



Thesis title: Antioxidant Capacity of Sulphur Dioxide in Model Wine Solution: A Comparison with Complementary Wine Additives

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Abstract (max 300 words)

<p>Topic position & objectives: Sulphur dioxide is nowadays the main antioxidant used in winemaking because of its strong ability to reduce and prevent wine oxidation process. Other antioxidants have been tried in winemaking industry but since now none of them have shown the capacity to replace sulphur dioxide. During the last decades a lot of scientific studies regarding both wine oxidation process and the different antioxidant properties are available, but a direct comparison between the main known antioxidants have never really been performed yet.</p> <p>The aim of this study is to perform a direct comparison of five oenological products (sulphur dioxide, ascorbic acid, glutathione, yeast lees and inactive dry yeast preparation) concerning their antioxidant effects in a model wine solution.</p> <p>Methods: Oxygen consumption capacity and effect on browning were evaluated. Moreover, for a more detailed investigation, cyclic voltammetry was also used to understand if there is a difference in the oxidation kinetic of catechin when the different antioxidants are used.</p> <p>Results: Ascorbic acid has faster oxygen consumption than SO₂ but its efficiency is connected to its concentration. Glutathione is less effective than SO₂ at the same molar ratio. Inactive Dry Yeasts shows a lower ability than SO₂ to consume oxygen but it seems to play a certain role in reducing browning reactions.</p> <p>Main conclusions: SO₂ and ascorbic acid are the most powerful wine antioxidants, and none of the antioxidants in our study can demonstrate a similar efficiency than SO₂</p> <p>Keywords (5): Wine oxidation, wine antioxidants, cyclic voltammetry, catechin</p>
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