



QCL BREWING SCIENCE



CDR WineLab

Analysis of Sugar in Wine

The analysis of sugar content in wine can be performed through enzymatic analysis, high performance liquid chromatography (HPLC) or through an assay of the reducing components (the so-called Fehling method). Analysis of the sugar content of the fermenting must allows close monitoring of the development of alcoholic fermentation. Having a quick, simple method to perform this analysis is therefore a key tool for the oenologist to manage the fermentation process.

The approach of the conclusion of the alcoholic fermentation is a turning point in the winemaking process and it is at that point that the sugar content is of capital importance for both red and white wines. Must sugar assaying through both enzymatic and chromatographic (HPLC) methods allows for an accurate estimation of fermentable sugars, that is glucose and fructose, ignoring pentose sugars.

An analysis of the total reducing components (Fehling method) to assay the sugar content at the end of alcoholic fermentation will yield a value that includes the pentose sugars, even though they are not fermentable since they cannot be assimilated by the yeasts. Pentose sugars are reducing compounds that are present in the grapes at constant concentrations varying between 1 and 3 g/l. This value is affected by several factors such as the vine variety, the soil, geographical latitude etc.

Since pentose sugars are not involved in alcoholic fermentation, their concentration remains constant throughout the process. Comparing results of the three different sugar residue assay methods at the end of the process, it can be observed that the results given by the Fehling method are consistently above the other two by anywhere between 1 and 3 g/l. This explains why it is of the utmost importance to know what method was used to assay the residual sugars at the end of fermentation, so that the value may be correctly interpreted.

This is a classic example comparing the test results with the three different sugar assaying methods:

	HPLC	Enzymatic Method	Fehling Method
Sugar Content in g/L	1.8	1.6	3.1

As shown in the above table, the HPLC method and the enzymatic method only measure the fermentable sugars, while the Fehling test yields a higher value inclusive of the pentose sugar content.

For a more precise determination of the conclusion of the alcoholic fermentation process, HPLC and enzymatic methods can be seen to be superior, since they only assay the concentration of sugars that are actually assimilated by yeasts, and are therefore involved in the fermentation process. The WineLab allows a precise assaying of the actual fermentable sugar content during alcoholic fermentation via an easy, fast and reliable method based on enzymatic analysis.

FOR MORE INFORMATION CONTACT:

QCL, Riverside, Forest Row Business Park, Forest Row, East Sussex, RH18 5DW
qclscientific.com info@qclscientific.com 01342 820820

