

## Use of starter cultures of *Lactobacillus* to induce malolactic fermentation in wine

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### Abstract

#### Background and Aims

*Oenococcus oeni* is the lactic acid bacteria species that best adapts to harsh wine conditions. This species is currently the main component of the malolactic starter cultures used in winemaking. Other species of lactic acid bacteria, however, such as *Lactobacillus*, can also conduct the malolactic fermentation, especially in low acidity wines. This study aimed to identify suitable *Lactobacillus* strains and inoculation methods to undertake the malolactic fermentation in wines with pH > 3.5.

#### Methods and Results

Six *Lactobacillus* strains of species *L. mali* (E4634), *L. paracasei* (E4539, E4541), *L. plantarum* (E4538, E4608) and *L. satsumensis* (E4555) were selected for their good growth performance and high malolactic activity in grape must, although these characteristics differed among them. Freeze-dried starter cultures were obtained for strains E4538, E4608, E4555 and E4634. These starter cultures showed a high rate of malic acid consumption in grape must. Inoculation of the *Lactobacillus* strains in grape must, prior to fermentative yeasts, was selected as the best inoculation strategy to promote the malolactic fermentation.

#### Conclusions

Inoculation of the starter cultures of the selected *Lactobacillus* strains before yeast inoculation in grape must effectively allows malolactic fermentation in wines.

#### Significance of the Study

Inoculation of *Lactobacillus* strains in grape must, prior to fermentative yeasts, is an effective alternative to *O. oeni* to undertake malolactic fermentation in wines of pH > 3.5.

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