *J Food Engin.* 2007, 78 (2), 693–700. <https://doi.org/10.1016/j.jfoodeng.2005.11.008>
83. Rodsamran, P.; Sothornvit, R. Microwave heating extraction of pectin from lime peel: Characterization and properties compared with the conventional heating method. *Food Chem.* 2019, 278, 364–372. doi: 10.1016/j.foodchem.2018.11.067.
84. Liew, S.Q.; Ngoh, G.C.; Yusoff, R.; Teoh, W.H. Sequential ultrasound-microwave assisted acid extraction (UMAE) of pectin from pomelo peels. *Int. J. Biol. Macromol.* 2016, 93, 426–435. DOI: [10.1016/j.jbiomac.2016.08.065](https://doi.org/10.1016/j.jbiomac.2016.08.065)
85. Smirnov, V.V.; Golovchenko, V.V.; Vityazev, F.V.; Patova, O.A.; Selivanov, N.Yu.; Selivanova, O.G.; Popov, S.V. The Antioxidant Properties of Pectin Fractions Isolated from Vegetables Using a Simulated Gastric Fluid. *J. of Chem.* 2017, 1–10. ID 5898594
86. Karbuz, P.; Tugrul, N. Microwave and ultrasound assisted extraction of pectin from various fruits. *J. Food Sci. Tech.* 2021, 58(2), 641–650.
87. Qadir, S.; Abidi, S.; Azhar, I.; Alam Mahmood, Z. Antioxidant activity and cytotoxicity of pectin extracted from orange peels. *Pakistan J. of Pharm.* 2019, 36, 15–24.
88. Chen, R.; Jin, Ch.; Tong, Z.; Lu, J.; Tan, L.; Tian, L.; Chang, Q. Optimization extraction, characterization and antioxidant activities of pectic polysaccharide from tangerine peels. *Carb. Polym.* 2016, 136, 187–197. DOI: [10.1016/j.carbpol.2015.09.036](https://doi.org/10.1016/j.carbpol.2015.09.036)
89. Ogutu, F.O.; Mu, T.H. Ultrasonic degradation of sweet potato pectin and its antioxidant

- activity. *Ultrason. Sonochem.* 2017, 38, 726–734. DOI: [10.1016/j.ultsonch.2016.08.014](https://doi.org/10.1016/j.ultsonch.2016.08.014)
90. Wang, X.; Lü, X. Characterization of pectic polysaccharides extracted from apple pomace by hot-compressed water. *Carb Polym.* 2014, 102, 174–84. DOI: [10.1016/j.carbpol.2013.11.012](https://doi.org/10.1016/j.carbpol.2013.11.012)
91. Muñoz-Almagro, N.; Montilla, A.; Moreno, F.J.; Villamiel, M. Modification of citrus and apple pectin by power ultrasound: Effects of acid and enzymatic treatment. *Ultrason. Sonochem.* 2017, 38, 807–819. DOI: [10.1016/j.ultsonch.2016.11.039](https://doi.org/10.1016/j.ultsonch.2016.11.039)
92. Zhang, W.; Xu, P.; Zhang, H. Pectin in cancer therapy: A review. *Trends Food Sci. Technol.* 2015, 44, 258–271. <https://doi.org/10.1016/j.tifs.2015.04.001>.
93. Zhang, T.; Shuai, M.; Ma, P.; Huang, J.; Sun, Ch.; Yao, X.; Chen, Z.; Min, X.; Yan, S. Purification, chemical analysis and antioxidative activity of polysaccharides from pH-modified citrus pectin after dialyzation. *LWT.* 2020, 128, 109513. <https://doi.org/10.1016/j.lwt.2020.109513>
94. Leclere, L.; Van Cutsem, P.; Michiels, C. Anti-cancer activities of pH-or heat-modified pectin. *Front. Pharm.* 2013, 4, 128. DOI: [10.3389/fphar.2013.00128](https://doi.org/10.3389/fphar.2013.00128)
95. Celus, M.; Kyomugasho, C.; van Loey, A.M.; Grauwet, T.; Hendrickx, M.E. Influence of pectin structural properties on interactions with divalent cations and its associated functionalities. *Compr. Rev. Food Sci. Food Saf.* 2018, 17, 1576–1594. DOI: [10.1111/1541-4337.12394](https://doi.org/10.1111/1541-4337.12394)
96. Mahmoud, M.E.; Mohamed, A.K. Novel derived pectin hydrogel from mandarin peel based metal-organic frameworks composite for enhanced Cr(VI) and Pb(II) ions removal. *Int. J. Biol. Macrom.* 2020, 164, 920–931. DOI: [10.1016/j.ijbiomac.2020.07.090](https://doi.org/10.1016/j.ijbiomac.2020.07.090)
97. Celus, M.; Salvia-Trujillo, L.; Kyomugasho, C.; Maes, I.; Van Loey, A.M.; Grauwet, T.; Hendrickx, M.E. Structurally modified pectin for targeted lipid antioxidant capacity in linseed/sunflower oil-in-water emulsions. *Food Chem.* 2018, 241, 86–96. DOI: [10.1016/j.foodchem.2017.08.056](https://doi.org/10.1016/j.foodchem.2017.08.056)
98. Ro, J.; Kim, Y.; Kim, H.; Jang, S.B.; Lee, H.J.; Chakma, S.; Jeong, J.H.; Lee, J. Anti-Oxidative Activity of Pectin and Its Stabilizing Effect on Retinyl Palmitate. *Coreian Physol. Pfarm.* 2013, 17, 197-201. <http://dx.doi.org/10.4196/kjpp.2013.17.3.197>
99. Ghai, K.; Gupta, A.K.; Gupta, P.K. Pectin: A versatile biopolymer with numerous health benefits and medical uses. *J. Biol. Act. Prod. Nat.* 2012, 2 (4), 250–255.
100. McCann, M.J.; Gill, C.I.R.; G. Brien, G.; Rao, J.R.; McRoberts, W.C.; Hughes, P.; McEntee, R.; Rowland, I.R. Anti-cancer properties of phenolics from apple waste on colon carcinogenesis *in vitro*. *Food Chem. Toxicol.* 2007, 45, 1224–1230.
101. Kumar, A.; Chauhan, G.S. Extraction and characterization of pectin from apple pomace and its evaluation as lipase (steapsin) inhibitor. *Carb. Polym.* 2010, 82, 454–459.
102. Ou, S.; Kwok, K.C.; Y. Li, Y.; Fu, L. In vitro study of possible role of dietary fibre in lowering postprandial serum glucose. *J. Agr. Food Chem.* 2001, 49, 1026–1029.
103. Abari, A.H.; Rourani, H.A.; Ghasemi, S.M.; Hyun Kim, H.; Kim, Y.G. Investigation of antioxidant and anticancer activities of unsaturated oligo-galacturonic acids produced by pectinase of *Streptomyces hydrogenans* YAM1. *Sci. Rep.* 2021, 11, 8491.
104. Minzanova, S.T.; Mironov, V.F.; Arkhipova, D.M.; Khabibullina, A.V.; Mironova, L.G.; Zakirova, Y.M.; Milyukov, V. A. Biological Activity and Pharmacological Application of Pectic Polysaccharides: A Review. *Polymers* 2018, 10, 1407, 1-31 doi:10.3390/polym10121407 www.mdpi.com/journal/polymers
105. Popov, S.V.; Ovodov, Y.S. Polypotency of the immunomodulatory effect of pectins. *Biochemistry* 2013, 78, 823–835. doi: 10.1134/S0006297913070134. PMID: 24010844
106. Lootens, D.; Capel, F.; Durand, D.; Nicolai, T.; Boulenguer, P.; Langendorff, V. Influence of pH, Ca concentration, temperature and amidation on the gelation of low methoxyl pectin. *Food Hydrocoll* 2003, 17, 237–244. DOI: [10.1016/S0268-005X\(02\)00056-5](https://doi.org/10.1016/S0268-005X(02)00056-5)
107. Chandel, V.; Biswas, D.; Roy, S.; Vaidya, D.; Verma, A.; Gupta, A. Current Advancements in Pectin: Extraction, Properties and Multifunctional Applications. *Foods.* 2022, 11, 2683. <https://doi.org/10.3390/foods11172683> <https://www.mdpi.com/journal/foods>
108. Lee, Y.; Yoon, Y.R.K.; Chang, H. Effect of pectic oligosaccharide on probiotic survival and physicochemical properties of hydrogel beads for synbiotic encapsulation of *Lactobacillus*

- bulgaricus*. *Food Biosc.* 2023, 51, 102260. <https://doi.org/10.1016/j.fbio.2022.102260>
109. Rohasmizah, H.; Azizah, M. Pectin-based edible coatings and nanoemulsion for the preservation of fruits and vegetables: A review. *Appl. Food Res.* 2022, 2, 100221.
110. Mendes, J.F.; Norcino, L.B.; Manrich, A.; Pinheiro, A.C.M.; Oliveira, J.E.; Mattoso, L.H.C. Characterization of pectin films integrated with cocoa butter by continuous casting: Physical, thermal and barrier properties. *J. Polym. Env.* 2020, 28, 2905–2917. <https://doi.org/10.1007/s10924-020-01829-1>
111. Eça, K.S.; Machado, M.T.C.; Hubinger, M.D.; Menegalli, F.C. Development of active films from pectin and fruit extracts: Light protection, antioxidant capacity, and compounds stability. *J. Food Sci.* 2015, 80, 2389–2396. DOI: [10.1111/1750-3841.13074](https://doi.org/10.1111/1750-3841.13074)
112. Popescu, L.; Ceşco, T.; Gurev, A.; Ghendov-Moşanu, A.; Sturza, R.; Tarna, R. Impact of Apple Pomace Powder on the Bioactivity, and the Sensory and Textural Characteristics of Yogurt. *Foods* 2022, 11, 3565–3582. <https://doi.org/10.3390/foods11223565>.
113. ISO 750:1998; Fruit and Vegetable Products—Determination of Titratable Acidity. International Organization for Standardization: Geneva, Switzerland, 1998.
114. Nollet, L.M.L. *Handbook of Food Analysis*, 2nd ed.; Rev. and Expanded. M. Dekker: New York, NY, USA, 2004; p. 912. ISBN 978-0-8247-5036-7.
115. ISO 659:2009; Oilseeds—Determination of Oil Content (Reference Method). International Organization for Standardization: Geneva, Switzerland, 2009.
116. ISO 20483:2013; Cereals and Pulses—Determination of the Nitrogen Content and Calculation of the Crude Protein Content—Kjeldahl Method. International Organization for Standardization: Geneva, Switzerland, 2013.
117. AOAC 985.29; Total Dietary Fibre in Foods. Enzymatic-Gravimetric Method. Official Methods of Analysis, 14th ed. Association of Official Analytical Chemists: Washington, DC, USA, 1985.
118. AOAC 991.42; Insoluble Dietary Fibre in Foods and Food Products. Enzymatic-Gravimetric Method. Official Methods of Analysis, 14th ed. Association of Official Analytical Chemists: Washington, DC, USA, 1985.
119. Gurev, A.; Cesko, T.; Dragancea, V.; Ghendov-Moşanu, A.; Pintea, A.; Sturza, R. Ultrasound- and Microwave-Assisted Extraction of Pectin from Apple Pomace and Its Effect on the Quality of Fruit Bars. *Foods* 2023, 12, 2773. <https://doi.org/10.3390/foods12142773>
120. Ranganna, S. *Handbook of Analysis and Quality Control of Fruit and Vegetable Products*; Tata McGraw Hill Publishing Co Ltd.: New Delhi, 1986.
121. Suhaila, M. and Zahariah, H. 1995. Extraction and characterisation of pectin from various tropical agrowastes. *ASEAN Food J.* 2: 43–50.
122. Virk, B. S.; Sogi, D. S. Extraction and Characterization of Pectin from Apple (*Malus Pumila*. Cv Amri) Peel Waste. *Intern. J. of Food Prop.* 2004, 7(3), 693–703.
123. Waterman, P.G.; Mole, S. *Analysis of Phenolic Plant Metabolites*; Blackwell Scientific Publication: Oxford, UK, 1994, 248.
124. Ghendov-Moşanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Niculaua, M. Rose Hips, a Valuable Source of Antioxidants to Improve Gingerbread Characteristics. *Molecules* 2020, 25, 5659.
125. Inta Krasnova and Dalija Segliņa. Content of phenolic compounds and antioxidant activity in fresh apple, pomace and pomace water Extract — effect of cultivar. *Proceedings of the latvian Academy of Sciences.* 2019, 73 (6), 723, 513–518. DOI: 10.2478/prolas-2019-0078
126. Četković, G.; Čanadanović-Brunet J., Djilas S., Savatović S., Mandić A., Tumbas V. Assessment of Polyphenolic Content and in Vitro Antiradical Characteristics of Apple Pomace. *Food Chem* 2008, 109, 340–347. doi: 10.1016/j.foodchem.2007.12.046.
127. Radenkovs, V.; Kviesis, J.; Juhnevica-Radenkova, K.; Valdovska, A.; Pūssa, T.; Klavins, M.; Drudze, I. Valorization of Wild Apple (*Malus* spp.) By-Products as a Source of Essential Fatty Acids, Tocopherols and Phytosterols with Antimicrobial Activity. *Plants* 2018, 7, 90, 1–18. doi:10.3390/plants7040090

128. Gorjanović S., Micić D., Pastor F., Tosti T., Kalušević A., Ristić S., Zlatanović S. Evaluation of Apple Pomace Flour Obtained Industrially by Dehydration as a Source of Biomolecules with Antioxidant, Antidiabetic and Antiobesity Effects. *Antioxidants* 2020, 9, 413. doi: 10.3390/antiox9050413
129. Dranca, F.; Vargas, M.; Oroian, M. Physicochemical properties of pectin from *Malus domestica* 'Fălticeni' apple pomace as affected by non-conventional extraction techniques. *Food Hydrocoll.* 2020, 100, 1-14. <https://doi.org/10.1016/j.foodhyd.2019.105383>.
130. Bagherian, H.; Zokaee Ashtiani, F.; Fouladitajar, A.; Mohtashamy, M. Comparisons between conventional, microwave- and ultrasound-assisted methods for extraction of pectin from grapefruit. *Chem. Engin. and Proc.: Process Intensification.* 2011, 50, 11–12. 1237–1243. <https://doi.org/10.1016/j.cep.2011.08.002>
131. Hosseini, S. S., Khodaiyan, F., Kazemi, M., Najari, Z. Optimization and characterization of pectin extracted from sour orange peel by ultrasound assisted method. *Int. J. of Biol. Macrom.* 2018, 125, 621–629. DOI: [10.1016/j.ijbiomac.2018.12.096](https://doi.org/10.1016/j.ijbiomac.2018.12.096).
132. Mahmud, M.M., Belal, M., Ahmed, S., Hoque, M.M. and Zzaman, W. Microwave-assisted extraction and characterization of pectin from citrus fruit wastes for commercial application. *Food Res* 2021, 5 (5), 80 – 88. DOI: [https://doi.org/10.26656/fr.2017.5\(5\).592](https://doi.org/10.26656/fr.2017.5(5).592)
133. Rascón-Chu, A.; Martínez-López, A.L.; Carvajal-Millán, E.; León-Renova, N.E.P.; Márquez-Escalante, J.A.; Romo, A. Pectin from low quality „golden delicious“ apples: composition and gelling capability. *Food Chem.* 2009, 116, 101-103. DOI: [10.1016/j.foodchem.2009.02.016](https://doi.org/10.1016/j.foodchem.2009.02.016)
134. Dranca, F.; Vargas, M.; Oroian, M. Physicochemical properties of pectin from *Malus domestica* 'Fălticeni' apple pomace as affected by non-conventional extraction techniques. *Food Hydrocoll* 2020, 100, 1-14. <https://doi.org/10.1016/j.foodhyd.2019.105383>
135. Sato, M.F.; Rigoni, D.C.; Giovanetti Canteri, M.H.; Oliveira Petkowicz, C.L.; Nogueira, A.; Wosiacki, G. Chemical and instrumental characterization of pectin from dried pomace of eleven apple cultivars. *Maringá.* 2011, 33(3), 383-389. DOI: 10.4025/actasciagron.v33i3.7125.
136. Azad, A.; Ali, M.; Akter, M. S.; Rahman, M.J.; Ahmed, M. Isolation and characterization of pectin extracted from lemon pomace during ripening. *J Food Nut Sci*, 2014, 2(2), 30-35. <https://doi.org/10.11648/j.jfns.20140202.12>.
137. Paniagua, C.; Pose, S.; Morris, V.J.; Kirby, A.R.; Quesada, M.A.; Mercado, J.A. Fruit softening and pectin disassembly: an overview of nanostructural pectin modifications assessed by atomic force microscopy. *Annals of Botany* 2014, 114, 1373-1383. DOI: [10.1093/aob/mcu149](https://doi.org/10.1093/aob/mcu149).
138. Food Chemical Codex. (1996). IV monographs. Washington, DC: National Academy Press.) according to the specifications on purity characteristics of the Joint FAO/WHO Expert 302 Committee on Food Additives and the European Commission. ISBN 0-309-05394-3
139. Hosseini, S.S.; Khodaiyan, F.; Yarmand, M.S. Optimization of microwave assisted extraction of pectin from sour orange peel and its physicochemical properties. *Carb Polym* 2016, 140, 59-65. <https://doi.org/10.1016/j.carbpol.2015.12.051>
140. Yang, H.; An, H.; Feng, G.; Li, Y.; Lai, S. Atomic force microscopy of the watersoluble pectin of peaches during storage. *European Food Res. Tech.* 2005, 220, 587–591. DOI: [10.1007/s00217-004-1102-3](https://doi.org/10.1007/s00217-004-1102-3)
141. Yang, H.; Lai, S.; An, H.; Li, Y. Atomic force microscopy study of the ultrastructural changes of chelate-soluble pectin in peaches under controlled atmosphere storage. *Postharvest Biol. and Tech.* 2006, 39, 75–83. DOI: [10.1016/j.postharvbio.2005.08.001](https://doi.org/10.1016/j.postharvbio.2005.08.001)
142. Ghendov-Mosanu, A.; Cojocari, D.; Balan, G.; Patras, A.; Lung, I.; Soran, M.-L.; Opreș, O.; Cristea, E.; Sturza, R. Chemometric Optimization of Biologically Active Compounds Extraction from Grape Marc: Composition and Antimicrobial Activity. *Molecules* 2022, 27, 1610. <https://doi.org/10.3390/molecules27051610>
143. Ghendov-Mosanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Padureanu, S.; Deseatnicova, O.; Turculet, N.; Boestean, O.; Niculaua, M. Potential application of *hippophae rhamnoides* in wheat bread production. *Molecules* 2020, 25, 1272. doi: 10.3390/molecules25061272
144. Ghendov-Mosanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Niculaua, M. Rose Hips, a valuable

source of antioxidants to improve gingerbread characteristics. *Molecules* 2020, 25, 5659.
doi:10.3390/molecules25235659

CAPITOLUL IV.

