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### Effect of ultrasound-assisted extraction parameters on bioactive compounds from grape marc

Aliona Ghendov-Mosanu<sup>1</sup>, Ildico Lung<sup>2</sup>, Maria-Loredana Soran<sup>2</sup>,  
Ocsana Ileana Opriș<sup>2</sup>, Rodica Sturza<sup>1</sup>

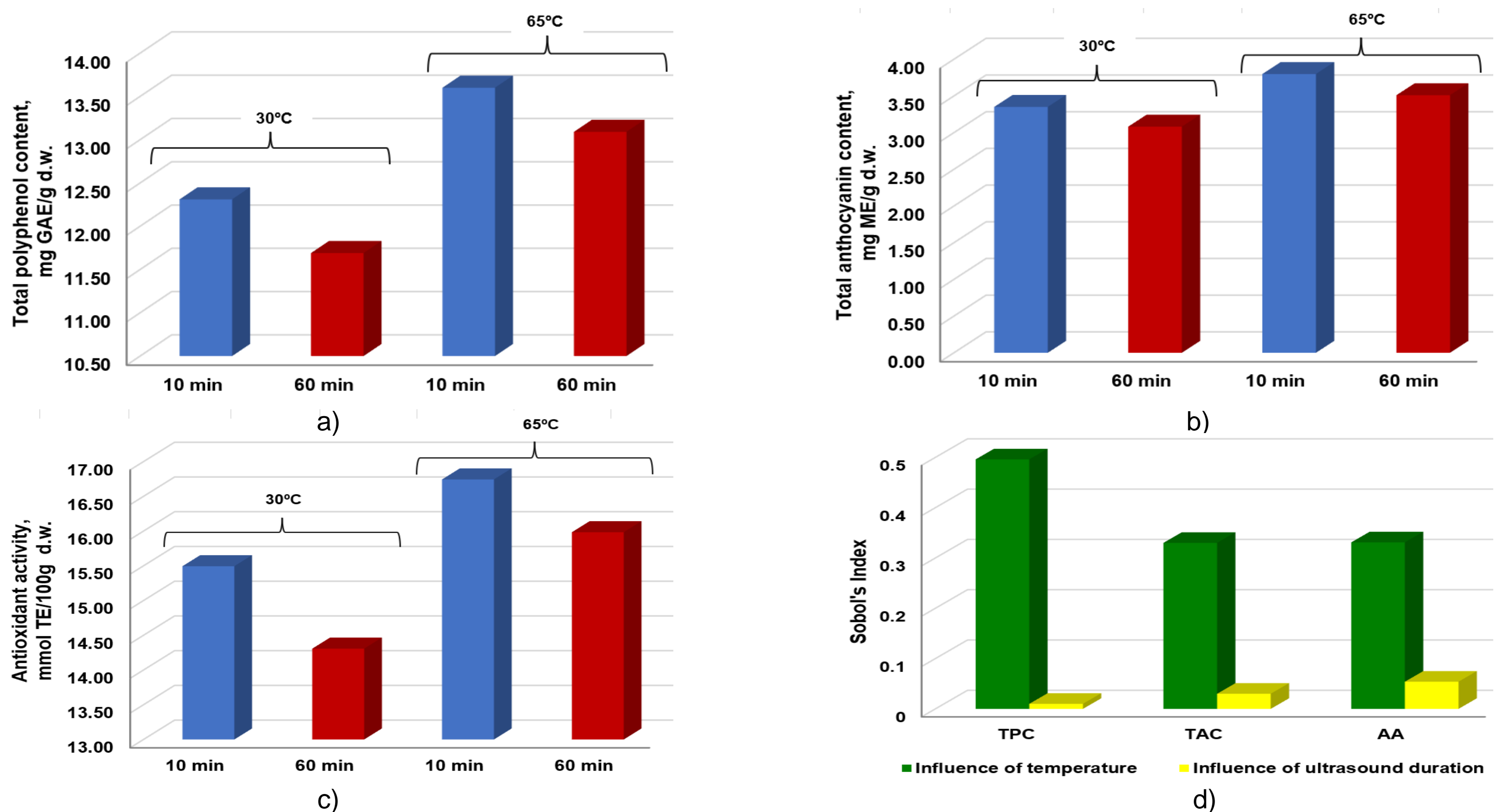
<sup>1</sup>Technical University of Moldova, 168 Stefan cel Mare, Blvd. MD-2004 Chisinau, Republic of Moldova

<sup>2</sup>National Institute for Research and Development of Isotopic and Molecular Technologies, 67-103 Donat, 400293 Cluj-Napoca, Romania

**GOAL OF THE STUDY.** Research of the influence of ultrasound-assisted extraction parameters on the extraction efficiency of biologically active compounds from grape marc.

**METHODOLOGY OF THE INVESTIGATION.** Extraction of biologically active compounds from grape marc by ultrasound-assisted extraction was performed at the concentration of 60% (v/v) EtOH, temperature of 30 and 65°C, duration of ultrasound application - 10 and 60 min, frequency of 35 kHz and at a power of 95 W. The total content of polyphenols, anthocyanins and the antioxidant activity by DPPH were analyzed in extracts.

**MAIN RESULTS FROM THE STUDY.** Figure 1 a-b were 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. The higher values of antioxidant activity correspond to the extraction yield of phenolic compounds at a temperature of 65 °C and the duration of ultrasound application 10 min, figure 1c.



**Figure 1.** The influence of ultrasound-assisted extraction parameters on the extraction efficiency of biologically active compounds from grape marc: a) total polyphenol content; b) total anthocyanin content; c) antioxidant activity; d) Sobol's index.

Sensitivity analysis (figure 1d) 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.

**CONCLUSIONS.** The results of the research showed that the use of by-products derived from the wine industry would allow to reduce to a minimum the amount of residues and to obtain valuable extracts of bioactive compounds with multiple fields of application.

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