

AN APPLICATION
IN THE ENOLOGICAL FIELD

MT 00

MATURITY TREND

The determination of the phenolic maturity trend is an essential element in order to manage the ripening phase and then decide the correct wine-making technique, in consideration of the importance of the phenolic components such as colour, astringency, body, flavour, on the wine final characteristics.

The MT-00 can measure:

- 1. Potential and Total anthocyanines (TA)**
- 2. Anthocyanines extractability (AE)**
- 3. Contribute of tannins and grape seeds (Mp)**
- 4. Total Polyphenol Index (IPT)**
- 5. Tonality (T)**
- 6. Phenolic Quality (PQ)**

Indeed determining the evolution of the phenolic substances of different vineyards, their total amount but especially their potential extractability, is an important step for deciding the right time for harvesting.

The analysis only requires a not filtered sample being not treated with expensive and really pollutant chemical reagents.





What are the parameters it can measure:

1. Total and potential anthocyanines (TA):

they represent the total amount of extracted anthocyanines (measured in laboratory at pH=1), their value definitely changes according to the vineyard considered.

2. Anthocyanines extractability (AE):

it shows how many anthocyanines are potentially extracted during the winemaking process; it depends on the grape ripening (the more they are mature, the more their skin is degraded), and on the type of vineyard (some vineyards have skins which easily degrade).

3. Contribution of grape seeds tannins (Mp):

the more this value is high, the more the grape seeds have extractible tannins; the Mp depends both on the type of vineyards, on the ripening conditions, and on the number of grape seeds for each berry.

4. Total Polyphenol Index (TPI):

it represents all the phenolic components, it is measured like the optical density at 280 nm.

5. Tonality (T):

it is the classical ratio between the yellow component (DO 420) and the red one (DO 520). With a sample of wholesome grapes, the tonality is a ripening index of the red grapes, starting with very high values (about 1) when grape is not very mature, decreasing under 0.4 when it is mature.

6. Phenolic Quality (PQ):

with the phenolic quality value it is possible to define the maturity conditions of the grapes and their probable amount of polyphenolic flavouring substances.

What are the principles of the MT-00:

MT-00 is a diffuse reflectance spectrophotometer which uses specific wave length led sources and, through a combined reflectance and turbidity measure, draws the optical densities at 280-320-420-520-620-880.

Thanks to the intuition of exploiting a diffuse reflectance method for this kind

of measurement we have introduced an important benefit: the not filtered sample, which is even not treated with expensive and highly pollutant chemical reagents.

The Importance of the Phenolic Maturity:

The determination of the phenolic maturity is an instrument to better manage the potentials of each vine, in different areas and cultivation conditions, in order to obtain quality wines. The phenolic components are really important for their influence on the wine characteristics (**colour, astringency, body, flavour**).

The determination of the evolution of the phenolic substances of different vineyards, their total amount and especially their extraction potential, is important to decide the right time for harvesting without using only technological parameters.

With the phenolic maturity is possible to choose the most suitable wine-making technique, the maceration times, if it is necessary to use enzymes and where keeping the wine. Practical example: with a grape with a great amount of tannins in the grape seeds, it could be useful a soft grapes crusher, then reducing maceration times.

Why buying a "Phenolic Maturity" analyzer:

- To monitor the maturity trend.
- To define the time for harvesting.
- To create ripening curves.
- To define a plot of vineyards.
- To control the efficiency of some agronomic interventions in the vineyard.
- To select the grapes during the harvesting.
- To define different winemaking technologies.
- To create a complete database with all the grapes data.

What are the advantages compared to other methods:

- Easy to use, also by not expert staff.
- Easy and quick method of analysis.
- Analysis on the natural product.
- Complete and intuitive user interface.
- Graphical presentation of data.
- Minimum working cost.



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