1. Balan, M.; Bernic, M.; Țislinscaia, N. Drying installation for granular products in the suspension layer. *Journal of Engineering Sciences* 2020, 1, pp. 64-68 doi:10.5281/ZENODO.3713368. ISSN 2587-3474.
2. Bernic, M; Țislinscaia, N; Balan,; Popescu, V; Vișanu, V; Melenciuc, M. Instalație de uscare a produselor granulate în strat de suspensie. Brevet de invenție MD 1249 Z, F26B 3/10. Universitatea Tehnică a Moldovei. Nr. depozit s 2017 0097. Data depozit 2017.09.20. Publicat 30.11.2018. In: BOPI. 2018, nr. 4, pp. 62-64.
3. Bernic, M; Țislinscaia, N; Balan, M; Vișanu, V; Melenciuc, M. Instalație de uscare a produselor granulate în strat de suspensie. Brevet de invenție MD 1278 Z, F26B 3/347. Universitatea Tehnică a Moldovei. Nr. depozit s 2018 0028. Data depozit 2018.03.28. Publicat 31.03.2019. In: BOPI. 2019, nr. 9, pp. 168.
4. Luquerodriguez, J.; Luquedecastro, M.; Perezjuan, P. Extraction of Fatty Acids from Grape Seed by Superheated Hexane. *Talanta* 2005, 68, 126–130, doi:10.1016/j.talanta.2005.04.054.
5. Nedeff, Valentin et al. Researches Concerning the Aerodynamic Sorting of Solid Particles According to the Surface States. *Revista de Chimie*, 2008, 59, 360–365, doi:10.37358/RC.08.3.1763.
6. Yeng, L. Pneumatic Transport of Granular Materials through a 90° Bend. *Chemical Engineering Science* 2004, 59, 4637–4651, doi:10.1016/j.ces.2004.07.007.
7. Lim, E.W.C.; Yao, J.; Zhao, Y. Pneumatic Transport of Granular Materials with Electrostatic Effects. *American Institute of Chemical Engineers Journal* 2012, 58, 1040–1059, doi:10.1002/aic.12638.
8. Logachev, I.N.; Logachev, K.I. Aerodinamicheskiye osnovy aspiratsii [online]. [citat 12.05.2021]. ISBN: 5-93808-051-9. Disponibil: <http://eqworld.ipmnet.ru/ru/library/books/LogachevLogachev2005ru.pdf>
9. Abd Elnaby, K.; Medhat, E.; Bastawissi, H. A. E.; Elbanna, A. M. An experimental and theoretical study on particles-in-air behavior characterization at different particles loading and turbulence modulation. *Alexandria Engineering Journal* 2019, 58, 451-465, doi: 10.1016/j.aej.2019.04.002.
10. Kaliniewicz, Z.; Zbigniew, Z.; Kusinska, E. Physical Properties of Seeds of Eleven Spruce Species. *Forest Journal* 2018, 9, 617-630, doi: 10.3390/f9100617.
11. Dong, K.; Wang, C.; Yu, A. A Novel Method Based on Orientation Discretization for Discrete Element Modeling of Non-Spherical Particles. *Chemical Engineering Science* 2015, 126, 500–516, doi:10.1016/j.ces.2014.12.059.
12. Parviz, E.; Shevchenko, O.; Drebenstedt, C. Particle Transport Velocity in Vertical Transmission with an Airlift Pump. *Fluids Journal* 2022, 3, 1-13, doi: 10.3390/fluids 7030095.
13. Bernic, M; Țislinscaia, N; Balan, M; Vișanu, V; Melenciuc, M; Sandu, A.-V.; Patraș, A. Procedeu de uscare a semințelor de struguri. Brevet de invenție MD 1578 Y, A23B 9/00. Universitatea Tehnică a Moldovei. Nr. depozit s 2021 0006. Data depozit 2020.02.15. Publicat 31.12.2021. In: BOPI. 2022, nr. 1, pp. 226.
14. Zargaraan, A. Challenges of Edible Oils From Farm to Industry: Views of Stakeholders. *Food and Nutrition Bulletin* 2019, 40, 99-110, doi: 10.1177/037957211 8813758.
15. Hotărîre de Guvern cu privire la aprobarea Reglementării tehnice „Uleiuri vegetale comestibile”: nr. 434 din 02 noiembrie 2018. In: Monitorul oficial al Republicii Moldova 2018, nr. 410-415, art. 1109, (Anexa 3).
16. Bernic, M; Țislinscaia, N; Balan, M; Vișanu, V; Melenciuc, M. Procedeu de uscare a semințelor de struguri. Brevet de invenție MD 1579 Y, A23B 9/00. Universitatea Tehnică a Moldovei. Nr. depozit s 2021 0008. Data depozit 2020.02.17. Publicat 31.12.2021.
17. Vișanu, V. Peaches convective drying. *Journal of Engineering Sciences*, 2018, 25 (3), 100-110. ISSN 2587-3474. DOI: 10.5281/zenodo.2557337
18. Vișanu, V; Țislinscaia, N; Dodon, A; Balan, M; Melenciuc, M. Determinarea parametrilor tehnici optimi la uscarea prin convecție și cu aplicarea microundelor în procesul deshidratării

- piersicilor. *Akados*, 2022, 2(65), 37-44.
19. Țislinscaia, N; Popescu, V; Vișanu, V; Tofan, G; Balan, M; Melenciuc, M. Metodă de deshidratare a fructelor cu consum redus de energie. *Intellectus* 2022, 1, 113-117. ISSN 1810-7079. DOI: 10.56329/1810-7087.22.1.12
 20. Popa, S; Vișanu, V; Balan, M; Melenciuc, M; Malai, C. Sistem pentru deshidratarea fructelor cu eficiență energetică înaltă. *Știința Agricolă* 2022, 1, 97-102. ISSN 1857-0003. DOI: 10.55505/sa.2022.1.14
 21. Popescu, V; Țișu, M; Țislinscaia, N; Vișanu, Vitali; Balan, M; Melenciuc, M. Sporirea eficienței procesului de uscare a fructelor tratate cu SHF. *Problemele Energeticii Regionale*, 2022, 3(55), 130-139. ISSN 1857-0070. DOI: 10.52254/1857-0070.2022.3-55.10
 22. Deseatnicova, O.; Boaghe, E.; Suhodol, N.; Vișanu, V.; Țislinscaia, N. Impact of drying process on peach quality. In: *Modern Technologies in the Food Industry*, 20-22 octombrie 2022, Chișinău. Chișinău, Republica Moldova, 2022, 23.
 23. Bernic, M; Raducan, M; Ciobanu, E. Drying Kinetics of Sunflower Seeds using Pulsed UHF Energy Intake, *TEM Journal*, 2013, 2(4), 305-308.
 24. Bernic, M. Uscarea produselor oleaginoase în câmp U.H.F. prin impuls Chișinău.: „Tehnica-Info” SRL, 2011, 271 p. ISBN 978-997563-331-4
 25. Vișanu, V. Peaches convective drying. *Journal of Engineering Sciences* 2018, 25 (3), 100-110. ISSN 2587-3474. DOI: 10.5281/zenodo.2557337
 26. Țislinscaia, N; Vișanu, V; Balan, M; Melenciuc, M. Practical developments regarding drying peaches through hybrid method. In: *Intelligent Valorisation of Agro-Food Industrial Wastes*, 7-8 octombrie 2021, Chișinău. Chișinău: Tipografie „MS Logo” SRL, 2021, 26. ISBN 978-9975-3464-2-9.
 27. Ivanov, L.; Visanu, V. Fenomene ale transferului de masă și căldură, ciclul de prelegeri. Chișinău. Editura „Tehnica-UTM” 2015, 93
 28. Ivanov, L; Vișanu, V. Electrodynamics, mass and heat transfer limit problem for microwave sistem. In: *Modern Technologies in the Food Industry*, Ed. 4, 18-20 octombrie 2018, Chișinău. Chișinău, Republica Moldova: 2018, pp. 23-24. ISBN 978-9975-87-428-1.
 29. Ivanov, L.; Visanu, V.; Tislinscaia, N.; Balan, M.; Melenciuc, M. The mathematical model of mass and heat transfer for microwave installations. In: *Proceedings of the International Conference Modern Technologies in the Food Industry–2022 MTFI – 2022*. Ch.: UTM, 2022, 33. ISBN. ISBN 978-9975-45-851-1 (PDF).
https://mtfi.utm.md/files/Materialele_Conferintei_MTFI-2022.pdf.

CAPITOLUL V.

1. National Bureau of Statistics of the Republic of Moldova. National Bureau of Statistics of the Republic of Moldova. Anuarul statistic al Republicii Moldova (Statistical Yearbook of the Republic of Moldova) (In Romanian); National Bureau of Statistics of the Republic of Moldova: Chisinau, Republic of Moldova, 2018, p. 249.
2. Vaičiulytė-Funk, L.; Žvirdauskienė, R.; Šalomskienė, J.; Šarkinas, A. The effect of wheat bread contamination by the *Bacillus* genus bacteria on the quality and safety of bread. *Zemdirbyste-Agriculture* 2015, 102, 351–358. doi:10.13080/z-a.2015.102.045.
3. Voysey, P.A. Rope: a problem for bakers. *J. Appl. Bacteriol.* 1989, 67, XXV–XXVI.
4. Saranraj, P.; Geetha, M. Microbial Spoilage of Bakery Products and Its Control by Preservatives. *Int. J. Pharm. Biol. Sci. Arch.* 2012, 3, 38–48.
5. Kaushal, M.; Sharma, P. Nutritional and antimicrobial property of sea buckthorn (*Hippophae* sp.) seed oil. *J. Sci. Ind. Res.* 2011, 70, 1033–1036.
6. Ghendov-Moșanu, A.; Sturza, R.; Opriș, O.; Lung, I.; Popescu, L.; Popovici, V.; Soran, M.-L.; Patras, A. Effect of lipophilic sea buckthorn extract on cream cheese properties. *J. Food Sci. Technol.* 2020, 57, 628–637. doi:10.1007/s13197-019-04094-w.
7. Puupponen-Pimiä, R.; Nohynek, L.; Meier, C.; Kähkönen, M.; Heinonen, M.; Hopia, A.; Oksman-Caldentey, K.M. Antimicrobial properties of phenolic compounds from berries. *J. Appl. Microbiol.* 2001, 90, 494–507. doi:10.1046/j.1365-2672.2001.01271.x.
8. Krejkarova, J.; Strakova, E.; Suchy, P.; Herzig, I.; Karaskova, K. Sea buckthorn (*Hippophae rhamnoides* L.) as a potential source of nutraceuticals and its therapeutic possibilities-a review. *Acta Vet. Brno* 2015, 84, 257–268. doi:10.2754/avb201584030257.
9. Chandrasekhar, U. Determination of Moisture in Dehydrated Vegetables. In *ISI Handbook of Food Analysis (Part VIII)*; Indian Standards Institution: New Delhi, India, 1984, p. 12.
10. ISO 2173:2003 Fruit and vegetable products. Determination of soluble solids. In *Refractometric Method*; International Organization for Standardization: Geneva, Switzerland, 2003.
11. ISO 750:1998 Fruit and vegetable products. In *Determination of Titratable Acidity*; International Organization for Standardization: Geneva, Switzerland, 1998.
12. (AACC) International. *Approved Methods of American Association of Cereal Chemists*, 10th ed.; American Association of Cereal Chemists, St. Paul, Minnesota, USA, 2000
13. Re, R.; Pellegrini, N.; Proteggente, A.; Pannala, A.; Yang, M.; Rice-Evans, C. Antioxidant activity applying an improved ABTS radical cation decolorization assay. *Free Radic. Biol. Med.* 1999, 26, 1231–1237. doi:10.1016/s0891-5849(98)00315-3.
14. Singleton, V.L.; Rossi, J.A. Colorimetry of total phenolics with phosphomolybdic-phosphotungstic acid reagents. *Am. J. Enol. Vitic.* 1965, 16, 144–158.
15. Spranger, I.; Sun, B.; Mateus, A.M.; de Freitas, V.; Ricardo-da-Silva, J. Chemical characterization and antioxidant activities of oligomeric and polymeric procyanidin fractions from grape seeds. *Food Chem.* 2008, 108, 519–532. doi: 10.1016/j.foodchem.2007.
16. Ribereau-Gayon, P.; Glories, Y.; Maujean, A.; Dubourdieu, D. *Handbook of Enology—Volume 2, The Chemistry of Wine Stabilization and Treatments*; John Wiley and Sons Ltd.: Chichester, UK, 2006; pp. 171–174.
17. Demir, N.; Yioldiz, O.; Alpaslan, M.; Hayaloglu, A. A. Evaluation of volatiles, phenolic compounds and antioxidant activities of rose hip (*Rosa* L.) fruits in Turkey. *LWT Food Sci. Technol.* 2014, 57, 126–133. doi:10.1016/j.lwt.2013.12.038.
18. Pop, E.A.; Diaconeasa, Z.M.; Fetea, F.; Bunea, A. Carotenoids, Tocopherols and Antioxidant Activity of Lipophilic Extracts from Sea Buckthorn Berries (*Hippophae rhamnoides*), Apricot Pulp and Apricot Kernel (*Prunus armeniaca*). *Bull. Univ. Agric. Sci. Vet. Med. Cluj-Napoca, Food Sci. Technol.* 2015, 72, 169–176. doi:10.15835/buasvmcn-fst:11425.
19. Popovici, V.; Sturza, R.; Ghendov-Moșanu, A.; Soran, L.; Lung, I.; Patras, A. Influența condițiilor de extracție asupra compoziției și activității antioxidante a extractelor liposolubile de

- măceșe (In Romanian) (The influence of extraction conditions on the composition and antioxidant properties of rose hip liposoluble extracts). *Meridian ingineresc* 2018, 1, 23–27.
20. GOST 27669-88. Wheat Bread Flour; Method for Experimental Laboratory Breadmaking: Euro-Asian Council for Standardization, Metrology and Certification (EASC). Moscow, Russian Federation, 1988.
21. SR 91:2007 Bread and bakery products. Methods of analysis. (Pâine și produse de patiserie. Metode de analiză); Romanian Standards Association ASRO: Bucharest, Romania, 2007.
22. Mosen, E.R. Iron nutrition and absorption: Dietary factors which impact iron bioavailability. *J. The Am. Diet. Assoc.* 1988, 88, 786–790.
23. Brand-Williams, W.; Cuvelier, M.E.; Berset, C. Use of a free radical method to evaluate antioxidant activity. *LWT Food Sci. Technol.* 1995, 28, 25–30. doi:10.1016/S0023-6438(95)80008-5.
24. Lawless, H.T.; Heymann, H. *Sensory Evaluation of Food. Principles and Practices*; Springer: Berlin, Germany, 2010.
25. Thompson, J.M.; Waites, W.M.; Dodd, C.E.R. Detection of rope spoilage in bread caused by *Bacillus* species. *J. Appl. Microbiol.* 1998, 85, 481–486. doi:10.1046/j.1365-2672.1998.853512.x.
26. Fellin, W. *Analyzing Uncertainty in Engineering*; Springer: Berlin, Germany, 2005.
27. Žilić, S. Phenolic compounds of wheat their content, antioxidant capacity and bioaccessibility. *MOJ Food Process Technol.* 2016, 2, 85–89. doi:10.15406/mojfpt.2016.02.00037
28. Box, J.D. Investigation of the Folin-Ciocalteu phenol reagent for the determination of polyphenolic substances in natural waters. *Water Res.* 1983, 17, 511–525. doi:10.1016/0043-1354(84)90135-0.
29. Hajazimi, E., Landberg, R.; Zamaratskaia, G. Simultaneous determination of flavonols and phenolic acids by HPLC-CoulArray in berries common in the Nordic diet. *LWT Food Sci. Technol.* 2016, 74, 128–134. doi.org/10.1016/j.lwt.2016.07.034.
30. Sytařova, I.; Orsavová, J.; Snopek, L.; Mlček, J.; Byczyński, Ł.; Miřurcová, L. Impact of phenolic compounds and vitamins C and E on antioxidant activity of sea buckthorn (*Hippophae rhamnoides* L.) berries and leaves of diverse ripening times. *Food Chem.* 2020, 310, 125784. doi:10.1016/j.foodchem.2019.125784
31. Kuhkheil, A.; Naghdi Badi, H.; Mehrafarin, A.; Abdossi, V. Chemical constituents of sea buckthorn (*Hippophae rhamnoides* L.) fruit in populations of central Alborz Mountains in *Iran*. *Res. J. Pharmacogn.* 2017, 4, 1–12.
32. Barl, B.; Akhov, L.; Dunlop, D.; Jana, S.; Schroeder, WR. Flavonoid content and composition in leaves and berries of sea buckthorn (*Hippophae rhamnoides*) of different origin. *Acta Hort.* 2003, 626, 397–405.
33. Ma, X.; Laaksonen, O.; Zheng, J.; Yang, W.; Trepanier, M.; Kallio, H.; Yang, B. Flavonol glycosides in berries of two major subspecies of sea buckthorn (*Hippophae rhamnoides* L.) and influence of growth sites. *Food Chem.* 2016, 200, 189–198. doi:10.1016/j.foodchem.2016.01.036.
34. Burri, S.C.M.; Ekholm, A.; Hakansson, A.; Tornberg, E.; Rumpunen, K. Antioxidant capacity and major phenol compounds of horticultural plant materials not usually used. *J. Funct. Foods* 2017, 38, 119–127. doi:10.1016/j.jff.2017.09.003.
35. Kant, V.; Mehta, M.; Varshneya, C. Antioxidant potential and total phenolic contents of sea buckthorn (*Hippophae rhamnoides*) pomace. *Free Rad. Antiox.* 2012, 2, 79–86. doi:10.5530/ax.2012.4.14.
36. Pop, R.M.; Weesepeel, Y.; Socaciu, C.; Pintea, A.; Vincken, J.P.; Gruppen, H. Carotenoid composition of berries and leaves from six Romanian sea buckthorn (*Hippophae rhamnoides* L.) varieties. *Food Chem.* 2014, 147, 1–9. doi:10.1016/j.foodchem.2013.09.083.
37. Andresson, S.C.; Olsson, M.E.; Johansson, E.; Rumpunen, K. Carotenoids in sea buckthorn (*Hippophae rhamnoides* L.) berries during ripening and use of pheophytin a as a maturity marker. *J. Agric. Food Chem.* 2009, 57, 250–258. doi:10.1021/jf802599f.

