

## **Determination of Effects of Genetic Diversity of *Oenococcus oeni* and Physicochemical Characteristics on Malolactic Fermentation Across Chilean Vineyards, using Multivariate Methods**

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### **ABSTRACT**

After alcoholic fermentation, *Oenococcus oeni* is the protagonist that carry out malolactic fermentation in order to improve the quality of wine. However, the effectiveness of malolactic fermentation varies according to intraspecific diversity of *O. oeni* at a genetic level and physicochemical concentrations of intrinsic factors. In this study, we assessed both components by isolating *O. oeni* from three Chilean vineyards (Maipo, Colchagua y Curicó) and measuring intrinsic components, such as biogenic amines and amino acids, during malolactic fermentation. Both data were condensed and then processed with Multivariate using the statistical method of correspondence analysis. The genetic data was clustered using the RAPD-PCR molecular method, and the physicochemical analysis was carried out using chromatography techniques. Isolation of *O. oeni* species and genetic diversity results between the vineyards revealed that *O. oeni* strains cluster according to its geographical origin, with strains similarity higher than 60% of all the samples. The wines of each valley could be characterized by the presence or absence of biogenic amines, and final correspondence analysis showed that there is a differentiation of strains between the studied Valleys, also confirming the accomplishment of the malolactic fermentation in the wines analyzed.

**Keywords:** Genotyping, Lactic acid bacteria, *Oenococcus*, Wine, Fermentation.