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Título artículo: Effects of the pre-fermentative addition of chitosan on the nitrogenous fraction and the secondary fermentation products of SO₂-free red wines

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RESUMEN:

Aim: Different red winemaking were carried out to evaluate the effects of the prefermentative addition of chitosan, as an alternative to the use of SO₂, on the secondary products of alcoholic fermentation, yeast available nitrogen (YAN), biogenic amines and ethyl carbamate.

Methods and results: Three types of red wines of *Vitis vinifera* L. Cv. Cabernet Sauvignon grapes were made in triplicate: (i) control wine with SO₂ (50 mgL⁻¹): SO₂ W; (ii) wine with chitosan (0.2 gL⁻¹): CHW; (iii) wine with chitosan (0.2 gL⁻¹) and SO₂ (25 mgL⁻¹): CH + SO₂ W. The chitosan used was Bactiless™ (Lallemand, SL, Barcelona, Spain), a biopolymer from *Aspergillus niger* fungus. The wines made with chitosan presented higher total acidity and higher content of tartaric and succinic acids than those made only with SO₂. The use of chitosan in winemaking resulted in wines with higher glycerol and diacetyl content without increasing the concentration of ethanol, acetic acid, acetaldehyde or butanediol. YAN was lower in wines made with chitosan, which may mean an advantage for the microbial stability of the wines. Furthermore, the use of chitosan at the beginning of alcoholic fermentation did not increase the concentration of biogenic amines or the formation of ethyl carbamate in SO₂-free red wines.

Conclusions: The total or partial substitution of SO₂ for chitosan at the beginning of the alcoholic fermentation gives rise to quality red wines without negatively affecting their nitrogen fraction or their very important secondary fermentation products such as acetic acid or acetaldehyde.

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