38. Yoo, A.Y.; Alnaeeli, M.; Park, J.K. Production control and characterization of antibacterial carotenoids from the yeast *Rhodotorula mucilaginosa* AY-01. *Process Biochem.* 2016, 51, 463–473. doi:10.1016/j.procbio.2016.01.008.
39. Moreira, M.D.; Magalhaes, M.M.; Coimbra, J.M.; dos Reis, K.C.; Freitas Schwan, R.; Ferreira Silva, C. Solid coffee waste as alternative to produce carotenoids with antioxidant and antimicrobial activities. *Waste Manag.* 2018, 82, 93–99. doi:10.1016/j.wasman.2018.10.017.
40. Ameh, M.O.; Gernah, D.I.; Igbabul, B.D. Physicochemical and sensory evaluation of wheat bread supplemented with stabilized undefatted rice bran. *Food Nutr. Sci.* 2013, 4, 43–48. doi:10.4236/fns.2013.49A2007.
41. Greene, J.L.; Bovell-Benjamin, A.C. Macroscopic and Sensory Evaluation of Bread Supplemented with Sweet Potato Flour. *J. Food Sci.* 2004, 69, 167–173. doi.org/10.1111/j.1365-2621.2004.tb06359.x.
42. Taguri, T.; Tanaka, T.; Kouno, I. Antibacterial spectrum of plant polyphenols and extracts depending upon hydroxyphenyl structure. *Biol. Pharm. Bull.* 2006, 29, 2226–2235. doi: 10.1248/bpb.29.2226.
43. Liepiņa, I.; Nikolajeva, V.; Jākobsone, I. Antimicrobial activity of extracts from fruits of *Aronia melanocarpa* and *Sorbus aucuparia*. *Environ. Exper. Biol.* 2013, 11, 195–199.
44. Anastasiadi, M.; Chorianopoulos, N.; Nychas, G.; Haroutounian, S. Antilisterial activities of polyphenol-rich extracts of grapes and vinification by-products. *J. Agric. Food Chem.* 2009, 57, 457–463. doi:10.1021/jf8024979.
45. Ahn, J.; Grün, I.; Mustapha, A. Effects of plant extracts on microbial growth, color change, and lipid oxidation in cooked beef. *Food Microbiol.* 2007, 24, 7–14. doi:10.1016/j.fm.2006.04.006.
46. Karrar, E.M.A. A review on: Antioxidant and its impact during the bread making process. *Int. J. Nutr. Food Sci.* 2014, 3, 592–593. doi:10.11648/j.ijnfs.20140306.26.
47. Quadir, M.I.; Abbas, K.; Younus, A.; Shaikh, R.S. Antibacterial activity of sea buckthorn (*Hippophae rhamnoides* L.) against methicillin resistant *Staphylococcus aureus* (MRSA). *Pak. J. of Pharm. Sci.* 2016, 29, 1711–1713.
48. Gill, N.S.; Sharma, R.; Arora, R.; Bali, M. Antioxidant and antibacterial activity of *Hippophae rhamnoides* methanolic leaf extracts from dry temperate agro-climatic region of Himachal-Pradesh. *J. Plant Sci.* 2012, 7, 194–200. doi:10.3923/jps.2012.194.200.
49. Pilar de Torre, M.; Caverro, R.Y.; Calvo, M.I.; Vizmanos, J.L. A Simple and a Reliable Method to Quantify Antioxidant Activity In Vivo. *Antioxidants* 2019, 8, 142; doi:10.3390/antiox8050142
50. Ghendov-Moșanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Padureanu, S.; Deseatnicova, O.; Turculeț, N.; Boeștean, O.; Niculaua, M. Potential Application of *Hippophae Rhamnoides* in Wheat Bread Production. *Molecules*, 2020, 25, 1272, doi:10.3390/molecules25061272.
51. Niccolai, A.; Chini, Zittelli G.; Rodolfi, L.; Biondi, N.; Tredici M. R. Microalgae of interest as food source: Biochemical composition and digestibility. *Algal Research* 2019, 42, 1-9.
52. Rudic, V.; Cojocari, A.; Cepoi, L. *Phycobiotechnology-fundamental research and practical achievements*. Chisinau, 2007, 365 p.
53. Becker, W. Microalgae in human and animal nutrition. In: Richmond, A. (Ed.), *Microalgal Culture*. Handbook, Blackwell, Oxford 2004, 8, 312–351.
54. Eldahshan, O.A.; Singab, A.N. Carotenoids. *Journal of Pharmacognosy and Phytochemistry* 2013(2), 225–234.
55. Griffiths, K.; Aggarwal, B.; Singh, R.; Buttar, H.; Wilson, D.; De Meester, F. Food antioxidants and their anti-inflammatory properties: A potential role in cardiovascular diseases and cancer prevention. *Diseases* 2016, 4(28).
56. Capelli, B.; Cysewski, G. Potential health benefits of spirulina microalgae. *Nutrafoods*, 2010, 9, 19–26. <http://dx.doi.org/10.1007/BF03223332> (accessed on March 10, 2023).
57. Belay, A. The potential application of *Spirulina (Arthrospira)* as a nutritional and therapeutic supplement in health management. *The Journal of the American Nutraceutical Association* 2002, 5(2), 27-40.

58. Korotysheva, L. B. Razrabotka i issledovaniye kachestva rassol'nogo syra «Osetinskiy» s laminariyey. *Zhurnal Tekhniko-tehnologicheskoye problemy servisa*, 2015, 5-10.
59. Bolkunov, P. Nauchnaya novizna i prakticheskaya znachimost' morozhenogo biologicheskoi aktivnym kompleksom spirulina-lon. *Zhurnal Vestnik agrarnoy nauki* 2017, 50-55.
60. Anbuechezian, R.; Valliappan, K.; Zhiyong, L. Prospect of Marine Algae for Production of Industrially Important Chemicals: in Debabrata Das (ed). *Algal Biorefinery: An Integrated Approach*, New York, Capital Publishing Company, 2015.
61. Liang, S.; Liu, X.; Chen, F.; Chen, Z. Current microalgal health food R & D activities in China, in: P.O. Ang (Ed.), *Asian Pacific Phycology. 21st Century Prospect. Challenges*, Springer, Netherlands, Dordrecht, 2004, 45–48.
62. Casco, D. General feature and benefits of spirulina platensis in biology and medicine. Ed. *Studia Universitatis (Seria Științe Reale și ale Naturii)*, 2013, 14-18.
63. Milani, A.; Basirnejad, M.; Shahbazi, S.; Bolhassani, A. Carotenoids: biochemistry, pharmacology and treatment. *British Journal of Pharmacology*, 2016. doi:10.1111/bph.13625 (accessed on March 10, 2021).
64. Gammone, MA.; Riccioni, G.; D'orazio, N. Marine carotenoids against oxidative stress: effects on human health. *Marines Drugs*, 2015, 13, 6226–6246. doi: 10.3390/md13106226 (accessed on March 10, 2021).
65. Caragia, S. Peculiarities of the modification of the reproductive system function in males under the influence of biopreparations from algae Spirulina Plantetis. *Academia de Științe a Republicii Moldova*, Chisinau, 2001.
66. Tapiero, H.; Townsend, D. M.; Tew, K. D. The role of carotenoids in the prevention of human pathologies. *Biomedicine & Pharmacotherapy* 2004, 58, 100–110. doi: 10.1016/j.biopha.2003.12.006 (accessed on March 10, 2021).
67. Morsy, O. M.; Sharoba, A. M.; El-Desouky, A. I.; and al. Production and evaluation of extruded food products by using spirulina algae, 2015.
68. Batista, A. P.; Niccolai, A.; Bursic, I.; and al. Microalgae as Functional Ingredients in Savory Food Products: *Application to Wheat crackers foods* 2019, 8 (611), 1-22. doi:10.3390/foods8120611 (accessed on March 10, 2023).
69. Lipatov, I. V. Razrabotka tekhnologii i retseptur funktsional'nykh produktov s yodsoderzhashchim syr'yem. Peterburg, 2004, 12-13. Disponibil: <https://cyberleninka.ru/article/n/razrabotka-tehnologii-i-retseptur-funktsionalnyh-produktov-s-yodsoderzhaschim-syriem> (accessed on March 10, 2023).
70. Dzhatdoyeva, F. A. Profilirovaniye iod-defitsitnykh zabolevaniy. Moskva, 2005, 1, 25-26.
71. Pavlov, A. V. Sbornik retseptov muchnykh konditerskikh i bulochnykh izdeliy. Moskva, 2014, 296-270.
72. Vafina, L. K. Obosnovaniye kompleksnoy tekhnologii pererabotki burykh vodorosley (Phaeophyta) pri poluchenii funktsional'nykh pishchevykh produktov. Moskva, 2010, 20-23. <https://www.dissercat.com/content/obosnovanie-kompleksnoi-tehnologii-pererabotki-burykh-vodoroslei-phaeophyta-pri-poluchenii> (acesat la 10.03.2023).
73. Salehifar, M.; Shahbazizadeh, S.; Khosravi, Darani K.; Behmadi, H.; Ferdowsi, R. Possibility of using microalgae *Spirulina Platensis* powder in industrial production of Iranian traditional cookies. *Iranian Journal of Nutrition Sciences & Food Technology* 2013, 63-72.
74. Fradique, M.; Batista, A.P.; Nunes, M. C.; and al. Incorporation of Chlorella vulgaris and Spirulina maxima biomass in pasta products. Part 1: Preparation and evaluation. *Journal of the Science of Food and Agriculture* 2010, 90(10), 1656-1664.
75. Apurav, K.; Kit Wayne, C.; Krishnamoorthy, R.; Yang, T.; Dinh-Toi, C.; Pau-Loke, S. Microalgae: A potential alternative to health supplementation for humans. In: *Food Science and Human Wellness* 2019, 8, 16–24.
76. Gurev, A.; Dragancea, V.; Haritonov, S. Microalgae – non-traditional sources of nutrients and pigments for functional foods. *Journal of Engineering Science*, 2020, 27, 75 – 98.

77. Decision of the Government of the Republic of Moldova No. 68 of 29.01.2009. Flour, semolina and cereal bran. Disponibil online https://www.legis.md/cautare/getResults?doc_id=22139&lang=ro (accesat la 10.03.2023).
78. Decision of the Government of the Republic of Moldova No. 774 of 03.07.2007. Sugar. Production and marketing. Disponibil online : https://www.legis.md/cautare/getResults?doc_id=31826&lang=ro (accesat la 10.03.2023).
79. Decision of the Government of the Republic of Moldova No. 434 of 27.05.2010. Edible vegetable oils. Disponibil online : https://www.legis.md/cautare/getResults?doc_id=97602&lang=ro (accesat la 10.03.2023).
80. Decision of the Government of the Republic of Moldova No. 229 of 29.03.2013. Regarding the Approval of the Sanitary Regulation on Food Additives. 2013. Disponibil online: https://www.legis.md/cautare/getResults?doc_id=109707&lang=ro (accesat la 20.03.2023).
81. Decision of the Government of the Republic of Moldova No. 158 of 29.03.2019. Milk and dairy products. Disponibil online: https://www.legis.md/cautare/getResults?doc_id=113282&lang=ro (accesat la 20.03.2023).
82. Rudic, V.; Turtă, C.; Bulimaga, V. Process for cultivating the cyanobacterium *Spirulina platensis*. *Brevet MD2386*, 2004.
83. Rudic, V.; Bulimaga, V.; Chiriac, T. Technologies for obtaining new immunomodulatory bioremedies of algal origin. *Buletinul AÇM. Stiințe biologice, chimice și Agricole* 2004, 294 (3), 95-99.
84. Rudic, V.; Denchikova, L.; Scutaru, Iu. Pigmentis of fotosyntetic apparatus in *Spirulina platensis* (Nordst.) Geitl. *International Journal of Algae* 2000, 2(2), 91-95.
85. Ritchie, R. J. Universal chlorophyll equations for estimating chlorophylls a, b, c, and d and total chlorophylls in natural assemblages of photosynthetic organisms using acetone, methanol, or ethanol solvents. *Photosynthetica* 2008, 46, 115–126.
86. SR 90: 2007 Wheat flour. Methods of analysis; Romanian ASRO Standardization Association: Bucharest, Romania, 2007.
87. GOST 14033-96. Kreker (sukhoye pechen'ye). Obshchiye tekhnicheskkiye usloviya.
88. Popescu L., Bantea-Zagareanu V., Gudima A. Sensory analysis of food products. Tehnica-UTM, Chișinău, RM, 2020, 84 p.
89. ISO 6658:2017 Sensory analysis - Methodology - General guidance; International Organization for Standardization: Geneva, Switzerland, 2017.
90. SR 91:2007 Bread and bakery products. Methods of analysis. Romanian Standards Association ASRO: Bucharest, Romania, 2007.
91. Internațional. *Approved Methods of American Association of Cereal Chemists*, X ed.; American Association of Cereal Chemists: St. Paul, MN, SUA, 2000.
92. Shmoylova, R. A.; Minashkin, V. G.; Sadovnikova, N. A.; Shuvalova, Ye. B. Teoriya statistiki, Moskva, *Finansy i statistika*, 2014 p.
93. Sehn, G.; Steel, C. Classification of whole wheat flour using a dimensionless number. *Journal of Food Science and Technology -Mysore- September* 2017, 54(12):1-10. <https://doi.org/10.1007/s13197-017-2811-5> (accessed on March 2, 2021).
94. Decision of the Government of the Republic of Moldova No. 775 of 03.07.2007. Bakery products and pasta. https://www.legis.md/cautare/getResults?doc_id=97589&lang=ro (accessed on March 20, 2023).
95. Kozimina, N. Biochimia hlebopecenia. *Izd. Pischevaia promishlenosti*, Moskva, 1971, 437 p.

CAPITOLUL VI.

1. Loveday, S.M.; Sarkar, A.; Singh, H. Innovative yoghurts: Novel processing technologies for improving acid milk gel texture *Trends in Food Science & Technology* 2013, 33(5), 20.
2. Fischer, P.M.; Pollard, P.; Erni, I.M.; Padar, S. *Rheological approaches to food systems Physique Institute of Food Science & Nutrition, ETH Zurich, CH-8092 Zurich, Switzerland, 2009, pp 740–750.*
3. Popescu, L. Technological and nutritional aspects of acidic dairy products with germinated sorice PhD thesis, 2013.
4. Bruzantin, F.P.; Daniel, J.L. P Physicochemical and sensory characteristics of fat-free goat milk yogurt with added stabilizers and skim milk powder fortification *J Dairy Sci* 2016, 99, pp 3316–3324.
5. McCarthy, Z.; Liu, W. Physicochemical Properties, Microstructure, and Probiotic Survivability of Nonfat Goats' Milk Yogurt Using Heat-Treated Whey Protein Concentrate as Fat Replacer *Journal of Food Science*, 2015, 80(4), 788-794.
6. Bulgaru, V.; Botezat, O. The quality indices of yaghurt manufactured with cow milk and goat milk. In collections of the International Conference "Modern Technologies in the Food Industry 2018", ed IV, Chisinau, 18-20 October 2018, pp.266-271, ISBN 978-9975-87-428-1.
7. Dar, Y. L.; Light, J. M. Food texture design and optimization. Hoboken, NJ: John Wiley & Sons, 2014.
8. Aswal, P.; Shukla, A., Priyadarshi, S. Yoghurt: preparation, characteristics and recent advancements. *Cibtech Journal of Biological Protection*, 2012, 1(2), 32-44.
9. Leistner, L.; Gould, G.W. Hurdle Technologies, Combination Treatments for Food Stability, Safety and Quality New York, Kluwer Academic/Plenum Publishers, 2002.
10. Friedman, H.H.; Whitney, J.E.; Szczesniak A.S. The Texturometer—a new instrument for objective texture measurement. *Journal of Food Science*, 1963(28), 390-396.
11. Brookfield DV3T Viscometer Operating Instructions Manual No M13-2100-A0415.
12. ISO/TS 11869 and IDF/RM 150 Fermented milks-determination of titratable acidity-potentiometric method.
13. Determination of the total solids content (Reference method) SM EN ISO 5534:2004/AC:2017.
14. Bulgaru, V.; Cușmenco, T.; Macari, A.; Botezat, O. Rheological and textural properties of goat's milk and mixture of goat's and cow's milk fruit yogurt. *Journal of Engineering Science*, 2020, 27(4), 172-182.
15. Lee, W.J.; Lucey, J.A. Impact of gelation conditions and structural breakdown on the physical and sensory properties of stirred yogurts. *Journal of Dairy Science*, 2006(89), 2374-2385.
16. Djurdjević, J.D; Maćej, O.; Jovanović, S. Viscosity of set-style yogurt as influenced by heat treatment of milk and added demineralized whey powder. *Journal of Agricultural Science*, 2002, 47(1), 45-56.
17. Haque, A.; Richardson, R.K.; Morris, E.R. Effect of fermentation temperature on the rheology of set and stirred yogurt. *Journal of Food Hydrocolloids*, 2001, 15(4-6), 593-602.
18. Bhat, S.V.; Deva, A.M; Amin, T. Physicochemical and textural properties of yogurt fortified with psyllium (*Plantago ovate*) husk. *Journal of Food Processing and Preservation*, 2018, 42(2), 13425.
19. Nushrat, H. Development of Improved Quality Yogurt in terms of Texture, Flavor, Food Value and Low Cost. 2015, Chapter 16, 18, 38.
20. Cardinesa, P.H.F. Moringa oleifera seed extracts as promising natural thickening agents for food industry: Study of the thickening action in yogurt production. *Food Science and Technology*, 2018, 97, 39–44.
21. Lee, W.J.; Lucey, J.A. Formation and physical properties of yogurt. *Asian-Australasian Journal of Animal Science*, 2010, 23, (9), 1127-1136.
22. Ghendov-Moșanu, A.; Sturza, R.; Opriș, O.; Lung, I.; Popescu, L.; Popovici, V.; Soran, M.L.; Patraș, A. Effect of lipophilic sea buckthorn extract on cream cheese properties. *Journal of Food*

