

**13<sup>th</sup> International Conference**

**PROCESSES IN  
ISOTOPES AND MOLECULES**

**Cluj-Napoca 2021**

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## Welcome at PIM 2021

It is a pleasure of the National Institute for Research and Development of Isotopic and Molecular Technologies to host the 13<sup>th</sup> International Conference Processes in Isotopes and Molecules (PIM).

The PIM conference, which started in 1999 as a local event, is now an international conference organized every two years by our Institute in Cluj-Napoca, the capital city of Transylvania, Romania.

PIM 2021 provides a stimulating communication and discussion platform in a wide range of topics, from fundamentals in physics and chemistry, to applied research on energy efficiency, environment, materials and isotopic technologies. The micro-symposium: *Celebrating half century of Magnetic Resonance in Romania* is scheduled in the last day, in parallel with the regular scientific sessions.

### Topics:

**T1 – Stable Isotopes, Labeled Compounds and Analytical Techniques**

**T2 – Molecules, Biomolecules and Green Technologies**

**T3 – Energy Efficiency and High-Tech Engineering**

**T4 – Nanostructured Materials - Nanocomposites and Hybrid Materials**

**Note:** The contributions to PIM are labeled using the format  $Ti-j$ , where  $i$  denotes one of the above topics and  $j$  denotes the contribution identification. Please follow this rule to track your contribution(s) in this *Book of Abstracts* or elsewhere.

T2-15**Effect of ultrasound-assisted extraction parameters on bioactive compounds from grape marc****A Ghendov-Mosanu<sup>1,2</sup>, I Lung<sup>2</sup>, M-L Soran<sup>2</sup>, O I Opreș<sup>2</sup> and R Sturza<sup>1</sup>**<sup>1</sup>Technical University of Moldova, 168 Ștefan cel Mare, Blvd. MD-2004 Chisinau, Republic of Moldova<sup>2</sup>National Institute for Research and Development of Isotopic and Molecular Technologies, 67-103 Donat, 400293 Cluj-Napoca, Romania

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**Abstract.** The influence of the ultrasound-assisted extraction (UAE) parameters (time of 10 and 60 min and temperature of 30 and 65°C) on the total polyphenol content (TPC) and total anthocyanin content (TAC) in the hydroethanolic extracts of grape marc were investigated. It was shown that the application of ultrasound for 10 minutes, and the extraction temperature changed from 30 to 65 °C, TPC increased by 10.6%, and in the case of TAC increased by 13.4%. In the case of applying UAE for 60 min, the extraction yield of TPC increased by 11.9% and in the case of TAC by 14.3%. It was also found that at the extraction temperature of 65°C, increase of ultrasound application time from 10 to 60 min, the TPC and TAC in the marc extracts decreased by 3.7% and by 7.6% respectively. Sensitivity analysis showed that the extraction temperature has a more essential influence on the of bioactive compounds content in the grape marc extracts than the duration of ultrasound application.

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T2-16**Optimizing the extraction of pectin from apple pomace****R Sturza<sup>1</sup>, A Gurev<sup>1</sup>, T Cesco<sup>1</sup>, A Patras<sup>2</sup> and A Ghendov-Mosanu<sup>1</sup>**<sup>1</sup>Technical University of Moldova, 168 Ștefan cel Mare Blvd, MD-2004, Chisinau, Republic of Moldova<sup>2</sup>“Ion Ionescu de la Brad” Iasi University of Life Sciences, 3 Mihail Sadoveanu Aleea, 700490, Iasi, Romania

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**Abstract.** In the paper analyzed the quality of pectin extracted from fresh apple pomace, from frozen and dried pomace, obtained at the Floresti juice factory. For each type of raw material, the extraction conditions (solvent volume, acid concentration, duration and temperature) were optimized to obtain a maximum yield. Unpurified pectin, extracted from fresh pomace, has a lighter color and a characteristic luster. Unpurified pectin, extracted from dried apple pomace, is brown. Pectin obtained from frozen pomace contains starch, which gives it a matte appearance. The mass fraction of extracted crude pectin varies between 14-34% DW, depending on the nature of the raw material and the extraction conditions. Fresh apple pomace is an excellent source of pectin (22-34%), the pectin obtained is more hygroscopic. Dried apple pomace is also a rich source of pectin (26-30%), for its extraction a lower volume of solvents is required. Frozen apple pomace showed a lower yield (14-18%), due to the lack of heat treatment of pomace before freezing to deactivate the enzymes responsible for pectin degradation.

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