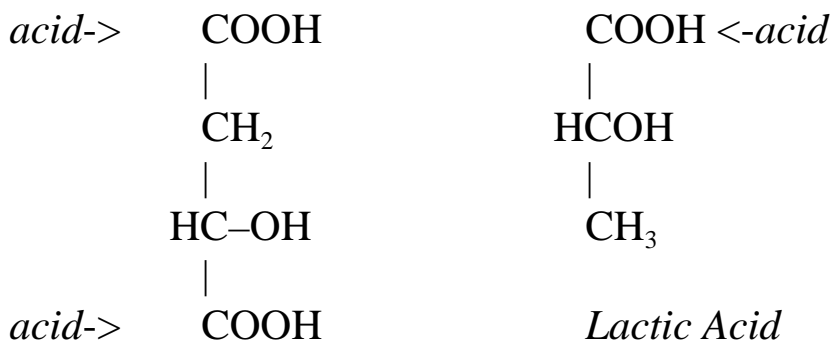


MALOLACTIC

by Frank Deis



Malic Acid

Most organic acids are carboxylic acids, that is, their acidity resides in the carboxyl groups. In the two acids shown above, it is obvious that Malic Acid ought to be about twice as acidic as Lactic Acid, because it has twice as many carboxyl groups. In fact, this is the case. Malic Acid is named after apples, and it contributes to the sharp sour taste of some green apples. Lactic Acid is named after milk, and has a gentler flavor.

Winemakers know that after the primary fermentation, performed by yeast, has come to an end, if they wait a while there will be a secondary fermentation. This is performed by *Leuconostoc* bacteria. Usually winemakers want this second fermentation because it makes the wine more smooth, round, and complex. It also stabilizes the wine – if you don't allow it to happen in the barrels, it may happen in the bottles, which could make the wine "fizzy" or unpleasant to drink. Some sweet wines, and some white wines that are supposed to retain an edge of sharp acidity, do not undergo MLF (Malolactic Fermentation) but most dry wines, white or red, do. German wines including Riesling and Gewürztraminer are good examples of wines that do not need MLF.

Grapes grown in cooler climates have more acidity from Malic Acid, but the "bugs" that perform MLF prefer warmer temperatures, at least 60° Fahrenheit. This can call for some intervention from the winemaker. Recently some molecular biologists put the genes for the MLF enzymes into yeast, so that one microorganism could do both jobs. This hasn't caught on in the wine industry. Check out:

<http://winemakermag.com/departments/112.html>

<http://wine.about.com/library/weekly/aa060500.htm>