

KINETIC AND TECHNOLOGICAL INVESTIGATION ON FETEASCĂ NEAGRĂ GRAPE POMACE EXTRACTS

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Grapes are one of the most cultivated fruits worldwide. Red and white winemaking processes result in substantial quantities of solid organic waste, such as grape marc (pomace) and stalks, which requires suitable disposal. 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 purpose of the presented research is to obtain *Fetească Neagră* grape pomace extracts with numerous potential applications, such as food and feed additives, functional foods, nutraceuticals and cosmeceuticals. The influence of extraction conditions on the total polyphenol content (TPC), total anthocyanins content (TAC) and antioxidant activity (AA) (determined by the DPPH test), in the ethanolic extracts of 40 and 60 % (v/v) of *Fetească Neagră* grape marc was research. It was shown that by increasing the extraction temperature from 35 to 75°C the extraction of the TPC and TAC increased by 17.4 % and respectively 19.6 %. The highest values of antioxidant activity (AA) correspond to the extraction rate of phenolic compounds at the temperature of 75°C and the duration of ultrasound application 10 min, being 80,50 % inhibition of DPPH radical /100 g d.s.

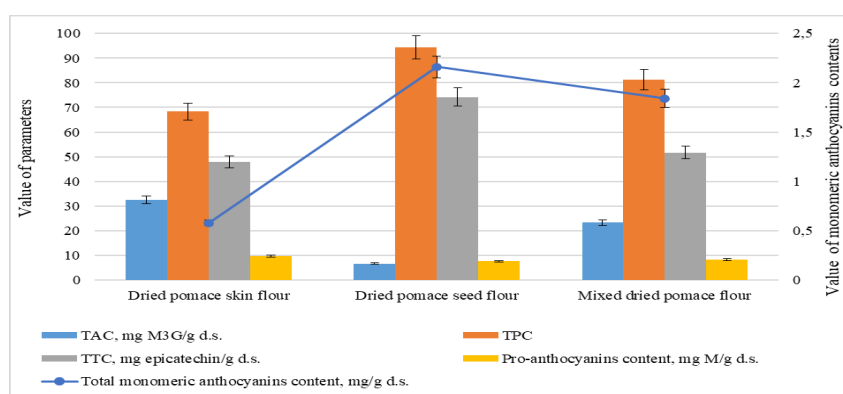


Figure 1. Dynamics of experimental parameters depending on the type of analyzed sample.

The correlation between the determined parameters varies within the 0,889-0,987 limits R^2 .

The obtained results attest that the addition of citric acid, glucose and fructose in *Fetească Neagră* grape pomace extracts contribute to increasing the stability of the content of biologically active compounds, mainly monomeric anthocyanins. Thus, it has been shown that the degradation of anthocyanins in the presence of citric acid is much slower, which exerts a protective effect. The stabilizing effect of anthocyanins induced by the addition of carbohydrates can be explained by the reduction of water activity in the extracts.

Keywords: bioactive compounds and grape pomace extracts.

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