

Effect of Addition of Commercial Grape Seed Tannins on Phenolic Composition, Chromatic Characteristics, and Antioxidant Activity of Red Wine

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The effect of addition of grape seed tannins on the phenolic composition, chromatic characteristics, and antioxidant activity of red wine was studied. Two highly pure commercial grape seed tannins (GSE100 and GSE300) were selected, and their phenolic compositions were determined. Two types of red wines were made with Castelão/Tinta Miúda (3/2, w/w) grapevine varieties by fermentation on skin using two different maceration times, which correspond to the wines rich and poor in polyphenols, respectively. Each of these wines was used for experimentation with the addition of GSE100 and GSE300 before and immediately after alcoholic fermentation. Phenolic composition, chromatic characteristics, and antioxidant activity of the finished red wines were analyzed by HPLC-DAD, CIElab 76 convention, and DPPH radical test, respectively. The results showed that the addition of grape seed tannins had obvious effects of increasing color intensity and antioxidant activity only in the wines poor in polyphenols. Although GSE300 contained much higher amounts of di- and trimer procyanidins and a lower amount of polymeric proanthocyanidins, it provided effects of increasing the color intensity and antioxidant activity of the wines poor in polyphenols similar to those of GSE100. Furthermore, GSE100 released more gallic acid to wines than GSE300, although no gallic acid was detected in GSE100. Tannins added after alcoholic fermentation had a better effect on phenolic composition of red wine than tannins added before alcoholic fermentation.

KEYWORDS: Grape seed tannins; red wine; phenolic composition; chromatic characteristics; DPPH radical test

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