RNA fingerprinting analysis of Oenococcus oeni strains under wine conditions

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A B S T R A C T
Oenococcus oeni is a lactic acid bacterium of economic interest used in winemaking. This bacterium is the preferred species for malolactic fermentation (MLF) due its adaptability to the chemically harsh wine environment. MLF enhances the organoleptic properties and ensures decolorization of wines.

The aim of this work was the transcriptional characterization of six O. oeni strains, four of them selected from distinct winemaking regions of Portugal, as candidates to malolactic starters, and two commercial malolactic starters. Using crossed assays with wines from different Portuguese winemaking regions, strain characteristic transcriptional patterns induced by each wine were analyzed based on Random Arbitrarily Primed PCR (RAP-PCR).

The obtained results suggest that the starter strains showed more constrained and limited transcription profiles, whereas a high variation on the distribution of the transcription profiles was observed for the regional strains in each wine.

According with our results, RAP-PCR is a useful technique for a preliminary investigation of strain behavior under different wine environmental conditions, which can be applied in field studies to monitor differential patterns of global gene expression and to select markers for the surveillance of malolactic starters performance in winemaking, as well for quality and safety control.

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