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Editores: José Alcides Peres (coordenador), Marco Sousa Lucas, Pedro Bandeira Tavares

Sociedade Portuguesa de Química
Av. da República, 45 - 3ºEsq
1050-187 Lisboa
Portugal
http://www.spq.pt/
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Potential of mannoproteins for white wine protein stabilization: effect on physicochemical and sensory characteristics

Tânia Ribeiro[1], Fernanda Cosme[2], Luís Filipe-Ribeiro[2], Fernando Milheiro Nunes[3], Arlete Mendes-Faia[2], Conceição Fernandes[1*]

[1]Mountain Research Centre (CIMO), ESA-Polytechnic Institute of Bragança, Apartado 1172, 5301-855 Bragança, Portugal, [2]Institute for Biotechnology and Bioengineering, Centre of Genomics and Biotechnology, (IBB/CGB-UTAD), [3]Chemical Research Center (CQ-VR), Universidade de Trás-os-Montes e Alto Douro, Apartado 1013, 5000-911 Vila Real, Portugal

conceicao.fernandes@ipb.pt

Wine haze formation is mainly due to protein insolubilization and precipitation. This problem affects considerably its commercial acceptance. Wine protein instability may be due to intrinsic or extrinsic factors, such as proteins molecular weight, isoelectric point, ionic strength, alcohol degree and wine pH or due to inadequate storage temperature. Several methods have been used to prevent this wine instability, however with several limitations, such as modification of physicochemical and sensory characteristics and limited efficiency in wine and costs associated. Mannoproteins could be an alternative method to wine protein stabilization. In recent years several additives based on mannoproteins are available in market. These are mainly obtained from *Saccharomyces cerevisiae* cell walls, being composed mostly by backbone of α(1,6)-linked mannose residues, containing short side chains attached to the O-3 or O-2 position of the main chain mannose residues. Therefore, the purpose of this work was to evaluate the effectiveness of eleven commercial mannoproteins based additives against protein haze formation in white wine.

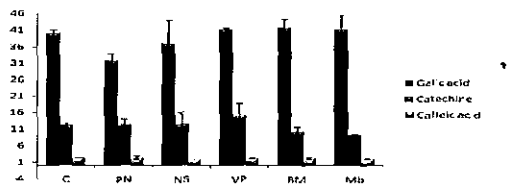

Figure 1 – Influence of mannoprotein in same phenolic acids and flavonoid compound (% area). C - untreated wine; PN - control; NS,VP, BM, Mb - commercial mannoproteins.

Mannoprotein additives were characterized concerning their sugar composition and protein content. The effect of the different additives on protein stabilization, as well as on phenolic compounds (total phenols, flavonoids, non-flavonoids and phenolic acids), chromatic characteristics and sensory attributes of the wine, were evaluated. Mannoproteins increased the thermal protein stability, and generally affect wine phenolic composition (Figure 1). An increase in lightness and sensorial characteristics of wines were observed. Thus, mannoproteins could be an effective alternative to wine protein haze and also to improve quality.

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