Colour preservation of white wines using polyphenol compounds

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Gallic acid, caffeic acid and glutathione were used as additive for white wine preservation. Gallic acid or caffeic acid, in concentration of 60 mg/L and glutathione in concentration of 20 mg/L, were added in Vinho Verde white wine containing 35 mg/L of free SO_2 at bottling. For comparison white wine were bottled with 20 mg/L of free SO_2 and with 35 mg/L of free SO_2 (usual concentrations in wines), without gallic or caffeic acids or glutathione. Wine quality was evaluated in terms of sensory characteristic, color and aromatic compounds in the time of bottling and after 4 and 12 months of storage.
Sensory evaluation of the wines was made by a trained panel of 5 judges. The colour changes were assessed using CIELab method. Aromatic compounds in wine were quantified and identified, after liquid/liquid extraction using a gas chromatography coupled with mass spectrometry (GC-MS).
According to colour analysis, after 4 and 12 months, the wine with gallic acid was the one with better colour preservation and less oxidation, followed by the wine with caffeic acid. Moreover, the wine with gallic acid obtained the highest scores according the sensory evaluation. In terms of aromatic compounds all wines demonstrated a rich aromatic profile.
Present results indicate that gallic acid, caffeic acid and glutathione can improve sensory quality of white wine during storage and protect wine aroma volatiles.