

The Study of Protoplast Fusion between *Oenococcus oeni* (malolactic fermentation bacteria) and *Saccharomyces cerevisiae* (yeast) for Industrial Wine Production.

ABSTRACT

Malolactic Fermentation is accepted as a secondary stage of industrial premium wine production that the malic acid will be converted in to lactic acid, which will make red wine pleasant in both taste and flavor. In this stage, *Oenococcus oeni* is responsible for the aging process and it can take years to complete. In order to decrease time duration for aging process in industrial premium wine production, therefore the improvement of strains which can perform both alcoholic and malolactic fermentation, for industrial wine production is studied. The techniques of protoplast fusion between *Oenococcus oeni* (malolactic fermentation bacteria) and *Saccharomyces cerevisiae* (yeast) were explored for this purpose. More than 1000 new fusant strains were obtained but there were only 8 new fusant strains in this study were found able to serve the purposes. After subculture the fusants to the second batch of wine production, those new fusant strains reduce their malolactic fermentation property but still perform alcoholic fermentation property. These fusants had a characteristic of yeast-like organisms. The 8 fusants strains were named as following:

- *Saccharomyces cerevisiae* var. *MLF 31 CCPY*
- *Saccharomyces cerevisiae* var. *MLF 135 CCPY*
- *Saccharomyces cerevisiae* var. *MLF 146 CCPY*
- *Saccharomyces cerevisiae* var. *MLF 148 CCPY*
- *Saccharomyces cerevisiae* var. *MLF 253 CCPY*
- *Saccharomyces cerevisiae* var. *MLF 317 CCPY*
- *Saccharomyces cerevisiae* var. *MLF 353 CCPY*
- *Saccharomyces cerevisiae* var. *MLF 501 CCPY*