

Influence of temperature and storage time on anthocyanin stability of grape juice treated by hot filling

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Presently the wine sector in the region of the São Francisco Valley, Northeast Brazil, is difficulties experiencing in achieving maintain color stability of prepared grape juices. This problem may be related to the high temperatures used during the process of extraction, pasteurization and storage of the grape juices, which can generate losses in the amount of phenolic compounds, mainly by the degradation of anthocyanins. The objective of this study was to analyze the storage temperatures on anthocyanins content of grape juices bottled hot, simulating inadequate cooling and storage conditions. To obtain the juices, grapes were macerated at 60 °C for two hours, after draining were pasteurized (85 °C / 1 minute), 85 °C bottled in glass bottles and cooled by immersion during 30 seconds in a water tank, and then kept at four different temperatures (70, 75, 80 and 85 °C) with the aid thermostated bath, simulating industrial inappropriate storage conditions. The design used in this study was completely randomized in a factorial design (4 x 5 temperatures heating times) with three replications, where the data were processed using the SAS software version 9.2. The initial content of anthocyanins in grape juices immediately after bottling was 863.3 mg L⁻¹. After 5 hours of heating, the reduction was 53.5, 54.7, 54.9 and 64.6% at temperatures of 70, 75, 80 and 85 °C, respectively. There was no significant difference to keep the grape juice heated by 70, 75 and 80 °C for five hours. Furthermore, it is also noted that the juices that were maintained at 80 and 85 °C for up to three hours showed very similar losses in anthocyanins. Finally, it is concluded that the temperature and grape juice after processing time is an important variable for maintaining the anthocyanin content in the beverage, thus being anthocyanin pigments responsible for the characteristic color of grape juice, represent visual attribute main commercial interest. From the results presented here it is suggested that special attention be paid to cooling processes of this post packaging product.

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