

Effect of chitosan and SO₂ on viability of *Acetobacter* strains in wine

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Abstract

Wine spoilage is an important concern for winemakers to preserve the quality of their final product and avoid contamination throughout the production process. The use of sulphur dioxide (SO₂) is highly recommended to prevent wine spoilage due to its antimicrobial activity. However, SO₂ has a limited effect on the viability of acetic acid bacteria (AAB). Currently, the use of SO₂ alternatives is favoured in order to reduce the use of chemicals and improve stabilization in winemaking. Chitosan is a biopolymer that is approved by the European authorities and the International Organization of Vine and Wine to be used as a fining agent and antimicrobial in wines. However, its effectiveness in AAB prevention has not been studied. Two strains of *Acetobacter*, adapted to high ethanol environments, were analysed in this study. Both chitosan and SO₂ effects were compared in artificially contaminated wines. Both molecules reduced the metabolic activity of both AAB strains. Although AAB populations were detected by culture independent techniques, their numbers were reduced with time, and their viability decreased following the application of both products, especially with chitosan.

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