- Science and Technology*, 2019, 57, 628-637.
23. Duboc, P.; Mollet, B. Applications of exopolysaccharides in the dairy industry. *International Dairy Journal*, 2001, 11 (9), 759-768.
 24. Tunick, M. Rheology of Dairy Foods that Gel, Stretch, and Fracture. *Journal of Dairy Science*, 2000, 83(8), 1892–1898.
 25. Sandulachi, E.; Bulgaru, V. Factor affecting quality of goat's milk yoghurt. *Journal of Advances in Social Science Research*, 2019, 6(2), 205-221.
 26. Nestle, M. Food politics: how the food industry influences nutrition and health. University of California Press, 2013, 56- 62.
 27. Cușmenco, T.; Bulgaru, V. Quality characteristics and antioxidant activity of goat milk yogurt with fruits. *Ukrainian Food Journal*, 2020, 9(1), 86-98.
 28. Ghendov-Moșanu, A. Compuși biologic activi de origine horticolă pentru alimente funcționale Editura Tehnica- UTM, Chișinău, 2018.
 29. Ostertag, L.M.; O'Kennedy, N.; Kroon, P.A.; Duthie, G.G.; De Roos, B. Impact of dietary polyphenols on human platelet function: a critical review of controlled dietary intervention studies. *Molecular Nutrition and Food Research*, 2010, 54, 60-81.
 30. Powitz, R.W. Water activity: a New Food Tool Sanitarin's file, 2007.
 31. Sandulachi, E. Окислительно-восстановительные свойства клубники и малины. Lambert, Academic Publishing, SIA Omni Scriptum Publishing, Latvia, 2018, 109.
 32. De Carvalho, L.M.J.; Gomes, P.B.; De Oliveira Godoy, R.L.; Pacheco, S.; Do Monte, P.H.F.; De Carvalho, JLV; Nutti, MR; Neves, ACL; Vieira, ACRA; Ramos, SRR Total carotenoid content, α -carotene and β -carotene, of landrace pumpkins (*Cucurbita moschata* Duch): A preliminary study *Journal of Food Research*, 2012, 47(2), 337-340.
 33. Tanchev, A.D. Anthocyanins in fruits and vegetables. *Food Processing Industry*, 1980, 304.
 34. Prior, R.L.; Wu, X.; Schaich, K. Standardized Methods for the Determination of Antioxidant Capacity and Phenolics in Foods and Dietary Supplements. *Journal of Agricultural and Food Chemistry*, 2005, 53(1), 4290-4302.
 35. Gjorgievski, N.; Tomovska, J.; Dimitrovska, G.; Makarijoski, B.; Shariati, M.A. Determination of the antioxidant activity in yogurt. *Journal of Hygiene Engineering*, 2014, 8, 88-92.
 36. Macari, A.; Tatarov, P.; Sandulachi, E. Determination of antioxidant activity of vegetables by potentiometric method Papers of the International Symposium „Euro–aliment”, România, 2005, pp 12–15.
 37. Bulgaru, V.; Cușmenco, T.; Sandulachi, E.; Macari, A.; Sturza, R. Evolution of Physico-chemical Indices and Functional Properties of Fruit Yogurt during Storage. *Acta Scientific Nutritional Health*, 2021, 5(9), 78-89.
 38. Hotărâre de Guvern Nr 158, din 07032019 privind cerințele tehnice “Lapte și produse lactate”, (accesat la 15 aprilie 2021).
 39. Sandulachi, E.; Bulgaru, V.; Cușmenco, T. Use of walnut oilcake in the yoghurt manufacture. *Journal of Agriculture*, 2020, 54(11), 47-63.
 40. Ghadge P.N.; Prasad, K.; Kadam, P.S. Effect of fortification on the physico-chemical and sensory properties of buffalo milk yoghurt. *Journal of Environmental Agricultural and Food Chemistry*, 2008, 7, 2890-2899.
 41. Corrieu, G.; Beal, C. Yoghurt: The product and its manufacture. *The Encyclopedia of Food and Health*, Oxford, UK, 2016, 5, 617-624.
 42. Oladipo, I.C. Nutrition evaluation and microbiological analysis of yoghurt produced from full cream milk, tiger-nut milk, skimmed milk and fresh cow milk. *Journal of food Research*, 2014, 76, 30-38.
 43. Boghra, V.R.; Mathur, O.N. Physico-chemical status of major milk constituents and mineral at various stages of shrikhand preparation. *Journal of Food Science and Technology*, 2000, 37, 111-115.
 44. Abubakar, M.M. Determination of physiochemical, microbial and organoleptic properties of yoghurt. *Journal of Textural Studies*, 2005, 36, 333.

45. Koksoy, A.; Kilic, M. Use of hydrocolloids in textural stabilization of a yoghurt drink, ayran. *Journal of Food Hydrocolloids*, 2004, 18, 593-600.
46. Cardines, P.H.F.; Baptista, A.T.A.; Gomes, R.G.; Bergamasco, R.; Vieira, A.M.S. Moringa oleifera seed extracts as promising natural thickening agents for food industry: Study of the thickening action in yogurt production. *Journal of Food Science and Technology*, 2018, 97, 39-44.
47. Oliveira, M.N. Fermented Milks and Yogurt. *Encyclopedia of Food Microbiology*, 2014, 2(1), 908-922.
48. Rybak, O. The role of milk proteins in the structure formation of dairy products. *Ukrainian Food Journal*, 2014, 3(3), 350-360.
49. Amal, A.M.; Eman, A.M.M.; Nahla, S.Z. Fruit Flavored Yoghurt: Chemical, Functional and Rheological Properties. *International Journal of Environmental and Agricultural Research*, 2016, 2(5), 57-66.
50. Ozcan, T.; Kurtuldu, O. Influence of Dietary Fiber Addition on the Properties of Probiotic Yogurt. *International Journal of Chemistry Engineering and Application*, 2014, 5, 397-401.
51. Mbaeyi-Nwaoha, D.; Ifeoma, E.; Nnamani, M.; Chidinma, L.; Dr Ndukwe, Okorie. O Evaluation of the Effects of Pectin Extracted from Jackfruit (*Artocarpus Heterohyllus*) and Passion Fruit (*Passiflora Edulis Var Flavicarpa Deg*) Peels on the Quality Attributes of Yoghurt from Skimmed Milk. Schol Midd East Publish, 2019, 371-385.
52. Ochimian, I.; Grajkowski, J.; Smolik, M Comparison of some morphological features, quality and chemical content of four cultivars of chokeberry fruits (*Aronia melanocarpa*) *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*, 2012, 40(1), 253-260.
53. Reeta, K.S.; Ankita, J.; Ramadevi, N. Fortification of Yoghurt with Health-Promoting Additives: A Review. *Journal of Food and Dairy Technology*, 2015, 3(3), 9-17.
54. Sodini, I.; Remeuf, F.; Haddad, S.; Corrieu, G. The relative effect of milk base, starter, and process on yogurt texture: a review. *Journal of Criterial Review in Food Science and Nutrition*, 2004, 44, 113-137.
55. Wall, M.M. Ascorbic acid, vitamin A, and mineral composition of banana (*Musa sp*) and papaya (*Carica papaya*) cultivars grown in Hawaii. *Journal of Food Composition and Analytical*, 2006, 19(5), 434-445.
56. Choe, E.O.; Min, D.B. Mechanisms of antioxidants in the oxidation of foods. *Comprehensive Review in Food Science and Food Safety*, 2009, 8(4), 345-358
57. Koponen, J.M.; Happonen, A.M.; Mattila, P.H.; Törrönen, A.R. Contents of anthocyanins and ellagitannins in selected foods consumed in Finland. *Journal of Agricultural and Food Chemistry*, 2007, 55(4), 1612-1619.
58. Nongonierma, A.B.; Cayot, P.; Springett, M.; Le Quéré, J.L.; Cachon, R., Voilley, A. Transfers of small analytes in a multiphasic stirred fruit yoghurt model. *Food Hydrocolloids*, 2007, 21(2), 287-296.
59. Korhonen, H.; Pihlanto, A. Bioactive peptides: New challenges and opportunities for the dairy industry. *Australasian Journal of Dairy Technology*, 2003, 58(2), 129-134.
60. Stahl, W.; Sies, H. Antioxidant activity of carotenoids. *Molecular Aspects of Medicine*, 2003, 24, 345-351.
61. Ko, I.H.; Wang, M.K.; Jeon, B.J.; Kwak, H.S Fermentation for Liquid-type Yogurt with *Lactobacillus casei* 911LC. *Asian-Australasian Journal of Animal Science*, 2005, 18(1), 102-106.
62. Genovese, M.I.; Pinto, M.D.S; Gonçalves, O.E.S.S.; Lajolo, F.M. Bioactive compounds and antioxidant capacity of exotic fruits and commercial frozen pulps from Brazil. *Journal of Food Science and Technology International*, 2008, 14(3), 207-214.
63. Hassimitto, N.M.A.; Genovesse, M.I.; Lajolo, F.M. Antioxidant activity of dietary fruits, vegetables, and commercial frozen fruit pulps. *Journal of Agricultural and Food Chemistry*, 2005, 53(8), 2928-2935.
64. Oh, H.S.; Kang, S.T. Quality characteristics and antioxidant activity of yogurt added with acanthopanax powder. *Korean Journal of Food Science Technology*, 2015, 47(6), 765-771.

65. Xiang, H.; Sun-Waterhouse, D.; Waterhouse, G.I.; Cui, C.; Ruan, Z. Fermentation-enabled wellness foods: A fresh perspective. *Journal of Food Science Human Wellness*, 2019, 8, 203 – 243.
66. Abdalla, O.M.; Abdel Nabi Ahmed, S.Z. Chemical Composition of Mish "A Traditional Fermented Dairy Product" from Different Plants during Storage. *Pakistan Journal of Nutrition*, 2010, 9, 209 – 212.
67. Routray, W.; Mishra, H.N. Scientific and Technical Aspects of Yogurt Aroma and taste: A Review. *Journal of Comprehensive Review in Food Science and Food Safety*, 2011, 10, 208 – 220.
68. Nile, S.H.; Park, S.W. Edible berries: bioactive components and their effect on human health. *Journal of Nutrition*, 2014, 30, 134 – 144.
69. Caruso, M.C.; Galgano, F.; Tolve, R.; Pecora, M.; Tedesco, I.; Favati, F.; Condelli, N. Nutraceutical properties of wild berry fruits from Southern Italy. *Journal of Berry Research*, 2016, 6, 321 - 332
70. Wang, S.Y.; Lin, H.S. Antioxidant activity in fruits and leaves of blackberry, raspberry and strawberry varies with cultivar and developmental stage. *Journal of Agricultural and Food Chemistry*, 2000, 48, 140 – 146.
71. Pappalardo, G.; Lusk, J. The role of beliefs in purchasing process of functional foods. *Journal of Food Quality and Preference*, 2016, 53, 151–158.
72. Baraem, P. Food Analysis Laboratory Manual Determination of ash content Editor: Springer International Publishing, 2017.
73. Association of Official Analytical Chemists Official Methods of Analysis, Washington, DC, USA, 2006.
74. Lambert, R.J.W. Pearson Susceptibility testing: accurate and reproducible minimum inhibitory concentration (MIC) and noninhibitory concentration (NIC) values. *Journal of Application Microbiology*, 2000, 88, 784 – 790.
75. Guzun, V. Tehnologia laptelui și a produselor lactate Lucrări de laborator și practice [Milk and dairy technology Laboratory and practical work] Editura CIVITAS, Chișinău, 2010.
76. Stevenson, K.; McVey, A.F.; Clark, I.B.N.; Swain P.S.; Pilizota, T. General calibration of microbial growth in microplate readers Scientific Reports, 2016, 6:38828, 1-7.
77. AOAC Official Method 201405 Enumeration of Yeast and Mold in Food, 2014.
78. Sandulachi, E.; Bulgaru, V. Microbiologia industrială Îndrumar metodic [Industrial microbiology Methodical guidance] Editura Tehnica-UTM, Chișinău 2019, 68.
79. Cușmenco, T.; Sandulachi, E.; Bulgaru, V.; Macari. A The role of berries in quality and safety ensuring of goat's and cow's milk yoghurt. *Journal of Engineering Science*, 2021, 28(3), pp158-174.
80. Vukotic, G.; Strahinic, I.; Begovic, J.; Lukic, J.; Kojic, M.; Fira, D. Survey on proteolytic activity and diversity of proteinase genes in mesophilic lactobacilli. *Journal of Microbiology*, 2016, 85, 33–41
81. Degeest, B.; Mozzi, F.; De Vuyst, L. Effect of medium composition and temperature and pH changes on exopolysaccharide yields and stability during *Streptococcus thermophilus* LY03 fermentations. *International Journal of Food Microbiology*, 2002, 79, 161 – 174.
82. Barat, A.; Ozcan, T. Growth of probiotic bacteria and characteristics of fermented milk containing fruit matrices. *International Journal of Dairy Technology*, 2018, 71, 120 – 129.
83. Will, F.; Olk, M.; Hopf, I. Characterization of Polyphenol Extracts from Apple Juice *Dtsch. Lebensm.-Rundsch.* 2006, 102, 297–302.
84. Lyu, F.; Luiz, S.F.; Azeredo, D.R.P.; Cruz, A.G.; Ajlouni, S; Ranadheera, C.S. Apple Pomace as a Functional and Healthy Ingredient in Food Products: A Review. *Processes* 2020, 8, 319.
85. Dueñas, M.; García-Estévez, I. Agricultural and Food Waste: Analysis, Characterization and Extraction of Bioactive Compounds and Their Possible Utilization *Foods* 2020, 9, 817.
86. Gómez-Gallego, C.; Gueimonde, M.; Salminen, S. The Role of Yogurt in Food-Based Dietary Guidelines *Nutritional Review* 2018, 76, 29–39.

87. Najgebauer-Lejko, D.; Witek, M.; Żmudziński, D.; Ptaszek, A. Changes in the Viscosity, Textural Properties, and Water Status in Yogurt Gel upon Supplementation with Green and Pu-Erh Teas *Journal of Dairy Science* 2020, 103, 11039–11049.
88. Miocinovic, J.; Tomic, N.; Dojnov, B.; Tomasevic, I.; Stojanovic, S.; Djekic, I.; Vujcic, Z. Application of New Insoluble Dietary Fibres from Triticale as Supplement in Yoghurt - Effects on Physico-Chemical, Rheological and Quality Properties: Triticale Fibre as a Supplement in Yoghurt *Journal Science Food Agricultural* 2018, 98, 1291–1299.
89. Dalgleish, D.G.; Corredig, M. The Structure of the Casein Micelle of Milk and Its Changes During Processing *Annu Rev Food Sci. Technol.* 2012, 3, 449–467.
90. Saha, D.; Bhattacharya, S. Hydrocolloids as Thickening and Gelling Agents in Food: A Critical Review *J. Food Sci. Technol.* 2010, 47, 587–597.
91. Maruyama, S.; Lim, J.; Streletskaia, N.A. Clean Label Trade-Offs: A Case Study of Plain Yogurt *Front. Nutr.* 2021, 8, 704473.
92. Popescu, L.; Cesco, T.; Gurev, A.; Ghendov-Moșanu, A.; Sturza, R.; Tarna, R. Impact of apple pomace powder on the bioactivity, and the sensory and textural characteristics of yogurt *Foods* 2022, 11, 3565.
93. *ISO 750:1998 Fruit and Vegetable Products - Determination of Titratable Acidity* International Organization for Standardization: Geneva, Switzerland, 1998.
94. Nollet, L.M.L. *Handbook of Food Analysis Food science and technology*, 2nd ed rev and expanded M Dekker: New York, 2004; pp 912.
95. *ISO 659:2009 Oilseeds — Determination of Oil Content (Reference Method)* International Organization for Standardization: Geneva, Switzerland, 2009.
96. *ISO 20483:2013 Cereals and Pulses - Determination of the Nitrogen Content and Calculation of the Crude Protein Content - Kjeldahl Method* International Organization for Standardization: Geneva, Switzerland, 2013.
97. *AOAC 98529 Total Dietary Fibre in Foods Enzymatic-Gravimetric Method.*
98. *AOAC 99142 Insoluble Dietary Fibre in Foods and Food Products Enzymatic-Gravimetric Method.*
99. Bouyahya, A.; Dakka, N.; Talbaoui, A.; Moussaoui, N.E.; Abrini, J.; Bakri, Y. Phenolic Contents and Antiradical Capacity of Vegetable Oil from Pistacia Lentiscus (L) *J. Mater Environ Sci.* 2018, 9, 1518–1524.
100. Waterman, P.G.; Mole, S. *Analysis of Phenolic Plant Metabolites*; Blackwell Scientific Publication: Oxford, 1994, pp 248.
101. Ghendov-Moșanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Niculaua, M. Rose Hips, a Valuable Source of Antioxidants to Improve Gingerbread Characteristics *Molecules* 2020, 25, 5659.
102. Brand-Williams, W.; Cuvelier, M.E.; Berset, C. Use of a Free Radical Method to Evaluate Antioxidant Activity *LWT-Food Sci. Technol.* 1995, 28, 25–30.
103. *ISO 22935-3:2009 | IDF 99-3:2009 Milk and Milk Products - Sensory Analysis - Part 3: Guidance on a Method for Evaluation of Compliance with Product Specifications for Sensory Properties by Scoring* International Organization for Standardization: Geneva, Switzerland, 2009.
104. *ISO 8586:2012 Sensory Analysis-General Guidelines for the Selection, Training and Monitoring of Selected Assessors and Expert Sensory Assessors* International Organization for Standardization: Geneva, Switzerland, 2012.
105. *ISO 1211:2010 | IDF 1:2010 Milk - Determination of Fat Content - Gravimetric Method (Reference Method)* International Organization for Standardization: Geneva, Switzerland, 2010.
106. *ISO 6731:2010 | IDF 21:2010 Milk, Cream and Evaporated Milk - Determination of Total Solids Content (Reference Method)* International Organization for Standardization: Geneva, Switzerland, 2010.
107. Yilmaz-Ersan, L.; Topcuoglu, E. Evaluation of Instrumental and Sensory Measurements Using Multivariate Analysis in Probiotic Yogurt Enriched with Almond Milk *J. Food Sci. Technol.* 2022, 59, 133–143.

