

Research Note
**Protection of Volatiles in a Wine with Low Sulfur Dioxide
by Caffeic Acid or Glutathione**

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Abstract: Concentrations of aromatic volatiles during storage of white wine with reduced (35 mg/L) or typical (55 mg/L) free sulfur dioxide for up to 210 days (7 months) were measured to evaluate how decreased SO₂ affects wine volatiles. Additions of caffeic acid (60 mg/L), glutathione (20 mg/L), or their mixture (30 mg/L + 10 mg/L, respectively) to wine with reduced SO₂ were also examined. In control and treated wines, concentrations of acetate esters, ethyl esters, terpenes and fatty acids decreased during wine storage, while concentrations of higher alcohols remained constant. Wine samples with reduced or typical SO₂ had statistically equal concentrations of volatiles, with the exception of ethyl acetate, which was higher in the latter. Caffeic acid, glutathione, or their mixture slowed the decrease of several volatile esters and terpenes such as ethyl acetate, isoamyl acetate, ethyl caproate, ethyl caprylate, ethyl caprate, and linalool. Results suggest that SO₂ gives only limited protection to wine volatiles but that caffeic acid, glutathione, or their mixture protects several aromatic volatiles of white wine with reduced SO₂.

Key words: wine, volatiles, sulfur dioxide, phenolics, thiols

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