

ABSTRACT

ANALYSIS OF TOASTED OAK VOLATILES BY SOLID-PHASE MICROEXTRACTION (SPME) AND GAS CHROMATOGRAPHY MASS SPECTROMETRY (GCMS) AFTER OZONE SANITIZATION IN WINE

This research investigates the use of aqueous ozone to sanitize oak wine barrels and its effect it may have on the aroma volatiles from the oak. Toasted, new French oak blocks were treated with 1 mg/L, 5 mg/L, and 10 mg/L aqueous ozone before extraction in model wine solutions. Headspace solid-phase microextraction (SPME) and gas chromatography coupled with mass spectrometry was used to analyze several oak volatiles. Ozone treatments did not show a significant change in the concentration for each of the volatiles analyzed ($p=0.05$). In contrast, some volatiles demonstrated significant changes in concentrations within oak blocks treated with 82°C (180°F) water for 5, 10, and 15 minutes ($p=0.05$). These results support the use of ozone as a good alternative sanitizing agent for oak wine barrels.

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