108. Paninski, L. Estimation of Entropy and Mutual Information Neural Comput. 2003, 15, 1191–1253.
109. Erinle, T.J.; Adewole, D.I. Fruit Pomaces-Their Nutrient and Bioactive Components, Effects on Growth and Health of Poultry Species, and Possible Optimization Techniques *Anim. Nutr.* 2022, 9, 357–377.
110. Waldbauer, K.; McKinnon, R.; Kopp, B. Apple Pomace as Potential Source of Natural Active Compounds *Planta Med.* 2017, 83, 994–1010.
111. Sudha, M.L.; Baskaran, V.; Leelavathi, K. Apple Pomace as a Source of Dietary Fiber and Polyphenols and Its Effect on the Rheological Characteristics and Cake Making *Food Chem.* 2007, 104, 686–692.
112. Rana, S.; Gupta, S.; Rana, A.; Bhushan, S. Functional Properties, Phenolic Constituents and Antioxidant Potential of Industrial Apple Pomace for Utilization as Active Food Ingredient *Food Sci. Hum. Wellness* 2015, 4, 180–187.
113. Islam, Md.R.; Hassan, Y.I.; Das, Q.; Lepp, D.; Hernandez, M.; Godfrey, D.V.; Orban, S.; Ross, K.; Delaquis, P.; Diarra, M.S. Dietary Organic Cranberry Pomace Influences Multiple Blood Biochemical Parameters and Cecal Microbiota in Pasture-Raised Broiler Chickens *J. Funct. Foods* 2020, 72, 104053.
114. Gorjanović, S.; Micić, D.; Pastor, F.; Tosti, T.; Kalušević, A.; Ristić, S.; Zlatanović, S. Evaluation of Apple Pomace Flour Obtained Industrially by Dehydration as a Source of Biomolecules with Antioxidant, Antidiabetic and Antiobesity Effects *Antioxidants* 2020, 9, 413.
115. Candrawinata, V.I.; Golding, J.B.; Roach, P.D.; Stathopoulos, C.E. Optimisation of the Phenolic Content and Antioxidant Activity of Apple Pomace Aqueous Extracts. *CyTA J. Food* 2015, 13, 293–299.
116. Gumul, D.; Ziobro, R.; Korus, J.; Kruczek, M. Apple Pomace as a Source of Bioactive Polyphenol Compounds in Gluten-Free Breads *Antioxidants* 2021, 10, 807.
117. Chandel, V.; Biswas, D.; Roy, S.; Vaidya, D.; Verma, A.; Gupta, A. Current Advancements in Pectin: Extraction, Properties and Multifunctional Applications *Foods* 2022, 11, 2683.
118. Wusigale; Liang, L.; Luo, Y. Casein and Pectin: Structures, Interactions, and Applications *Trends Food Sci. Technol.* 2020, 97, 391–403.
119. Varnaitė, L.; Keršienė, M.; Šipailienė, A.; Kazernavičiūtė, R.; Venskutonis, P.R.; Leskauskaitė, D. Fiber-Rich Cranberry Pomace as Food Ingredient with Functional Activity for Yogurt Production *Foods* 2022, 11, 758.
120. Du, H.; Wang, X.; Yang, H.; Zhu, F.; Tang, D.; Cheng, J.; Liu, X. Changes of Phenolic Profile and Antioxidant Activity during Cold Storage of Functional Flavored Yogurt Supplemented with Mulberry Pomace *Food Control* 2022, 132, 108554.
121. Ivanova, I.; Dimitrova, M.; Ivanov, G. Antioxidant Capacity of Yoghurt Fortified with Polyphenol Extract from Strawberry Pomace *J. Hyg. Eng. Des.* 2021, 101–107.
122. Ramirez-Rodrigues, M.M.; Plaza, M.L.; Azeredo, A.; Balaban, M.O.; Marshall, M.R. Physicochemical and Phytochemical Properties of Cold and Hot Water Extraction from Hibiscus Sabdariffa *J. Food Sci.* 2011, 76, C428-C435.
123. Delikanli, B.; Ozcan, T. Improving the Textural Properties of Yogurt Fortified with Milk Proteins: Textural Properties of Yogurt *J. Food Process Preserv.* 2017, 41, e13101.
124. Mudgil, D.; Barak, S.; Khatkar, B.S. Texture Profile Analysis of Yogurt as Influenced by Partially Hydrolyzed Guar Gum and Process Variables *J. Food Sci. Technol.* 2017, 54, 3810–3817.
125. do Espírito Santo, A.P.; Perego, P.; Converti, A.; Oliveira, M.N. Influence of Milk Type and Addition of Passion Fruit Peel Powder on Fermentation Kinetics, Texture Profile and Bacterial Viability in Probiotic Yoghurts *LWT* 2012, 47, 393–399.
126. Puvanenthiran, A.; Stevovitch-Rykner, C.; McCann, T.H.; Day, L. Synergistic Effect of Milk Solids and Carrot Cell Wall Particles on the Rheology and Texture of Yoghurt Gels *Food. Res. Int.* 2014, 62, 701–708.
127. Tseng, A.; Zhao, Y. Wine Grape Pomace as Antioxidant Dietary Fibre for Enhancing

- Nutritional Value and Improving Storability of Yogurt and Salad Dressing *Food Chem.* 2013, 138, 356–365
128. Baerle, A.; Savcenco, A.; Tatarov, P.; Fetea, F.; Ivanova, R.; Radu O. Stability limits of a red Carthamin–cellulose complex as a potential food colourant *Food & Functions* 2021, 2, 8037–8043.
129. Zhang, L.; Tian, K.; Tang, Z-H.; Chen, X-J.; Bian, Z-X.; Wang, YI-T.; Lu, J-J. Phytochemistry and Pharmacology of *Carthamus tinctorius* L *The American Journal of Chinese Medicine* 2016, 44, 197–226.
130. Fangma, Y.; Zhou, H.; Shao, C.; Yu, L.; Yang, J.; Wan, H.; He, Y. Hydroxysafflor Yellow A and Anhydrosafflor Yellow B Protect Against Cerebral Ischemia/Reperfusion Injury by Attenuating Oxidative Stress and Apoptosis via the Silent Informa *Front Pharmacol* 2021, 12.
131. Luzardo-Ocampo, I.; Ramírez-Jiménez, A.K.; Yañez, J.; Mojica, L.; Luna-Vital, D.A. Technological applications of natural colorants in food systems: A Review *Foods* 2021, 10.
132. Lin, W-S.; Hua, H.P.; Chau, C-F.; Liou, B-K.; Li, S.; Pan, M-H. The feasibility study of natural pigments as food colorants and seasonings pigments safety on dried tofu coloring *Food Science and Human Wellness* 2018, 7, 220–228.
133. Giusti, M. M.; Wrolstad, R.E. Acylated anthocyanins from edible sources and their application in food system *Biochemical Engineering Journal* 2003, 14, 217–225.
134. Scibisz, I.; Ziarno, M.; Mitek, M. Color stability of fruit yogurt during storage *Journal of Food Science and Technology* 2019, 56, 1997–2009.
135. Savcenco, A.; Baerle, A.; Tatarov, P.; Ivanova, R. Process for producing dyes from Safflower petals. Patent of Moldova, MD-1453, issued 31032021.
136. Popescu, L.; Ghendov-Moșanu, A.; Savcenco, A.; Baerle, A.; Tatarov, P. Color stability of yogurt with natural dye obtained from safflower (*Carthamus tinctorius* L) *Journal of Engineering Science* 2022, 1, 142–150.
137. Dönmez, Ö.; Mogol, B. A; Gökmen, V. Syneresis and rheological behaviors of set yogurt containing green tea and green coffee powders *Journal of Dairy Science* 2017, 100, 901–907.
138. Mezquita, P.C.; Barragán-Huerta, B.E.; Ramírez, J.P.; Hinojosa, C.O. Stability of astaxanthin in yogurt used to simulate apricot color, under refrigeration *Food Science Technology Campinas* 2014, 34, 559–565.
139. Machewad, G.M.; Ghatge, P.; Chappalwar, V.; Jadhav, B.; Chappalwar, A. Studies on extraction of Safflower pigments and its utilization in ice cream *Journal of Food Processing and Technology* 2012, 3.
140. Loypimai, P.; Moongngarm, A.; Chottanom, P. Thermal and pH degradation kinetics of anthocyanins in natural food colorant prepared from black rice bran *Journal of Food Science and Technology* 2016, 53, 461–470.
141. Mokrzycki, W.; Tatol, M. Colour difference ΔE -A survey *Machine Graphics and Vision*, 2011, 20, 383–411.
142. Hong, S.I.; Han, J.H.; Krochta, J.M. Optical and surface properties of whey protein isolate coatings on plastic films as influenced by substrate, protein concentration, and plasticizer type *Journal of Applied Polymer Science* 2004, 92, 335–343.
143. Krammerer, D.; Schillmoller, S.; Maier, O.; Schieber, A.; Reinhold, C. Colour stability of canned strawberries using black carrot and elderberry juice concentrates as natural colorants *European Food Research and Technology* 2007, 224, 667–679.

CAPITOLUL VII.

1. McClements, D.J. *Food Emulsions: Principles, Practices, and Techniques*; Third edition.; CRC Press, Taylor & Francis Group: Boca Raton, 2016, p. 714, ISBN 978-1-4987-2668-9.
2. Decker, E.A.; McClements, D.J.; Bourlieu-Lacanal, C.; Durand, E.; Figueroa-Espinoza, M.C.; Lecomte, J.; Villeneuve, P. Hurdles in Predicting Antioxidant Efficacy in Oil-in-Water Emulsions. *Trends in Food Science & Technology* 2017, 67, 183–194, doi:10.1016/j.tifs.2017.07.001.
3. Ullah, J.; . M.H.; . T.A.; . M.A.; . M.Z. Effect of Light, Natural and Synthetic Antioxidants on Stability of Edible Oil and Fats. *Asian J. of Plant Sciences* 2003, 2, 1192–1194.
4. Decker, E. Antioxidant Mechanisms. 2002, *Food lipids*. New York: Marcel Dekker, p 517-42.
5. Crăciun V. I. Studii Asupra Substanțelor Biologic Active Folosite ca Aditivi Și Nutrienți Alimentari În Scopul Creșterii Calității Și Securității Alimentelor. 2011, 5.
6. Ghendov-Moșanu, A. *Compuși biologic activi de origine horticolă pentru alimente funcționale*; Tehnica UTM: Universitatea Tehnică a Moldovei, 2018, 236 p.; ISBN 978-9975-45-531-2.
7. Ghendov-Moșanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Padureanu, S.; Deseatnicova, O.; Turculet, N.; Boestean, O.; Niculaua, M. Potential Application of Hippophae Rhamnoides in Wheat Bread Production. *Molecules* 2020, 25, 1272, doi:10.3390/molecules25061272.
8. Popovici, V.; Sturza, R.; Ghendov-Moșanu, A.; Soran, M.-L.; Lung, I.; Patraș, A. Influența Condițiilor de Extracție Asupra Compoziției Și Activității Antioxidante a Extractelor Liposolubile de Măceșe. *Meridian Ingineresc* 2018, 1, 23–27.
9. Pavan, V.; Sancho, R.A.S.; Pastore, G.M. The Effect of in Vitro Digestion on the Antioxidant Activity of Fruit Extracts (Carica Papaya, Artocarpus Heterophyllus and Annona Marcgravii). *LWT - Food Science and Technology* 2014, 59, 1247–1251, doi:10.1016/j.lwt.2014.05.040.
10. Popovici, V. Evaluation of the Oxidative Stability of Sea Buckthorn (Hippophae Rhamnoides L.) Lipophilic Extract. *JES* 2018, 111–115, doi:10.5281/zenodo.2557344.
11. Popovici, V.; Ghendov-Moșanu, A.; Sturza, R.; Deseatnicov, O. *Procedeu de stabilizare a uleiurilor vegetale*. Brevet de invenție de scurtă durată, 9670, 2020.12.02.
12. TESFAYE, B.; ABEBAW, A.; REDDY, M.U. Determination of Cholesterol and β -Carotene Content in Some Selected Edible Oils. *International Journal of Innovative Science and Research Technology* 2017, 2, 14–18.
13. Coliva, G.; Lange, M.; Colombo, S.; Chervet, J.-P.; Domingues, M.R.; Fedorova, M. Sphingomyelins Prevent Propagation of Lipid Peroxidation—LC-MS/MS Evaluation of Inhibition Mechanisms. *Molecules* 2020, 25, 1925, doi:10.3390/molecules25081925.
14. Ni, Z.; Sousa, B.C.; Colombo, S.; Afonso, C.B.; Melo, T.; Pitt, A.R.; Spickett, C.M.; Domingues, P.; Domingues, M.R.; Fedorova, M.; et al. Evaluation of Air Oxidized PAPC: A Multi Laboratory Study by LC-MS/MS. *Free Radic Biol Med* 2019, 144, 156–166.
15. Lange, M.; Ni, Z.; Criscuolo, A.; Fedorova, M. Liquid Chromatography Techniques in Lipidomics Research. *Chromatographia* 2019, 82, 77–100, doi:10.1007/s10337-018-3656-4.
16. Milic, I.; Hoffmann, R.; Fedorova, M. Simultaneous Detection of Low and High Molecular Weight Carbonylated Compounds Derived from Lipid Peroxidation by Electrospray Ionization-Tandem Mass Spectrometry. *Anal. Chem.* 2013, 85, 156–162, doi:10.1021/ac302356z.
17. Guillén, M.D.; Cabo, N. Fourier Transform Infrared Spectra Data versus Peroxide and Anisidine Values to Determine Oxidative Stability of Edible Oils. *Food Chemistry* 2002, 77, 503–510.
18. Silva, F.A.M.; Borges, F.; Ferreira, M.A. Effects of Phenolic Propyl Esters on the Oxidative Stability of Refined Sunflower Oil. *J. Agric. Food Chem.* 2001, 49, 3936–3941.
19. *Rancidity in Foods*; Allen, J.C., Hamilton, R.J., Eds.; 3rd ed.; Blackie Academic: London, 1994.
20. Ayala, A.; Muñoz, M.F.; Argüelles, S. Lipid Peroxidation: Production, Metabolism, and Signaling Mechanisms of Malondialdehyde and 4-Hydroxy-2-Nonenal. *Oxidative Medicine and Cellular Longevity* 2014, 2014, 1–31, doi:10.1155/2014/360438.
21. Thorning, F.; Jensen, F.; Ogilby, P.R. Modeling the Effect of Solvents on Nonradiative Singlet Oxygen Deactivation: Going beyond Weak Coupling in Intermolecular Electronic-to-Vibrational Energy Transfer. *J. Phys. Chem. B* 2020, 124, 2245–2254, doi:10.1021/acs.jpcc.0c00807.

