CROMOENOS®

Analytical method for predicting the color intensity of the wine and the quality of tannin

VINITECH SIFEL CITATION 2012

The Cromoenos method is **fast, 7 minutes instead of 4 hours are needed.** It predicts the probable color of the wine using the grapes by means of our coloring matter extraction method and a customized software standardised for each wine cultivar, both developed and patented by BIOENOS,S.L. It also provides the degree of tannin ripeness, through the phenolic ripeness index (IMF-PRI). This tells us:

1. Tannin ripeness, weather they are green and astringent or soft.
2. The proximity of the maximum probable color.
3. The extractability of anthocyanins.

This parameter, IMF-PRI, is very important to determine the timing of grape harvest.

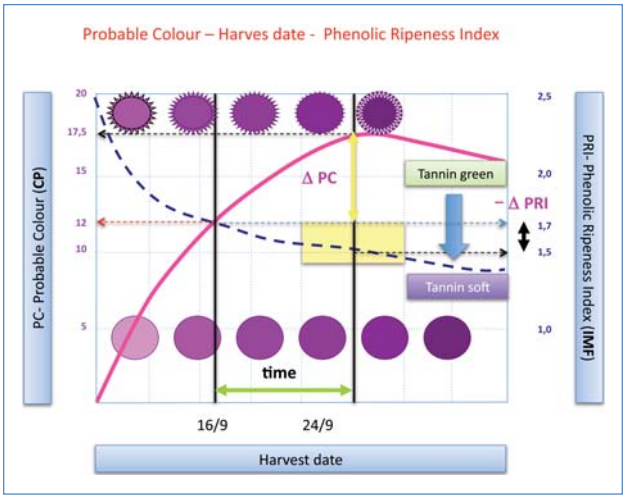
In addition to the stable probable color (after cold stabilization), the color after alcoholic and malolactic fermentation can be predicted, as well as the TPI of wine. Both, the anthocyanin content (ApH1) and the total tannins in grapes (Dr. Glories method) are also obtained.

It is performed with standard laboratory equipment, with the exception of Cromoenos Thermo extractor (microcentrifuge 13400 rpm) and the Cromoenos reagents. The investment is not expensive.

The diagram below and the example clearly explain these two concepts:

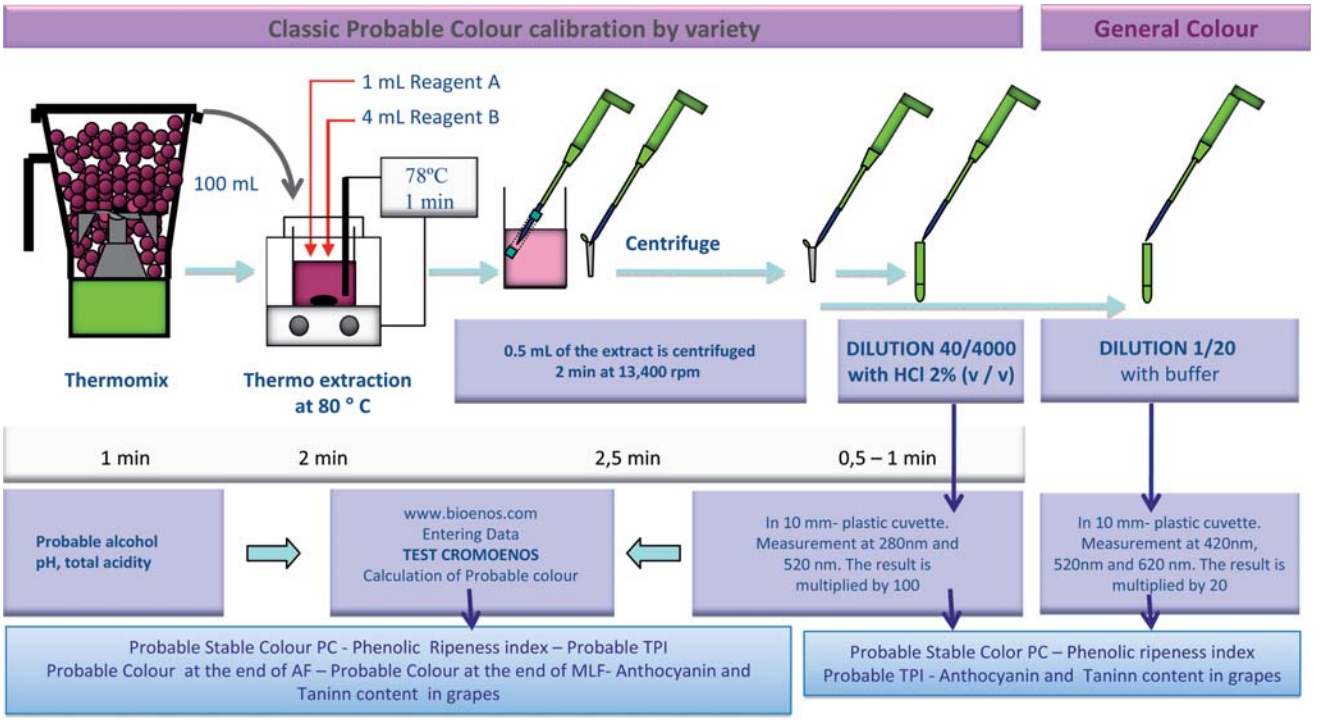
Probable Color of grapes (PC)

As the probable alcohol content indicates the alcoholic strength of the wine resulting from the grapes, the probable colour forecasts the stable Colour Intensity of the wine produced from the analysed grapes. This means that the colour losses resulting from the vinification and cryostabilization can be predicted.

