

DYNAMICS OF THE FETEASCĂ NEAGRĂ GRAPE MARC EXTRACTS

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Grape marc accounts for 15-25% of the mass of grapes crushed and contains unfermented sugar, alcohol, polyphenols, tannins, pigments, and others valuable compounds. Despite grape marc having a bioactive potential, advanced technologies to exploit this have not been widely adopted in wineries and allied industries.

The recovery of functional phenolic compounds from red grape marc can be achieved, obtaining products that can be reinserted into the economy as a new raw material. The re-utilization of these compounds not only represents numerous potential applications, such as food and feed additives, functional foods, nutraceuticals, cosmeceuticals, and so forth, but also represents a favorable measure for the environment, and results in the formation of value-added products.

In the experimental study process, within the oenological research center of the FFT/TUM Department of Oenology and Chemistry, studies were carried out on the influence of wine-growing regions, extraction conditions (solvent, temperature, modality) on physico-chemical indices and stability of anthocyanin extracts from the local variety *Feteasca Neagră* marc. In the process of double extraction of the pomace samples from the 3 wine regions: Ștefan Vodă, Codru and Valul lui Traian, at temperatures of 40 °C and 60 °C, the alcohol content 40 % vol. and 60% vol. the optimal extraction conditions and their dynamic stability have been established. The graphical representation of the results shows that CFT in marc extracts increased with growth of ethyl alcohol concentration solvent: 2.86 mg GAE/mL at 40 % vol. and 3.06 mg GAE/mL at 60% vol. Effect described by the different solubility of the constituent polyphenols from the skin of the grapes.

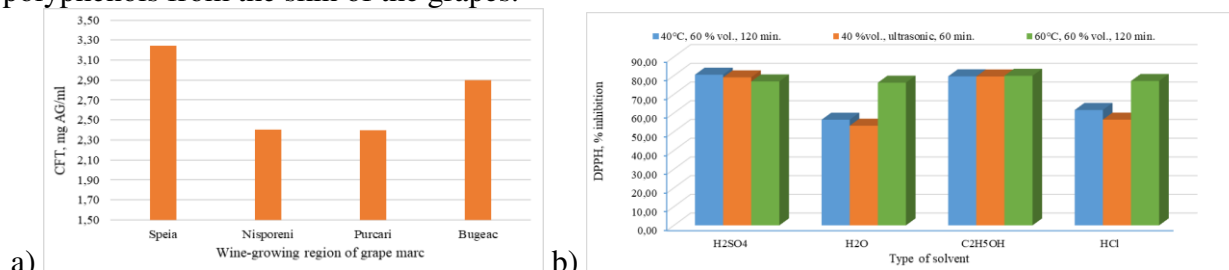


Fig. 1. Dynamics of the content of some experimental parameters in the study system: a) the content of total phenolic compounds depending on the wine-growing region of the study marc samples, b) the value of the antioxidant capacity of the samples at different extraction regimes and solvents.

Diagram 1 (a) shows a maximum content of total phenolic substances in the samples of Fetească Neagră marc in the southern region, 0.84 mg GAE/mL higher than the Speia group compared to that of Purcari and 0.5 mg GAE/mL for the group Bugeac/Nisporeni. The antioxidant capacity parameter DPPH (expressed as % of inhibition) showed maximum values for sulfuric acid and ethyl alcohol solvents (77 ÷ 81 % inhibition) and lower for HCl and acidified water (pH 2.6) within 54 ÷ 75% inhibition. Based on the mathematical processing of the results, the correlation coefficients (R^2) of the antioxidant capacity values, the total anthocyanin content and the total phenolic compounds content depending on the extraction solvents and the wine-growing region show significant values included in the limits 0.804 – 0.986.

Keywords: antioxidant capacity, colour parameters, extraction conditions

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