

Using AR-2000

by Terry Rayner (AWO News # 22)

In short aromas and their pre-cursors are located in the grape-berry. When they are bound to sugars they are called aroma precursors. These precursors belong to the glycosides of terpenols, carotenoids and phenolic acids and are odourless.

Enzymatic hydrolysis of these glycosidic precursors can be carried out such as with enzymes like AR-2000. The AR-2000 acts to free terpenol content thereby enhancing the wines flavour and aroma. The content of the glycosides in white and red wine varieties is greater than the content of free aromas. The terpenyl glycosides can be divided into 4 types which break down to form glucosides and finally terpenols. There's a bunch of steps in between but the important thing is the release of the terpenols such as linalol, geraniol, nerol and linalol oxides.

In the studies done by Gist Brocades all wines obtained from enzyme treated musts contained less glycosides than the non-treated ones meaning that the terpenols had been enhanced. Included in the studies were grapes such as Frontignan, M. Ottonel, Gewurztraminer, Riesling, Syrah and Sauvignon (I think they're referring to Sauvignon Blanc). In these studies the glycosides were reduced by the following amounts; Sauvignon - 85%, Syrah -62%, Riesling - 62%, Gewurztraminer - 79%, M. Ottonel - 45%, and Frontignan - 62%.

The corresponding increase in terpenols was; Sauvignon - 501%, Syrah - 2138%, Riesling - 71%, Gewurztraminer - 407%, M. Ottonel - 26% and Frontignan - 107%.

The taste panel results were equally impressive with most of the grapes evaluated. The grapes included in the taste panel results were Grenache, Cinsault, Merlot, Cabernet Sauvignon, Gamay, Sauvignon, Semillon, Chardonnay, Gewurztraminer, and Chenin.

The manufacturer reports the benefits of using AR-2000 to include:

- a wine with smoother, multidimensional qualities
- increased aromatic intensity
- improved wine quality
- easier filtration
- remarkably better clarification

AR-2000 is active in wine within a pH range of 2.8 to 5.0, with an optimal pH being close to 3.5 and temperatures of 100C to 500C. Note: I have found that solubility of AR 2000 is decreased with cooler wine temperatures. Ethanol does not inhibit AR 2000.

The manufacturer suggests adding AR 2000 at the end of the primary fermentation. It can also be added at a later time, however, should not be added after bentonite has been added as the bentonite will disable the AR 2000.

The liberation of the aromatic terpenols increases with decreasing levels of grape sugar and is linked to the terpenic precursors in the must. This is why you don't add the AR 2000 until after the fermentation is complete and grape ripeness will also have a bearing on the available terpenic precursors.

Suggested usage levels are 1-5 g / 100 liters of must. (Yes you don't need much).

Dissolve the AR-2000 in 10-20 times its weight prior to addition to the wine.

Allow the AR 2000 2 to 3 weeks contact time minimum prior to fining. To remove the AR 2000 add an equivalent amount of bentonite on a dry basis.

The question has come up about not removing the AR 2000. I have not seen any studies to say what the impact of this might be although one would anticipate that some of these aroma precursors might play a role in the ageing of the wine so removing them might have an impact on the ageing potential.

AR-2000 should be stored in a cool dry place (i.e. fridge not freezer).

Gary King, of the Burlington Wine Guild, adds the following info: Glucolytic Enzyme, powder, AR-2000: Normal usage is 1 to 5 grams per 26 gallons of wine, added any time after the end of fermentation.

This enzyme supplements natural enzyme activities to release aromatic terpenols from non-aromatic precursors, resulting in higher aroma profiles characteristic of the variety. Stated more simply, it often improves the aroma of treated wines. It is active between pH 2.8 and 5.0, at temperatures between 50oF and 122o F, and at normal SO2 levels.