

ABSTRACT

A METHOD FOR THE DETERMINATION OF ACETALDEHYDE IN WINE AND ITS APPLICATION TO MICRO-OXYGENATION

During micro-oxygenation of wine, acetaldehyde is generated at a slow enough rate that it is consumed by the wine. However, there is a point in the process where the wine will no longer take up the acetaldehyde, and it will increase to a sensory concentration at which wine quality is compromised. A method has been developed for the analysis of acetaldehyde in wine based on solid-phase microextraction with on-fiber derivatization. Pentafluorobenzyl hydroxylamine was absorbed onto a poly (dimethylsiloxane)-divinylbenzene-coated fiber and exposed to the headspace of a wine sample. The oximes formed on the fiber were desorbed into a gas chromatograph injection port and quantified by flame ionization detection in samples containing from 2 to 50 mg/L of acetaldehyde. The method was applied to samples of Petite Sirah, Merlot, and Chardonnay wine. The method was then used to monitor acetaldehyde levels during the micro-oxygenation of 2004 Merlot.

William Kenneth Carlton
May 2005