22. Zielinski, Z.A.M.; Pratt, D.A. Lipid Peroxidation: Kinetics, Mechanisms, and Products. *J. Org. Chem.* 2017, 82, 2817–2825, doi:10.1021/acs.joc.7b00152.
23. *Bailey's Industrial Oil and Fat Products*; Shahidi, F., Ed.; 1st ed.; Wiley, 2005.
24. Yin, H.; Xu, L.; Porter, N.A. Free Radical Lipid Peroxidation: Mechanisms and Analysis. *Chem. Rev.* 2011, 111, 5944–5972, doi:10.1021/cr200084z.
25. Frankel, E.N. Hydroperoxide Decomposition. In *Lipid Oxidation*; Elsevier, 2012, 67–98.
26. *Food Lipids: Chemistry, Nutrition, and Biochemistry*; Akoh, C.C., Min, D.B., Eds.; Food science and technology; 2nd ed., rev.expanded.; M. Dekker: New York, 2002; ISBN 978-0-8247-0749-1.
27. Aidos, I.; Lourenclo, S.; Padt, A.; Luten, J.B.; Boom, R.M. Stability of Crude Herring Oil Produced from Fresh Byproducts: Influence of Temperature during Storage. *J Food Science* 2002, 67, 3314–3320, doi:10.1111/j.1365-2621.2002.tb09585.x.
28. Collin, F. Chemical Basis of Reactive Oxygen Species Reactivity and Involvement in Neurodegenerative Diseases. *IJMS* 2019, 20, 2407, doi:10.3390/ijms20102407.
29. Frenette, M.; Scaiano, J.C. Evidence for Hydroxyl Radical Generation During Lipid (Linoleate) Peroxidation. *J. Am. Chem. Soc.* 2008, 130, 9634–9635, doi:10.1021/ja801858e.
30. Velasco, J.; Andersen, M.L.; Skibsted, L.H. Evaluation of Oxidative Stability of Vegetable Oils by Monitoring the Tendency to Radical Formation. A Comparison of Electron Spin Resonance Spectroscopy with the Rancimat Method and Differential Scanning Calorimetry. *Food Chemistry* 2004, 85, 623–632, doi:10.1016/j.foodchem.2003.07.020.
31. Frankel, E. *Chemistry of Autoxidation: Mechanism, Products and Flavor Significance.*; American Oil Chemists' Society.; Min DB, Smouse TH, editors, 1985, 1–37.
32. Steenson, D.F.; Lee, J.H.; Min, D.B. Solid Phase Microextraction of Volatile Soybean Oil and Corn Oil Compounds. *J Food Science* 2002, 67, 71–76, doi:10.1111/j.1365-2621.2002.tb11361.x.
33. Gawrysiak-Witulska, M.; Rudzińska, M.; Wawrzyniak, J.; Siger, A. The Effect of Temperature and Moisture Content of Stored Rapeseed on the Phytosterol Degradation Rate. *J Am Oil Chem Soc* 2012, 89, 1673–1679, doi:10.1007/s11746-012-2064-4.
34. Sionek, B.; Krygier, K.; Ukalski, K.; Ukalska, J.; Amarowicz, R. The Influence of Nitrogen and Carbon Dioxide on the Oxidative Stability of Fully Refined Rapeseed Oil: The Influence of Nitrogen and Carbon Dioxide. *Eur. J. Lipid Sci. Technol.* 2013, 115, 1426–1433, doi:10.1002/ejlt.201200328.
35. Xu, L.; Yu, X.; Li, M.; Chen, J.; Wang, X. Monitoring Oxidative Stability and Changes in Key Volatile Compounds in Edible Oils during Ambient Storage through HS-SPME/GC–MS. *International Journal of Food Properties* 2017, 20, 1–13, S2926–S2938, doi:10.1080/10942912.2017.1382510.
36. Choe, E.; Min, D.B. Mechanisms and Factors for Edible Oil Oxidation. *Comp Rev Food Sci Food Safety* 2006, 5, 169–186, doi:10.1111/j.1541-4337.2006.00009.x.
37. Krumova, K.; Cosa, G. Chapter 1. Overview of Reactive Oxygen Species. In *Comprehensive Series in Photochemical & Photobiological Sciences*; Nonell, S., Flors, C., Eds.; Royal Society of Chemistry: Cambridge, 2016; Vol. 1, pp. 1–21 ISBN 978-1-78262-038-9.
38. Min, D.B.; Callison, A.L.; Lee, H.O. Singlet Oxygen Oxidation for 2-Pentylfuran and 2-Pentenyfuran Formation in Soybean Oil. *J Food Science* 2003, 68, 1175–1178, doi:10.1111/j.1365-2621.2003.tb09620.x.
39. Wszelaki, A.L.; Delwiche, J.F.; Walker, S.D.; Liggett, R.E.; Miller, S.A.; Kleinhenz, M.D. Consumer Liking and Descriptive Analysis of Six Varieties of Organically Grown Edamame-Type Soybean. *Food Quality and Preference* 2005, 16, 651–658, doi:10.1016/j.foodqual.2005.02.001.
40. Popovici, V. The Impact of Hawthorn Lipophilic Extract on Oxidative Stability of Food Products.; Chisinau, 2018; pp. 198–202.
41. Popovici, V.; Sturza, R.; Ghendov-Mosanu, A.; Rosca, I.; Soran, M.-L.; Lung, I.; Opreș, O. Total Carotenoid Content of Local Berries Lipophilic Extracts.; TUM, Chisinau, 2018; p. 228.
42. Popovici, V.; Boaghi, E.; Radu, O.; Capcanari, T.; Rubtov, S. Evaluation of Total Carotenoid Content in Functional Food Products with Rosehip Powder (R.Canina).; Chișinău, October 17 2019.

43. Hernández, Y.; Lobo, M.G.; González, M. Determination of Vitamin C in Tropical Fruits: A Comparative Evaluation of Methods. *Food Chemistry* 2006, 96, 654–664, doi:10.1016/j.foodchem.2005.04.012.
44. Stagos, D. Antioxidant Activity of Polyphenolic Plant Extracts. *Antioxidants* 2019, 9, 19, doi:10.3390/antiox9010019.
45. Wani, T.A.; Wani, S.M.; Ahmad, M.; Ahmad, M.; Gani, A.; Masoodi, F.A. Bioactive Profile, Health Benefits and Safety Evaluation of Sea Buckthorn (*Hippophae Rhamnoides* L.): A Review. *Cogent Food & Agriculture* 2016, 2, doi:10.1080/23311932.2015.1128519.
46. Ghendov-Moșanu, A.; Sturza, R.; Opreș, O.; Lung, I.; Popescu, L.; Popovici, V.; Soran, M.-L.; Patraș, A. Effect of Lipophilic Sea Buckthorn Extract on Cream Cheese Properties. *J Food Sci Technol* 2020, 57, 628–637, doi:10.1007/s13197-019-04094-w.
47. Alirezalu, A.; Ahmadi, N.; Salehi, P.; Sonboli, A.; Alirezalu, K.; Mousavi Khaneghah, A.; Barba, F.J.; Munekata, P.E.S.; Lorenzo, J.M. Physicochemical Characterization, Antioxidant Activity, and Phenolic Compounds of Hawthorn (*Crataegus* Spp.) Fruits Species for Potential Use in Food Applications. *Foods* 2020, 9, 436, doi:10.3390/foods9040436.
48. Roman, I.; Stănilă, A.; Stănilă, S. Bioactive Compounds and Antioxidant Activity of *Rosa Canina* L. Biotypes from Spontaneous Flora of Transylvania. *Chemistry Central Journal* 2013, 7, 73.
49. Biehler, E.; Mayer, F.; Hoffmann, L.; Krause, E.; Bohn, T. Comparison of 3 Spectrophotometric Methods for Carotenoid Determination in Frequently Consumed Fruits and Vegetables. *Journal of Food Science* 2010, 75, C55–C61, doi:10.1111/j.1750-3841.2009.01417.x.
50. Wenzig, E.M.; Widowitz, U.; Kunert, O.; Chrubasik, S.; Bucar, F.; Knauder, E.; Bauer, R. Phytochemical Composition and in Vitro Pharmacological Activity of Two Rose Hip (*Rosa Canina* L.) Preparations. *Phytomedicine* 2008, 15, 826–835, doi:10.1016/j.phymed.2008.06.012.
51. Popovici, V.; Sturza, R. Antioxidant Capacity of Local Berries in Complex Food Products.; Suceava, 2018, 27 (1), 32-36.
52. Popovici, V.; Rosca, I.; Ciobanu, C.; Soran, M.-L.; Lung, I. Stabilitate Oxidativă și Activitate Antioxydantă Des Extraits Liposolubles d'églantier.; Bacau, ROMANIA, June 27 2018; p. p.95.
53. Popovici, V. Evaluarea Impactului Extractelor Horticole Asupra Stabilității Oxidative a Complexului Lipidic Din Alimente.; Chișinău, May 4 2017; p. p.31-33.
54. Popovici, V. The Oxidative Stability of Vegetable Oils Enriched with Caratenoids.; UTM, Chișinău, March 26 2019, 1, 509-510.
55. Popovici, V. The Oxidative Stability of Seabuckthorn Lipophilic Extracts.; UTM, Chișinău, April 1 2020, 1, 411-414.
56. Wang, N.; Ma, T.; Yu, X.; Xu, L.; Zhang, R. Determination of Peroxide Values of Edible Oils by Ultraviolet Spectrometric Method. *Food Anal. Methods* 2016, 9, 1412–1417.
57. Jaarin, K.; Kamisah, Y. Repeatedly Heated Vegetable Oils and Lipid Peroxidation. In *Lipid Peroxidation*; Catala, A., Ed.; InTech, 2012 ISBN 978-953-51-0716-3.
58. Popovici, V.; Rosca, I.; Ganta, D.-L.; Esanu, N. Diminuarea Impactului Oxidării Lipidelor Cu Adaosuri Vegetale de Antioxidanți.; Chisinau, 2016.
59. Javidipour, I.; Erinc, H.; Baştürk, A.; Tekin, A. Oxidative Changes in Hazelnut, Olive, Soybean, and Sunflower Oils during Microwave Heating. *International Journal of Food Properties* 2017, 20, 1582–1592, doi:10.1080/10942912.2016.1214963.
60. Andina, L.; Riyanto, R.; Rohman, A. Determination of Anisidine Value of Red Fruit Oil under Elevated Temperature Using FTIR Spectroscopy and Multivariate Calibration. *International food research journal* 2014, 21, 2325–2330.
61. Baker, I.; Chohan, M.; Opara, E.I. Impact of Cooking and Digestion, In Vitro, on the Antioxidant Capacity and Anti-Inflammatory Activity of Cinnamon, Clove and Nutmeg. *Plant Foods Hum Nutr* 2013, 68, 364–369, doi:10.1007/s11130-013-0379-4.
62. Bermudezsoto, M.; Tomasbarberan, F.; Garciaconesa, M. Stability of Polyphenols in Chokeberry (*Aronia Melanocarpa*) Subjected to in Vitro Gastric and Pancreatic Digestion. *Food Chemistry* 2007, 102, 865–874, doi:10.1016/j.foodchem.2006.06.025.
63. Mihaylova, D.; Desseva, I.; Stoyanova, M.; Petkova, N.; Terzyiska, M.; Lante, A. Impact of In

- Vitro Gastrointestinal Digestion on the Bioaccessibility of Phytochemical Compounds from Eight Fruit Juices. *Molecules* 2021, 26, 1187, doi:10.3390/molecules26041187.
64. Bouayed, J.; Deußler, H.; Hoffmann, L.; Bohn, T. Bioaccessible and Dialysable Polyphenols in Selected Apple Varieties Following in Vitro Digestion vs. Their Native Patterns. *Food Chemistry* 2012, 131, 1466–1472, doi:10.1016/j.foodchem.2011.10.030.
 65. Popovici, V. Stabilizarea uleiurilor vegetale cu compuși biologic active din surse regenerabile, teză de doctorat, Universitatea Tehnică a Moldovei, Chișinău, Republica Moldova, iunie 2022.
 66. Sarolić, M.; Gugić, M.; Tuberoso, C.I.G.; Jerković, I.; Suste, M.; Marijanović, Z.; Kuš, P.M. Volatile Profile, Phytochemicals and Antioxidant Activity of Virgin Olive Oils from Croatian Autochthonous Varieties Mašnjača and Krvavica in Comparison with Italian Variety Leccino. *Molecules* 2014, 19, 881–895, doi:10.3390/molecules19010881.
 67. Nawar, W.W. Thermal Degradation of Lipids. *J. Agric. Food Chem.* 1969, 17, 18–21.
 68. Frankel, E.N.; Selke, E.; Neff, W.E.; Miyashita, K. Autoxidation of Polyunsaturated Triacylglycerols. IV. Volatile Decomposition Products from Triacylglycerols Containing Linoleate and Linolenate. *Lipids* 1992, 27, 442–446, doi:10.1007/BF02536386.
 69. Vichi, S.; Romero, A.; Tous, J.; Tamames, E.L.; Buxaderas, S. Determination of Volatile Phenols in Virgin Olive Oils and Their Sensory Significance. *Journal of Chromatography A* 2008, 1211, 1–7, doi:10.1016/j.chroma.2008.09.067.

CAPITOLUL VIII.

1. Food and Agriculture Organization of the United Nations. Statistical Database Terms of Use. Disponibil online: <https://www.fao.org/contact-us/terms/db-terms-of-use/en>.
2. Wathon, M.H.; Beaumont, N.; Benohoud, M.; Blackburn, R.; Rayner, C. Extraction of anthocyanins from Aronia melanocarpa skin waste as a sustainable source of natural colorants. *J. Soc. Dye. Colour* 2019, 135, 5-16.
3. Jurikova, T.; Mlcek, J.; Skrovankova, S.; Sumczynski, D.; Sochor, J.; Hlavacova, I.; Snopek, L.; Orsavova, J. Fruits of Black Chokeberry Aronia melanocarpa in the Prevention of Chronic Diseases. *Molecules* 2017, 22, 944.
4. Kulling, S; Rawel, H. Chokeberry (*Aronia melanocarpa*) – a review on the characteristic components and potential health effects. *Planta Med.* 2008, 74, 1625-34.
5. Cristea, E.; Sturza, R.; Jauregi, P.; Niculaua, M.; Ghendov-Moșanu, A.; Patras, A. Influence of pH and ionic strength on the color parameters and antioxidant properties of an ethanolic red grape marc extract. *J. Food Biochem.* 2019, e12788.
6. Tolić, M.T.; Marković, K.; Vahčić, N.; Samarin, I.R.; Mačković, N.; Krbavčić, I.P. Polyphenolic profile of fresh chokeberry and chokeberry products. *Croatian Journal of Food Technology, Biotechnology and Nutrition* 2018, 13, 147-153.
7. Kim, D.W.; Han, H.A.; Kim, J.K.; Kim, D.H.; Kim, M.K. Comparison of Phytochemicals and Antioxidant Activities of Berries Cultivated in Korea: Identification of Phenolic Compounds in Aronia by HPLC/Q-TOF MS. *Prev Nutr Food Sci* 2021, 26, 459-468.
8. Denev, P.; Kratchanov, C.; Ciz, M.; Lojek, A.; Kratchanova, M.G. Bioavailability and antioxidant activity of black chokeberry (*aronia melanocarpa*) polyphenols: in vitro and in vivo evidences and possible mechanisms of action: A Review. *Compr. Rev. Food Sci. Food Saf.* 2012, 11, 471-489.
9. Bushmeleva, K.; Vyshtakalyuk, A.; Terenzhev, D.; Belov, T.; Parfenov, A.; Sharonova, N.; Nikitin, E.; Zobov, V. Radical Scavenging Actions and Immunomodulatory Activity of Aronia melanocarpa Propylene Glycol Extracts. *Plants* 2021, 10, 2458.
10. Banach, M.; Wiloch, M.; Zawada, K.; Cyplik, W.; Kujawski, W. Evaluation of Antioxidant and Anti-Inflammatory Activity of Anthocyanin-Rich Water-Soluble Aronia Dry Extracts. *Molecules* 2020, 25, 4055.
11. Liepiņa, I.; Nikolajeva, V.; Jākobsone, I. Antimicrobial activity of extracts from fruits of Aronia melanocarpa and Sorbus aucuparia. *Environmental and Experimental Biology* 2013, 11, 195-199.
12. Ma, Y.; Wei, L.; Xu, Q.; Wang, Y.; Li, Z.; Zhou, W.; Meng, X. Anthocyanin-rich phenolic extracts of black chokeberry (*Aronia melanocarpa*) inflammation induced by lipopolysaccharide in raw 264.7 cells. *Appl Ecol Environ Res* 2021, 19, 581-596.
13. Ghendov-Moșanu, A. Compuși biologic activi de origine horticolă pentru alimente funcționale. TUM, Chisinau, 2018, 236.
14. Dey, S.; Nagababu, B.H. Applications of food color and bio-preservatives in the food and its effect on the human health. *Food Chemistry Advances*, 2022, 1, 100019.
15. Ghendov-Moșanu, A.; Cristea, E.; Sturza, R.; Niculaua, M.; Patras, A. Synthetic dye's substitution with chokeberry extract in jelly candies. *J. Food Sci. Technol.* 2020, 57, 4383–4394.
16. Opreș, O.; Lung I.; Soran, L.; Sturza, R.; Ghendov-Moșanu, A. Fondant candies enriched with antioxidants from aronia berries and grape marc. *Revista de chimie* 2020, 71, 74-79.
17. Ghendov-Moșanu, A. Obținerea și stabilizarea coloranților, antioxidanților și conservanților de origine vegetală pentru alimente funcționale. Ph.D. Teză, Universitatea Tehnică a Moldovei, Chișinău, Moldova 2021, 72 p.
18. Singleton, V.L.; Rossi, J.A. Colorimetry of total phenolics with phosphomolybdic-phosphotungstic acid reagents. *Am. J. Enol. Vitic* 1965, 16, 144-158.
19. Spranger, I.; Sun, B.; Mateus, A.M.; de Freitas, V.; Ricardo-da-Silva, J. Chemical

