

Effects of Capture and Return on Chardonnay (*Vitis vinifera* L.) Fermentation Volatiles.

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Abstract

Effectiveness of a capture and return system for the partial retention of fermentation volatiles, as a means of improving white wine quality, was evaluated. Twenty-three aroma-active volatiles including ethyl esters, acetate esters, fusel alcohols, and fatty acids, were quantified using head-space solid phase microextraction with GC/MS. Volatile analysis of fermentations maintained at 15°C demonstrated a trend of increased concentrations of ethanol, esters and ethyl esters of fatty acids and decreased concentrations of fusel alcohol acetates, fatty acids and higher alcohols in treatment wines. When fermentation temperature was maintained at 30°C there was increased concentration and retention of fusel alcohols, fatty acids and higher alcohols compared to 15°C. Sensory analysis of wines fermented at 15°C, using triangle difference testing, indicated variable differences in aroma among treatments.

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Dedication

This work is dedicated to my loving parents. Their guidance and unconditional love has made me what I am today, and I thank them every single day for instilling in me their values for work, and play.

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