



QCL BREWING SCIENCE



CDR WineLab

Yeast Assimilable Nitrogen and Gluconic Acid Analysis

Weather, Grape Harvesting and Must Analyses

A wine's distinguishing features arise from the must it is made from. The latter's analytical monitoring during the pre-fermentation phase is an essential requisite to obtain a high quality wine. Total acidity, pH, sugar content, volatile acidity are just some of the tests that allow an accurate analytical monitoring of wine must, both before and during the alcoholic fermentation phase.

Increasing variability of the weather during harvesting, alternating between hot and dry or cool and wet, affect the wine-making process and require a more careful monitoring of the analytical parameters of the must.

Must Analyses When Harvesting in Hot, Dry Years

In hot, dry weather organic nitrogen is used by the plant for its own metabolism, so a lower quantity than usual is left in the must from grapes harvested in these conditions. It is therefore of paramount importance to accurately assess the actual concentration of Yeast Assimilable Nitrogen (YAN), both in terms of organic and inorganic (ammonia and ammonium ion) nitrogen, to best handle yeast nutrition and ensure the correct development of alcoholic fermentation.

It is also important to assess the YAN values on site, since these values vary with time and the results from samples sent to a laboratory might not be significant or useful for an optimal fermentation management upon delivery. Unfortunately, the traditional method for YAN analysis is not practical in a winery because of its complexity and the need to employ toxic chemicals.

YAN Analysis with the WineLab

Using the WineLab it is possible to easily perform a YAN analysis in five minutes, thus getting precise results in real time and being able to accurately determine the quantity of nutrients that needs to be added. Furthermore, YAN testing with WineLab allows accurate and separate assaying of the two sources of Yeast Assimilable Nitrogen, namely inorganic nitrogen (ammonia and ammonium ion) and organic nitrogen (free amino nitrogen) excluding proline and hydroxyproline, two amino acids that yeast cannot metabolize.

Must Analyses When Harvesting in Cool, Wet Years

When harvesting in cool, wet weather one of the most frequent problems encountered is the development of grey mould on the grapes. Musts derived from fungus-contaminated grapes accumulate a considerable concentration of gluconic acid, deriving from glucose oxidation by the fungus enzymatic complexes.

This compound, in turn, can heavily compromise the must healthy state, since it possesses a considerable binding capability towards sulfur dioxide, thereby depleting its free fraction and putting the must, and the wine, at risk from both a microbiological and an oxidative standpoint. This is why when the vintage year is cool and wet it is of vital importance to quickly determine the actual gluconic acid content.

In addition to an increase in the gluconic acid concentration, the must derived from grey mould affected grapes exhibits also a decreased concentration of sugars and total acidity, mainly affecting the tartaric and malic acid component. A marked depletion of the latter component may then impair the proper activation of the malolactic fermentation stage in red wines. The L-malic acid analysis, performed on the must in the pre-fermentation stage, allows a much more accurate and safe management of the ensuing vinification process.

Gluconic Acid Analysis

The WineLab performs a reliable gluconic acid test in 5 minutes to determine the health of the must, in order to quickly set up the fermentation protocol most suitable for optimum wine quality.

FOR MORE INFORMATION CONTACT:

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