- characterization and antioxidant activities of oligomeric and polymeric procyanidin fractions from grape seeds. *Food Chem.* 2008, 108, 519-532.
20. Waterman, P.G.; Mole, S. *Analysis of Phenolic Plant Metabolites, Ecological Methods and Concepts*; Wiley-Blackwell: Hoboken, NJ, USA, 1994, 248.
 21. Giusti, M.M.; Wrolstad, R.E. Characterisation and measurement of anthocyanins by UV-visible spectroscopy. *Curr. Protoc. Food Anal. Chem.* 2001, F1.2.1-F1.2.13.
 22. Brand-Williams, W.; Cuvelier, M.E.; Berset, C. Use of a free radical method to evaluate antioxidant activity. *LWT Food Sci. Technol.* 1995, 28, 25-30.
 23. OIV Method OIV-MA-AS2-11: R2006. In Determination of Chromatic Characteristics according to CIELab; International Methods of Wine and Must Analysis, International Organisation of Vine and Wine: Paris, France, 2013.
 24. ISO 6658:2017. Sensory Analysis. Methodology. General Guidance; International Organization for Standardization: Geneva, Switzerland, 2017.
 25. AOAC. Official Methods of Analysis, 18th ed.; Association of Official Analytical Chemists: Washington, DC, USA, 2000.
 26. ISO 19660:2018. Cream. Determination of fat content. Acido-butyrometric method. International Organization for Standardization: Geneva, Switzerland, 2018.
 27. ISO 4833-2:2013/COR 1:2014. In Microbiology of the Food Chain - Horizontal Method for the Enumeration of Microorganisms-Part 2: Colony Count at 30 °C by the Surface Plating Technique-Technical Corrigendum 1; International Organization for Standardization: Geneva, Switzerland, 2014.
 28. Ghendov-Mosanu, A.; Cristea, E.; Patras, A.; Sturza, R.; Niculaua, M. Rose hips, a valuable source of antioxidants to improve gingerbread characteristics. *Molecules* 2020, 25, 5659.
 29. Ścibisz, I.; Ziarno, M. & Mitek, M. Color stability of fruit yogurt during storage. *J Food Sci Technol* 2019, 56, 1997-2009.
 30. Vinogradova, Y.; Vergun, O.; Grygorieva, O.; Ivanišová, E.; Brindza J. Comparative analysis of antioxidant activity and phenolic compounds in the fruits of Aronia spp. *Potr. S. J. F. Sci* 2020, 14, 393-401.
 31. Lazarova, M.P.; Dimitrov, K.I.; Nikov, I.S.; Dzhonova, D.B. Polyphenols extraction from black chokeberry wastes. *Bulg. Chem. Commun.* 2016, 48 I, 442-445.
 32. Denev, P.; Kratchanova, M.; Petrova, I.; Klisurova, D.; Georgiev, Y.; Ognyanov, M.; Yanakieva, I. Black chokeberry (*Aronia melanocarpa* (Michx.) Elliot) fruits and functional drinks differ significantly in their chemical composition and antioxidant activity. *J. Chem. (Hindawi)* 2018, Article ID 9574587.
 33. Kokotkiewicz, A.; Jaremicz, Z.; Luczkiewicz, M. Aronia Plants: A Review of traditional use, biological activities, and perspectives for modern medicine. *J. Med. Food* 2010, 13, 255-269.
 34. Gralec, M.; Wawer, I.; Zawada, K. 2019. Aronia melanocarpa: phenolics composition and antioxidant properties changes during fruit development and ripening. *Emir. J. Food Agric* 2019, 31, 214-221.
 35. Tolić, M.-T.; Jurčević L., I.; Krbavčić P., I.; Marković, K.; Vahčić, N. Phenolic content, antioxidant activity and quality of chokeberry (*Aronia melanocarpa*) products. *Food Technol. Biotechnol.* 2015, 53, 171-179.
 36. Mladin, P.; Mladin, Gh.; Oprea, E.; Rădulescu, M.; Nicola, C. Variability of the anthocyanins and tannins in berries of some *Lonicera caerulea* var. kamchatica, *Aronia melanocarpa* and *Berberis 224hunbergia* var. atropurpurea Genotypes. *Scientific Papers of the Research Institute for Fruit Growing* 2011, 27.
 37. Park, H.M.; Hong, J.H. Physiological activities of Aronia melanocarpa extracts on extraction solvents. *Korean J. Food Preserv.* 2014, 21, 718-726.
 38. Koca, I.; Karadeniz, B. Antioxidant properties of blackberry and blueberry fruits grown in the Black Sea Region of Turkey. *Sci. Hortic.* 2009, 121, 447-450.
 39. Adel Pilerood, S.; Prakash, J. Evaluation of nutritional composition and antioxidant activity of Borage (*Echium amoenum*) and Valerian (*Valerian officinalis*). *J. Food Sci. Technol.* 2014,

- 51(5), 845–854.
40. Molaveisi, M.; Beigbabaei, A.; Akbari, E.; Noghabi, M.S.; Mohamadi, M. Kinetics of temperature effect on antioxidant activity, phenolic compounds and color of Iranian jujube honey. *Heliyon* 2019, 5, e01129.
 41. Ostrowska-Ligeża, E.; Dolatowska-Żebrowska, K.; Wirkowska-Wojdyła, M.; Bryś, J.; Górska, A. Comparison of Thermal Characteristics and Fatty Acids Composition in Raw and Roasted Cocoa Beans from Peru (Criollo) and Ecuador (Forastero). *Appl. Sci.* 2021, 11, 2698.
 42. Mohamad, R.; Agus, B.A.P.; Hussain, N. Changes of Phytosterols, Rheology, Antioxidant Activity and Emulsion Stability of Salad Dressing with Cocoa Butter During Storage. *Food Technol Biotechnol* 2019, 57, 59-67.
 43. Wills, D. Water Activity and its Importance in Making Candy. *The Manufacturing Confectioner* 1998, 71.
 44. Tanaka, T.; Tanaka, A. Chemical components and characteristics of black chokeberry. *J Jpn Soc Food Sci Technology* 2001, 48, 606-610.
 45. Zhang, Y.; Zhao, Y.; Liu, X.; Chen, X.; Ding, C.; Dong, L.; Zhang, J.; Sun, S.; Ding, Q.; Khatoom, S.; Cheng, Z.; Liu, W.; Shen, L.; Xiao, F. Chokeberry (*Aronia melanocarpa*) as a new functional food relationship with health: an overview. *Journal of Future Foods* 2021, 1, 168-178.
 46. Decision of the Government of the Republic of Moldova no. 204 of 11-03-2009 regarding the Approval of the Confectionery Technical Regulation. Available online: https://www.legis.md/cautare/getResults?doc_id=114289&lang=ro.
 47. Cisowska, A.; Wojnicz, D.; Hendrich, A. Anthocyanins as antimicrobial agents of natural plant origin. *Natural Product Communications*, 2011, 6, 149-156.
 48. Heinonen M. Antioxidant activity and antimicrobial effect of berry phenolics a Finnish perspective. *Mol Nutr Food Res.* 2007, 51, 684-691.
 49. Daoutidou, M.; Plessas, S.; Alexopou-los, A.; Mantzourani, I. Assessment of Antimicrobial Activity of Pomegranate, Cranberry, and Black Chokeberry Extracts against Foodborne Pathogens. *Foods* 2021, 10, 486.
 50. Machado, T.D.; Leal, I.C.R.; Amaral, A.C.F.; dos Santos, K.R.N.; da Silva M.G.; Kuster, R.M. Antimicrobial ellagitannin of *Punica granatum* fruits. *Journal of the Brazilian Chemical Society* 2002, 13, 606-610.
 51. Decision of the Government of the Republic of Moldova no. 221 of 16.03.2009. Regarding the approval of the Rules on microbiological criteria for food products. 2009, 59-61. Available online: https://www.legis.md/cautare/getResults?doc_id=119439&lang=ro.
 52. Kumar, S.; Pandey, A.K. Chemistry and biological activities of flavonoids: An overview. *Sci. World J.* 2013, 16275016.
 53. Enaru, B.; Drețcanu, G.; Pop, T.D.; Stănilă, A.; Diaconeasa, Z. Anthocyanins: Factors Affecting Their Stability and Degradation. *Antioxidants* 2021, 10, 1967.
 54. Ghendov-Moșanu, A.; Ungureanu-Iuga, M.; Mironeasa, S.; Sturza, R. Aronia Extracts in the Production of Confectionery Masses. *Appl. Sci* 2022, 12, 7664.
 55. Magomedov, G.; Plotnikova, I.; Zhuravlev, A.; Shevjakova, T.; Popova, A. Sovershenstvovanie tehnologii mini-zefira (marshmjellou) na zhelatine, *Konditerskoe i Hlebopekarnoe Proizvodstvo* 2014, 6-12.
 56. Prado, M.; Godoy, H. Corantes artificiais em alimentos. *Alimentos Nutrição* 2003, 14(2), 237-250.
 57. Cosentino, H. *Efeitos da Radiação Ionizante em Corantes Naturais de Uso Alimentício*, Thesis Doctorate in Science, Instituto de Pesquisas Energéticas e Nucleares, Autarquia associada à Universidade de São Paulo, São Paulo, 2005, 149.
 58. Durinezio Jose de Almeida; Bennemann, G.; Bianchi, C.; Freitas, G. Colorful, cute, attractive and carcinogenic: The dangers of dyes, *Cancer Research Journal* 2014, 2(6-1), 42.
 59. Block, G.; Patterson, B.; Subar, A. Fruit, vegetables, and cancer prevention: A review of the epidemiological evidence, *Nutrition Cancer* 1992, 18, 1-29.

60. Bonina, F.; Leotta, C.; Scalia, G.; Puglia, C.; Trombetta, D.; Tringali, G. Evaluation of oxidative stress in diabetic patients after supplementation with a standardised red orange extract. *Diabetes, Nutrition & Metabolism* 2002, 15, 1-19.
61. Felgines, C. ; Talavera, S. ; Texier, O. ; Gil-Izquierdo, A.;Lamaison, J. L. ; Remesy, C. Blackberry Anthocyanins Are Mainly Recovered from Urine as Methylated and Glucuronidated Conjugates in Humans, *Journal of Agricultural and Food Chemistry* 2005, 53, 7721-7727.
62. Ferruzzi, M.; Blakeslee, J. Digestion, absorption, and cancer preventative activity of dietary chlorophyll derivatives, *Nutrition Research* 2007, 27, 1-12.
63. Ercisli, S. Chemical composition of fruits in some rose (*Rosa* spp.) species, *Food Chemistry* 2007, 104, 1379-1384.
64. Chai, J.; Ding, Z. Nutrients composition of *Rosa laevigata* fruits, *Science Technology in Food Industry* 1995, 3, 26-29.
65. Demir, F.; Ozcan, M. Chemical and technological properties of rose (*Rosa canina* L.) fruits grown wild in Turkey. *Journal Food Engineering* 2001, 47, 333-336.
66. Türkben, C.; Uylaser, V.; Incedayi, B.; Celikkol, I. Effects of different maturity periods and processes on nutritional components of rosehip (*Rosa canina* L.). *Journal of Food, Agriculture and Environment* 2010, 8, 26-30.
67. Duru, N.; Feryal, K.; Erge, H. Changes in Bioactive Compounds, Antioxidant Activity and HMF Formation in Rosehip Nectars During Storage. *Food and Bioprocess Technology* 2012, 5 (7), 2899-2907.
68. Szentmihályi, K.; Vinkler, P.;Lakatos, B.; Illés, V. ; Then, M. Rose hip (*Rosa canina* L.) oil obtained from waste hip seeds by different extraction methods. *Bioresource Technology* 2002, 82 (2), 195–201.
69. Rein, E.; Kharazmi, A.; Winther, K. A herbal remedy, Hyben Vital (stand. powder of a subspecies of *Rosa canina* fruits), reduces pain and improves general wellbeing in patients with osteoarthritis: a double-blind, placebo-controlled, randomised trial. *Phytomedicine* 2004, 11, pp.383–391.
70. Ninomiya, K.; Matsuda, H.; Kubo, M.; Morikawa, T.; Nishida, N.; Yoshikawa, M. Potent antiobese principle from *Rosa canina*: structural requirements and mode of action of trans-tiliroside. *Bioorganic & Medicinal Chemistry Letters* 2007, 17, 3059-3064.
71. Miller, D.; Schricker, B.; Rasmussen, R.;van Campen, D. An in vitro method for estimation of iron availability from meals. *The American Journal of Clinical Nutrition* 1981, 34(10), 2248-2256.
72. Demir, N.; Yioldiz, O.; Alpaslan, M.; Hayaloglu, A.A. Evaluation of volatiles, phenolic compounds and antioxidant activities of rose hip (*Rosa* L.) fruits in Turkey. *LWT Food Sci. Technol.* 2014, 57, 126-133.
73. Czyzowska, A.; Klewicka, E.; Pogorzelski, E.; Nowak, A. Polyphenols, vitamin C and antioxidant activity in wines from *Rosa canina* L. and *Rosa rugosa* Thunb. *J. Food Compos. Anal.* 2015, 39, 62-68.
74. Ercisli, S. Chemical composition of fruits in some rose (*Rosa* spp.) species. *Food Chem.* 2007, 104, 1379-1384.
75. Skrypnik, L.; Chupakhina, G.; Feduraev, P.; Chupakhina, N.; Maslennikov, P. Evaluation of the rose hips of *Rosa canina* L. and *Rosa rugosa* Thunb. as a valuable source of biological active compounds and antioxidants on the Baltic Sea coast. *Pol. J. Nat. Sci.* 2019, 34, 395-413.
76. Andersson, S.C.; Rumpunen, K.; Johansson, E.; Olsson, M.E. Carotenoid content and composition in rose hips (*Rosa* spp.) during ripening, determination of suitable maturity marker and implications for health promoting food products. *Food Chem.* 2011, 128, 689-696.
77. Ghendov-Moșanu, A.; Cojocari, D.; Balan, G.; Sturza, R. Antimicrobial activity of rose hip and hawthorn powders on pathogenic bacteria. *Journal of Engineering Science*, 2018, 4, 100-107.
78. Savvin, P.; Bolotov, V. The study of antioxidant properties of fruit jelly. *Himija rastitel'nogo syr'ja*, 2008, 4, 177-179 [in Russian].

79. Ghendov-Moșanu, A. The use of dog-rose (*Rosa canina*) fruits in the production of marshmallow-type candy. *Revista Food and Environment Safety*, 2018, 1, 59-65.
80. Cmirnov, Ye. V. Pishchevyye krasiteli. Spravochnik. Izdatel'stvo, SPb.: Professiya, 2009, pp.352.
81. Bolotov, V.M.; Nechayev, A.P.; Sarafanova, L.A. Pishchevyye krasiteli: klassifikatsiya, svoystva, analiz, primeneniye. Izdatel'stvo: SPb: GIOR, 2008, pp.240.
82. Garima, S.; Harish, K. S. Food caramels: Review *J Food Sci Technol*. 2014, 51(9), pp.1686-96. doi: 10.1007/s13197-012-0633-z.
83. Thomas, A. Caramel color safety - An update Review *Food Chem Toxicol*. 2018, 111(1), pp.578-596. doi: 10.1016/j.fct.2017.12.004.
84. Decision of the Government of the Republic of Moldova No. 229 of 29.03.2013. Regarding the Approval of the Sanitary Regulation on Food Additives. 2013. Available online: https://www.legis.md/cautare/getResults?doc_id=109707&lang=ro.
85. Bantea-Zagareanu, V.; Sandu, Iu.; Baerle, A. Changing the ratio of biologically active compounds in the nut kernel film in sweets. *Perspectives and Problems of Integration in the European Research and Education Area* 2022, 9(1), Cahul: USC, 377-378.
86. Bantea-Zagareanu, V. Use of walnuts (*Juglans regia L.*) waste from physical extraction of oil to produce flour and sweets. *Food and Environment Safety Journal* 2018, 27(1), 74-80.
87. Ghendov-Moșanu, A.; Bantea-Zagareanu, V.; Tatarov, P. The use of walnut flour (*Juglans regia L.*) in the manufacture of Amaretti biscuits. *Meridian Engineering* 2016, 3, 62-65.
88. Breahna, N.; Sturza, M.; Dodon, A.; Bantea-Zagareanu, V. Aspects of the use of spirulina in the confectionery industry. In: *Materials of the Technical-Scientific Conference of Collaborators, PhD Students and Students*. Tehnica-UTM, Chisinau, 2018, 2, 13-16.
89. Rusu, M.E.; Fizesan, I.; Pop, A.; Mocan, A.; Gheldiu, A.M.; Babota, M.; Vodnar, D.C.; Jurj, A.; Berindan-Neagoe, I.; Vlase, L.; Popa, D.S. Walnut (*Juglans regia L.*) Septum: Assessment of Bioactive Molecules and In Vitro Biological Effects. *Molecules* 2020, 25(9), 2187.
90. Frolova, N.A.; Peznichenko, I.Yu. Kompozitsiya ingrediyyentov dlya prigotovleniya obogashchennogo konditerskogo izdeliya tipa irisa tirazhennogo. Patent RU2687459C1.
91. Khvorost, O. P.; Malyy, V. V.; Serbin, A. G. Ellagovaya kislota, rasprostranennost' v rastitel'nom mire i aspekty biologicheskogo Provizor. zhurn. 1998, 22, 36-37.
92. Bas'kina, V.A.; Kondratova, I.I.; Tadeush, A.I. Sposob proizvodstva irisa i kompozitsiya dlya yego osushchestvleniya. Patent 4374.
93. Merkushkin, A.N.; Murav'yev, A.S.; Gruzintsev, A.P.; Gyatkova, S.P. Sposob proizvodstva irisa s nachinkoy Pravoobladateli Otkrytoye aktsionernoye obshchestvo Lamzur. Patent 219.016.BF36.
94. Chavan, U.D.; Shegade, S.L.; Karma, B.R.; Dalvi, U.S. Studies on Preparation of Toffee from Guava. *Int. J. Adv. Res. Biol. Sci* 2016, 3(1), 99-111.
95. Domale, J.N.; Kotecha, P.M.; Pawar, V.D. Studies on preparation of toffee from Aonla pulp. *Beverage and Food World* 2008, 35(9), 39-40.
96. Koohestani, M. B.; Sahari, M. A.; Barzegar, M. The effect of jujube powder incorporation on the chemical, rheological, and sensory properties of toffee. *Food Sci Nutr*. 2018, 19(2), 678-688. doi: 10.1002/fsn3.912.
97. Krylova, E. N.; Savenkova, T. V.; Mavrina, Ye. N. Sposob proizvodstva tirazhennogo irisa. Patent 216.012.
98. Baerle, A.; Tatarov, P.; Sandu, Iu. Polyphenols and naphthoquinones extraction from walnuts pellicula: the impact on kernels quality. *Journal of Engineering Science* 2020, 27(2), 145-153. doi: 10.5281/zenodo.3784368.
99. Radu, O. Food compositions based on walnut oil (*Juglans regia L.*) resistant to oxidative degradation. Doctoral thesis in technology. UTM, Chisinau, 2020, 150.
100. Zelazko, A. RGB colour model. *Encyclopedia Britannica*, 2022. Available online: <https://www.britannica.com/science/RGB-colour-model>.
101. Color picker, calculator and generator with high precision and contrast test. Available online:

<http://colorizer.org/>

102. Gurev, A.; Dragancea, V.; Baerle, A.; Netreba, N.; Boestean, O.; Haritonov, S; Gaina, B. Properties of winemaking by-products of *Feteasca Neagra* grape seeds. *Chemistry Journal of Moldova - General, Industrial and Ecological Chemistry* 2022, 17(2), 50-61.
103. Popescu, L.; Ghendov-Moșanu, A; Baerle, A.; Savcenco, A.; Tatarov, P. Color stability of yogurt with yellow food dye from safflower (*Carthamus tinctorius* L.). *Journal of Engineering Sciences* 2022, 29 (1), 142-150.
104. Pavlova N.S. Sbornik osnovnykh retseptur sakharistykh konditerskikh izdeliy. *GIORD* 2000, 232.
105. Smirnova, M. K.; Ivanushko, L. S. Retseptury na konfety i iris. *Pishchevaya promyshlennost'* 1971, 824.
106. Sengar, G.; Sharma, H. K. Food caramels: a review. *J Food Sci Technology* 2014, 51(9), 1686-1696. doi: 10.1007/s13197-012-0633-z.
107. Mendenhall, H.; Hartel, R. W. Protein content affects caramel processing and properties. *Journal of Food Engineering* 2016, 186, 58-68.
108. Tehnologiya konditerskogo proizvodstva. Proizvodstvo irisa. Disponibil online: https://msd.com.ua/tehnologiya-konditerskogo-proizvodstva/proizvodstvo-irisa/?fbclid=IwAR2DHq8Z1fhN_6K94aWLkm7xMLdl8P9qRzpqJwGIZvwCXg6SS8hwLz5eo5g.
109. ISO 750:1998. Fruit and vegetable products-In Determination of Titratable Acidity. International Organization for Standardization: Geneva, Switzerland, 1998.
110. Sandulachi, E. *Water activity in food products*: Monograph. Tehnica-UTM, Chisinau, Moldova, 2020, 208.
111. Pankaj, B. P.; Umezuruike, L. O.; Fahad, Al-Julanda.; Al-Said. Colour Measurement and Analysis in Fresh and Processed Foods. *Food and Bioprocess Technology* 2013, 6, 36–60. doi: 10.1007/s11947-012-0867-9.
112. Konica Minolta Chroma Meter CR-400/410 instruction manual, 2002-2013, 9222-1878-20. http://www.konicaminolta.com/instruments/download/instruction_manual/color/pdf/cr-400-410_instruction_eng.pdf
113. ISO 12647-2:2004/Amd.1:2007(E) 2007-04-15 Disponibil online: <https://cielab.xyz/>.
114. Popescu, L.; Bantea-Zagareanu, V.; Gudima, A. *Sensory analysis of food products*. Tehnica-UTM, Chișinau, Moldova, 2020, 84.
115. Baerle A., Savcenco A., Tatarov P., Fetea F., Ivanova R., Radu O. Stability limits of a red Carthamin–cellulose complex as a potential food colourant. *Food & Functions* 2021, 2, 8037-8043.
116. McKenzie, E.; Lee, Soo-Yeun. Sugar reduction methods and their application in confections: a review. *Food Sci Biotechnology* 2022, 31(4), 387-398. doi: 10.1007/s10068-022-01046-7.
117. Mayhew, E. J.; Schmidt, S. J.; Lee, S. Y. Sensory and Physical Effects of Sugar Reduction in a Caramel Coating System. *Journal of food science* 2017, 82(8), 1935-1946. <https://doi.org/10.1111/1750-3841.13785>
118. Ergun, R.; Lietha, R.; Hartel, R W. Moisture and shelf life in sugar confections. Review. *Crit Rev Food Sci Nutr.* 2010, 50(2), 162-92. doi: 10.1080/10408390802248833.
119. Bantea-Zagareanu, V. Assurance of quality and shelf life of marmalade. Scientific papers Horticulture Series, USAMV Iași. 2018, 61(2), 405-414. http://www.uaiasi.ro/revista_horti/files/Nr2_2018/58.%20Bantea-Zagreanu%20V..pdf.
120. Burluc, R. *Technology and quality control of sugar products*. Galatians. 2009, 120.
121. Ghendov-Moșanu, A. Biologically active compounds of horticultural origin for functional foods: Monograph. Chisinau: Tehnica-UTM, 2018, 236 p.
122. Shen, P.; Walker G. D.; Yuan, Y., Reynolds, C.; Stacey, M.A.; Reynolds, E.C. Food acid content and erosive potential of sugar-free confections. *Australian Dental Journal* 2017, 62(2), 215-222. doi: 10.1111/adj.12498.
123. Tatarov, P.G. *Food chemistry*. Tehnica-UTM, Chișinau, Moldova, 2017, Chisinau, UTM, 450.

[in Romanian].

124. Evtugin, D.D.; Magina, S.; Evtugin, D.V. Recent Advances in the Production and Applications of Ellagic Acid and Its Derivatives. A Review. *Molecules* 2020, 25(12), pp.2745.
125. Sarafanova, L. A. Primeneniye pishchevykh dobavok v konditerskoy promyshlennosti. In: *PROFESSIYA*, Sankt-Peterburg, 2010, .73-74.
126. Sarafanova, L. A. Pishchevyye dcbavki, Entsiklopediya, Sankt-Peterburg, In: *GIORD* 2004, 193-195.
127. Machado, T. B.; Leal, I.C.R.; Amaral, A.C.F.; Santos, K.R.N.; Silva M.G.; Kuster, R.M. Antimicrobial ellagitannin of *Punica granatum* fruits. *J. Braz. Chem.* 2002, 13 (5), 606-610. <https://doi.org/10.1590/S0103-50532002000500010>
128. D'Angeli, F.; Malfa, G. A.; Garozzo, A.; Volti, G. L.; Genovese, C.; Stivala, A.; Nicolosi, D.; Attanasio, F.; Bellia, F.; Ronsisvalle, S.; Acquaviva, R. Antimicrobial, Antioxidant, and Cytotoxic Activities of *Juglans regia* L. Pellicle Extract. *Antibiotics (Basel)* 2021, 10(2), 159. doi: 10.3390/antibiotics10020159.
129. Żurek, N.; Pawłowska, A.; Pycia, K.; Grabek-Lejko, D.; Kapusta I. T. Phenolic Profile and Antioxidant, Antibacterial, and Antiproliferative Activity of *Juglans regia* L. Male Flowers. *Molecules* 2022, 27(9), 2762. doi: 10.3390/molecules27092762.
130. Dragoni, J.; Balzaretto, C.; Ravaretto, R. Seasonality of the microflora in environments of confectionery production. *Industrie Alimentari* 1989, 28, 481-486.
131. Lenovich, L. M.; Konkel, P.J. Confectionery products. In C. Vanderzant & D.F. Splittstoesser (Eds.), *Compendium of methods for the microbiological examination of foods*. Washington, DC: *American Public Health Association* 1992, 3, 1007-1018.
132. Hopko, I. *Food hygienic aspects of the confectionery industry*. 1979, Edesipar, 30, 8 [In Hungarian].
133. Thompson, S. Microbiological Spoilage of High-Sugar Products Food Microbiology and Food Safety book series (FMFS). *Compendium of the Microbiological Spoilage of Foods and Beverages*, 2009, pp.301-324. Disponibil online: https://link.springer.com/chapter/10.1007/978-1-4419-0826-1_11.
134. Bantea-Zagareanu, V. Application of walnut oil cake in sweets manufacturing. *The international conference Biotechnologies, present and perspective* 2017, Suceava, Romania, pp.9.
135. Bantea-Zagareanu, V. Effects of defatted walnut meal as a potential ingredient in bread: physicochemical, rheological, functional and sensory properties. *Journal of Engineering Science* 2023, 30(1), 187-206.
136. Steiner, A. E.; Foegeding, E. A.; Drake, M. Descriptive analysis of caramel texture. *Journal of Sensory Studies* 2007. <https://doi.org/10.1111/j.1745-459X.2003.tb00390.x>.
137. Campos, R.; Narine S.S.; Marangoni A.G. Effect of cooling rate on the structure and mechanical properties of milk fat and lard. *Food Research International* 2002, 35(10), 971-981 [https://doi.org/10.1016/S0963-9969\(02\)00159-X](https://doi.org/10.1016/S0963-9969(02)00159-X).
138. James, G. Color Measurement in Foods. *Laboratory Food technology*, 2003.
139. Banu, C. Quality and sensory analysis of food products. *AGIR*, Bucharest, 2007, pp.574.

CAPITOLUL IX.

1. List of the grape varieties registered in the Member States of the European Union. Disponibil online: http://www.eu-vitis.de/docs/eucatgrape/ANNEX_1A_V3-4.pdf., (accesat iunie 2023).
2. Soiuri de struguri. Disponibil online: <https://wineofmoldova.com/ro/soiuri-autohtone-de-struguri/> (accesat martie 2023).
3. Dejan T., Keller M., Hutton, R. Influence of Vineyard Floor Management Practices on Grapevine Vegetative Growth, Yield, and Fruit Composition. *American Journal of Enol. Vitic.* 2007, 58 (1), 1-11.
4. Soiuri de struguri. Disponibil online :<https://wineofmoldova.com/ro/soiuri-autohtone-de-struguri/> (accesat martie 2023).
5. Conferința națională ONVV „Anul vitivinicol 2019: succese, provocări și particularități”. Disponibil online: <https://wineofmoldova.com/ro/anul-vitivinicol-2019-succese-provocari-si-particularitati/> (accesat 10 martie 2023).
6. Conferința națională a filierei vitivinicole „2022 anul vitivinicol-evaluări și perspective de sustenabilitate” 31 martie 2023. Disponibil online: <https://www.facebook.com/wineofmoldova/videos/conferin%C8%9B%C4%83-na%C8%9Bional%C4%83-a-filiei-vitivinicole-edi%C8%9Bia-vi-a-anul-vitivinicol-2022/1248481226054786/> (accesat aprilie 2023).
7. România: soiuri de viță de vie și suprafețe cultivate. Disponibil online: <https://www.crameromania.ro/informatii-utile/romania-soiuri-de-vita-de-vie-si-suprafete-cultivate-409.html> (accesat martie 2023).
8. HG nr. 708 din 20.09.2011, reglementarea tehnică „Metode de analiză în domeniul fabricării vinurilor”, publicată 04.10.2011 în Monitorul Oficial Nr. 164-165 art. 804.
9. HG nr. 810 din 29-10-2015, regulamentul privind modul de evaluare a caracteristicilor organoleptice ale produselor vitivinicole prin analiză senzorială, publicată 13-11-2015 în Monitorul Oficial Nr. 306-310 art. 904. Disponibil online: https://www.legis.md/cautare/getResults?doc_id=114817&lang=ro# (accesat februarie 2020)
10. International Oenological CODEX of International Organisation of Vine and Wine. Disponibil online: <https://www.oiv.int/standards/international-oenological-codex> (accesat februarie 2023).
11. Covaci, Ec., Sclifos, A., Balanuța, A. Fetească Neagră wine quality influenced by terroir in different ecosystems from Republic of Moldova. In: *Abstract Book of the 5th International Conference Modern Technology in the Food Industry*, 2022; 78. ISBN 978-9975-45-851-1
12. Podrez, A., Stan, L., Covaci, Ec., Leopold, L-F., Diaconeasa, Z. Determinarea conținutului de compuși biologic activi din soiul Fetească Neagră. In: *Rezumatele lucrării Simpozionul Științific Studentesc*, UȘVIIB, Iași, 2022; 29-30. ISSN 2054-3789
13. Chiroșcă, N., Covaci, Ec. Cuantificarea potențialului de substanțe biologic active din soiul autohton Rara Neagră în condiții de microvinificare la UTM. In : *Conferința Tehnico-Științifică a Studenților, Masteranzilor și Doctoranzilor UTM*, 2020,1 477-480.
14. Covaci, Ec., Chiroșca, N. Технологические аспекты производства сухого красного вина из местного сорта Rara Neagră в условиях микровинификации ТУМ. In: *Book of XVIII Международная научно-технической конференции „Новые технологии в учебном процессе и производстве”*, 2020; pp. 365-368. ISBN 978-5-00050-034-7
15. Covaci, Ec., Vladei, N. Assessment the potential of biologically active substances of young red wine produced from Rară Neagră (local grape variety). In: *Abstract book of the 7-th International Conference Ecological and Environmental Chemistry*, 2022; 168-169.
16. Chiroșca N. Studiul potențialului de substanțe biologic active în vinurile roșii autohtone Rara Neagră din podgoriile viti-vinicole Purcari. Teză de licență, FTA, UTM, 2019.
17. Sclifos, A., Covaci, Ec., Stratan Al. Wine production from local varieties of grapes in microwinery conditions. In: *Journal of Engineering Science, Topic Biotechnologies, Food Chemistry and Food Safety*, (categoria B+), XXVI, 2019, 1, 106-113. ISSN 2587-3474
18. Covaci, Ec., Sclifos, A., Bodrug, A. Quality indices of wine brandies in dependence of

- distillation methods used. In: *Book of abstract Euro-aliment 2021, The 10th international symposium. Food connects people and shares science in a resilient world*, 2021, 95-96.
19. Covaci, Ec., Sturza, R., Druță, R., Subotin, Iu. Dynamics of white wine oxidability depending on technological factors: sulfur dioxide, iron and copper ions. In: *Abstract book of the 7th International Conference Ecological and Environmental Chemistry*, 2022, 161-162.
 20. Covaci, Ec., Vladei, N., Cocu, A. Oxidation of aromatic white wines under the influence of controllable technological factors. In: *Book of abstract Euro-aliment 2021, the 10th international symposium. Food connects people and shares science in a resilient world*, 2021, 97. ISSN 1843-5114
 21. Covaci, Ec. Influența unor factori fizico-chimici asupra stabilizării complexe a vinurilor tinere. Teză de doctorat, ICh a AȘM, 2016.
 22. Cocu, A. Influența tratamentelor tehnologice asupra proceselor de oxido-reducere în vinurile albe seci produse în condiții de microvinificare DOC/FTA. Teză de licență, FTA, UTM, 2021.
 23. Subotin, Iu., Druța, R., Covaci, Ec., Gherdelescu, L. The dynamics of the oxidation process of white wines depending on temperature, molecular oxygen rate and pH. In: *Abstract Book of the 5th International Conference Modern Technology in the Food Industry*, 2022, 96.
 24. Hortolomeu, A., Arseni, Al., Covaci, Ec. Determinarea stabilității proteice și a gradului de oxidabilitate a seriei de vinuri albe din zona Moldovei folosind metoda spectrofotometrică. In: *Conferința Tehnico-Științifică a Studenților, Masteranzilor și Doctoranzilor UTM*, 2021, 1, 423-425. ISBN 978-9975-45-699-9
 25. Hortolomeu, A., Mirila D., Petuhov, O., Didi Mohamed, A., Covaci, Ec., Sturza, R., Scutaru, Iu., Nistor, I-D. Identification of the polyphenolic level of young white wines by treatment with various inorganic and organic materials. In: *book of abstract The 16th international conference of constructive design and technological optimization in machine building field OPROTEH*, 2021, 73-74, 2021, ISSN 2457-3388
 26. Petrov, M. Studiul compoziției și a proprietăților antioxidante a procianidinelor din vinurile din soiul *Rara Neagră*. Teză de master, FTA, UTM, 2021.
 27. Covaci, Ec. Tehnologii noi pentru asigurarea calității și valorificarea potențialului antioxidant al vinurilor (cap.VI). In: *Principii de dezvoltare a oenologiei moderne și organizarea pieței vitivinicole: Monografie colectivă*. Coordonatori: Sturza R., Zgardan D., Editura: Tehnica UTM, Chișinău, 2020, 364 pp. ISBN 978-9975-45-640-1
 28. Constantin, O.E., Skrt, M., Poklar Ulrich, N., Râpeanu, G. Anthocyanins profile, total phenolics and antioxidant activity of two Romanian red grape varieties: Feteasca neagra and Babeasca neagra *Vitis vinifera*. *Chemical Papers*, 2017 (69), 1573-1581.
 29. Golan, R., Gepner, Y., Shai, I. Wine and Health-New Evidence. In: *Eur J Clin Nutr*, 2019 (72), 55-59.
 30. Sackson, S. Wine science. Academi Press. Food Science and Technology. International Series, Ediția II, 2000; 650 p. ISBN 978-0-12-379062-0
 31. Garban, Z. Nutriție umană. vol. I, București, 2000; 350 p.
 32. Apud, R., Stivala, M., Vaquero, M., Fernández, P. Bioactive compounds in wine: recent advances and perspectives. *Nova*, 2015; 135 p. ISBN 978-1-63483-697-5.
 33. Musteață, Gr., Zgardan, D. *Biochimie*. Chișinău, editura MsLOGO, 2016; 360 p.
 34. Fermentația și macerația în tehnologia producerii vinului. Disponibil online: <https://www.qdidactic.com/bani-cariera/agricultura/viticultura/fermentatia-si-maceratia-in-tehnologia-producerii-vi153.php> / (accesat martie 2023).
 35. Balanuța, A., Covaci, Ec., Sclifos, A., Scutaru, Iu., Zgardan, D., Patraș, A. *Procedeu de fabricare a vinului*. Brevet de invenție de scurtă durată nr. 1679 în buletinul AGEPI nr. 3 din 31 martie 2023.
 36. Balanuța, A., Sclifos, A., Covaci, Ec. The determination of yeast viability in the concentrated sugar solutions In: *Abstract Book of the 5th International Conference Modern Technology in the Food Industry - 2022, 20-22 october 2022*, Chisinau, 94.
 37. Balanuța, A., Covaci, Ec., Sclifos, A., Zgardan, D., Gherdelescu, L. *Procedeu de fabricare a vinului spumant în rezervoare sub presiune*. Brevet de invenție de scurtă durată nr. 1697, publicat BOPI nr. 6 din 30 iunie 2023.

38. Balanuța, A., Scutaru, Iu., Sclifos, A., Zgradan, D., Scutaru, A., Mitina, I. Îndrumar metodic. Bazele științifice și tendințe noi în enologie. Chișinău: Tehnica – UTM, 2023.
39. Musteață, Gr., Sclifos, A., Gherciu-Musteață L., Covaci Ec. Îndrumar metodic. Controlul tehnico-chimic și microbiologic al băuturilor alcoolice. Chișinău, UTM, 2017; 80 p.
40. Cotea, V. D., Zănoagă, C., Cotea, V. V. Tratat de oenologie. București, Editura Ceres, 1985, vol. I, 1988, vol. II. Analiza senzorială.