

INVESTIGATION OF THE DYNAMICS OF YELLOWNESS INDEX IN THE THERMAL TREATMENT OF FORTIFIED WINE MATERIALS

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The dynamics of the change in the yellowness index during the thermal treatment of wine materials for Port wine and Madera was investigated. The yellowness index is one of the indicators characterizing the intensity of brown hues, is used in winemaking as an indicator of the degree of oxidation of the wine. During the study, the heat treatment temperature (45 °C and 60 °C, typical for Port wine and Madera, respectively) was varied. Also, various amino acids and sugars were added to the samples as participants in the carbonylamine reaction, as well as phenolic substances and sulfur dioxide as reducing agents used in winemaking.

It was shown that the treatment temperature, as well as the concentration of aminoacids, reducing sugars, phenolic compounds and sulfur dioxide, plays a significant role in the maturation and color formation of wine materials. Aminoacids and sugars take part in the carbonylamine reactions and activate them. It leads to an increase in the concentration of reaction products, such as melanoidins and turbidity of wine materials and a decrease in the yellowness index in wine materials for Port wine and Madera. Phenolic substances and sulfur dioxide, on the contrary, reduce the potential of the system, which inhibits oxidative processes and also leads to a decrease in the yellowness index.

Keywords: wine material, Port wine, Madera, thermal treatment, maturation, yellowness index, amino acids, sugars, tannin, sulfur dioxide.

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