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BOOK OF ABSTRACTS

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P-246 - STUDY OF THE INTERACTION OF HYDROXYCINNAMIC ACIDS WITH DIFFERENT PROTEINS

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Background

Wine is a product that has intrinsically high added value due to its sensory quality, nevertheless, some flaws can appear during winemaking resulting in a poor-quality product, thus reducing its commercial value. One of these flaws known as "Brett character", results from the contamination by *Brettanomyces bruxellensis* producing volatile phenols [1]. These phenols are produced from the metabolism of certain precursor phenolic compounds. The understanding of how these compounds, phenolic acids and their conjugates, are metabolized by the wine microbiota, has been a key issue of study [2]. The aim of this work is to contribute to the development of strategies to remove the precursor substrates from the wine preventing the formation of volatile phenols.

Method

Knowing that proteins can bind to phenolic compounds [3], and that these are normally present or added to wine, this interaction could be a solution for the reduction of the content of the precursors of volatile phenolics. Three types of proteins were used, bovine serum albumin (BSA), casein (CAS) and ovalbumin (OVA), to bind to hydroxycinnamic acids (HCAs), p-coumaric acid, ferulic acid and caffeic acid. The analytical technique chosen to study the interaction of hydroxycinnamic acids (HCA) with proteins was the fluorescence quenching approach. With this technique, the fluorescence of the analyte (protein) is measured with and without the presence of the quencher (HCA).

Results & Conclusions

The results showed that the interaction of the HCAs with CAS presented higher values for the thermodynamic binding constant (Ka) and for the number of binding sites per phenols/protein (n). An HPLC-DAD method was also carried out and the obtained results were in good agreement with the ones obtained by fluorescence quenching.

References & Acknowledgments

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Keywords: Protein-phenolic interaction, Caffeic acid, p-Coumaric acid, Ferulic acid, Bovine serum albumin, Ovalbumin, Casein