EFFECT OF GRAPE SKIN INCORPORATION ON OXIDATIVE STABILITY OF ICE CREAM

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Grapes harvested worldwide are used in winemaking, and with the development of this industry, the volume of accompanied by-products increases, such as grape pomace, seeds, etc. These products are rich in polyphenols, tannins, and others, thus are of great interest for their subsequent exploitation. The paper explores the possibility of using grape skin powder as an addition to the production of ice cream. In order to achieve the objective of the research, influence of the addition of grape skin powder on the quality indices of ice cream was assessed. Ice cream samples were fortified with grape skin (GS) with the following combinations: 0 % GS, 2.5% GS, 5.0% GS, 7.5% GS and at 10.0% GS. The fortification of the ice cream with grape skin was done by reducing the amount of sugar in the 2.5 and 5.0% GS samples and including the amount of sweet cream for the 7.5 and 10.0% GS samples. The lipid content varied between 23.86 – 26.25 % for the ice cream samples. The acidity and peroxide index were determined for the ice cream samples: on the day of preparation, over 2 weeks and over a month after manufacture. Research has shown that the acidity index varied from 0.16 g acid/100g product at the time of manufacture to 0.23 g acid/100g after one month of storage in the control sample, and the same values were 0.1 g acid/100g and respectively 0.16 g acid/100g for the sample with 5% of GS. The peroxide index for the control reached values of 1.3 meqO_2/kg for the first day and 1.9 meqO_2/kg after one month of storage, while for the sample with 5% GS it was 1.3 meqO_2/kg and 1.5 meqO_2/kg respectively. Research has shown that the addition of grape skin powder reduces the rate of oxidative processes in ice cream samples, and significantly contributes to increasing the total polyphenol content (63.93 - 139.29 mg GAE / mL extract) and antioxidant activity (33, 63% for sample 10.00 % GS). Also, the fortification of the ice cream with grape skin powder significantly influences the color of the elaborate ice cream, the color difference varying in the limits ΔE = 37.37 - 54.94. It has been established that the incorporation of grape skin powder into ice cream formulations up to 5% has a microbiostatic effect, and as its concentration increases, an antagonistic effect is manifested.

Keywords: grape skin, ice cream, acidity index, peroxide index, polyphenol

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