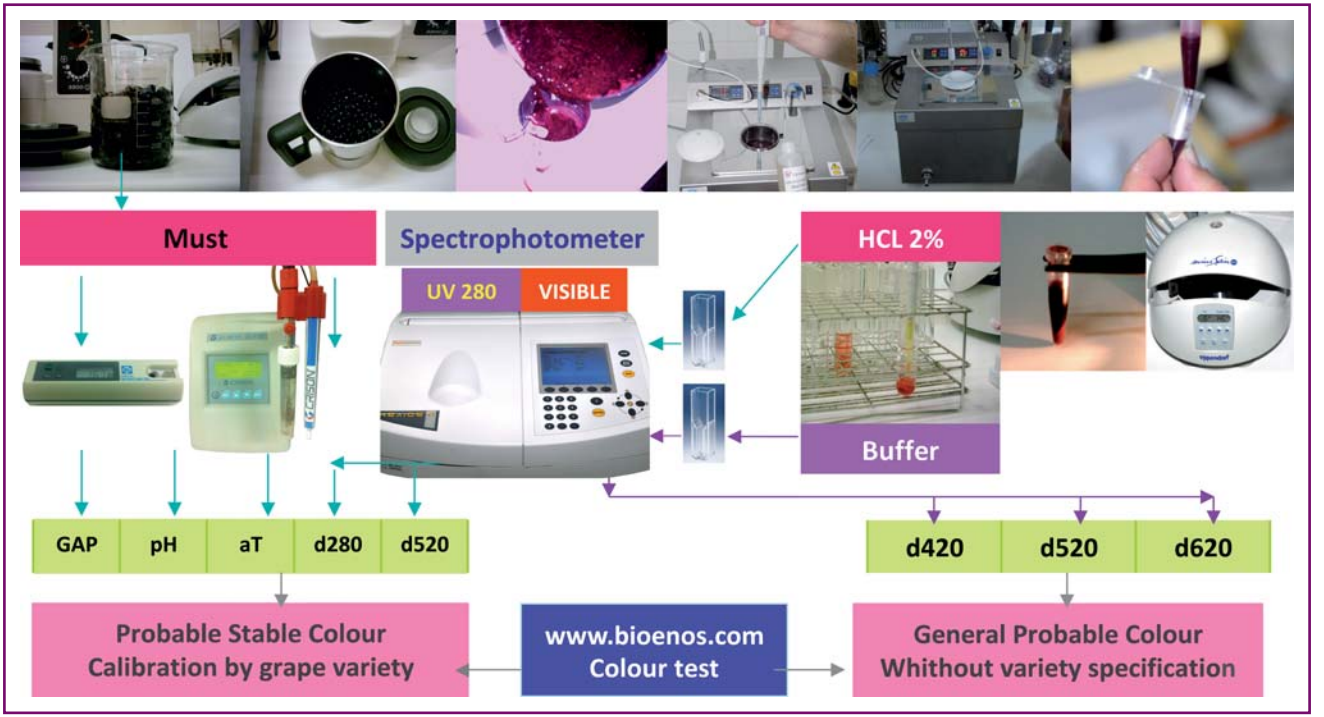


Phenolic ripeness index (IMF-PRI)

This value provides a great deal of information. On the one hand, the IMF-PRI value tells us weather we are near (IMF-PRI<1.6) or far from (IMF-PRI>2) reaching the maximum value of Probable Color (PC), which allows us to plan the ripening controls, and to forecast the grape harvest date more accurately. For example, grapes with 12 points of PC and 1.7 of IMF can be left in the vineyard for a longer time, as their colour can still increase up to 1.5 of IMF-PRI. The value of IMF-PRI is decisive to start the grape harvest.



The Probable Color predicts Stable Color Intensity, of the resulting wine. CP = IC x 10



On the other hand, **as the IMF-PRI decreases, the tannins are less green and astringent, and milder and fattier.** From IMF-PRI = 1.60 on, the green hue of tannins disappear.

Therefore, the IMF-PRI gives us an evaluation of the quality of tannins. In the above example, if grape harvest is carried out with an IMF of 1.7, the value of color and quality will be reduced, because the resulting wine will be greener and more astringent.

An effective tool to evaluate the quality of grapes and to visualize their vinification with accuracy

The data of CP, IMF-PRI and TPI obtained from the analysis allow us to design the type of vinification in advance. As a general rule, an IMF-PRI > 1,7 suggests to carry out a vinification avoiding the extraction of astringent green tannins (cold maceration or maceration at 78ºC or short maceration) and to arrange for a program of micro-oxygenation to combine green tannins and anthocyanins.

With IMF-PRI < 1.5 a long maceration can be carried out, in order to extract the quality tannins. In the case that the PC is not high and the TPI values are low (<45) with IMF<1.5, we can bleed and concentrate mild tannins.

Summary of applications

1. Control of best grape harvest time by means of the highest stable Intensity of Potential Color and the lowest rate of green tannin indexes.

2. Grapes can be paid according to points of color and tannin quality by evaluating the Phenolic Maturity Index (IMF-PRI). Some grapes (Cabernet, Syrah) may have a lot of color but high IMF-PRI, resulting in an astringent wine.

3. The IMF-PRI, PC and TPI values measured during the ripening allow us to visualize the tannin structure of wine and to design the vinification strategy accordingly. They also allow us to correct the grape defects or to extract all quality tannins contained in the grapes.

4. In case of blockades of phenolic ripening, we can act by changing the irrigation schedules according to IMF-PRI indications even for re-starting the ripening, if possible.

5. The values of PC measured after Alcoholic Fermentation together with the stable CP values allow the enologist to forecast eventual color falls and to design the micro-oxygenation plan to stabilize Color Intensity.

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