

## RELATIONSHIP BETWEEN PHYSICAL AND MECHANICAL BERRIES PROPERTIES AND PHENOL EXTRACTABILITY OF DIFFERENT VARIETIES OF *VITIS VINIFERA* L. GRAPES

Imen Zouid<sup>1</sup>, René Siret<sup>1\*</sup>, Chantal Maury<sup>1</sup>, Frédérique Jourjon<sup>1</sup>, Emira Mehinagic<sup>1</sup>,  
Susana Rio Segade<sup>2</sup>, Luca Rolle<sup>2</sup>

<sup>1</sup> PRES L'UNAM, Unité de recherche GRAPPE, UMT VINITERA, Ecole Supérieure d'Agriculture, 55 rue Rabelais,  
B.P. 30748, F-49007 Angers Cedex 01, France.

<sup>2</sup> DI.VA.P.R.A., Microbiology and Food Technology sector, University of Turin, Via L. da Vinci, 10095 Grugliasco,  
Turin, Italy.

\*Corresponding author (email: [r.siret@groupe-esa.com](mailto:r.siret@groupe-esa.com))

In wine making, the decision of the best time of harvest is crucial to adapt oenological management practices. Traditionally, this date is defined thanks to maturity indices based on sugar-acidity ratio and polyphenols content. Phenolic compounds, extractable from grape skins and seeds, have a notable influence on the quality of red wines. Mechanical properties measurements are widely used in fruits field for determination of fruit quality (apple, tomato ...) and prediction of date of harvest. In grape berry, some authors showed that the puncture test can be used to determine grape véraison and maturity and demonstrated that some mechanical texture parameters were able to show differences between grapes having different ripening level and permitted the origin of the grapes to be distinguished. There is abundant information concerning the evolution of phenolic composition and relative extractability on grapes sampled at different times during ripening, but at the same date the physiological characteristics of grape berries in a vineyard are often very heterogeneous. Taking in account the existing issues, the main goal of this work was to study the physical and mechanical properties of *Vitis vinifera* L. red grapes (Cabernet Franc and Mencia) harvested at the same date from several vineyards and calibrated according to their density, and to correlate these results with their degree of ripeness and phenol extractability. Significant differences were found in grape textural properties and phenolic compounds content due to the sugar level on berries. Moreover, significant relations were found between the extractability of anthocyanins, the mechanical parameters and physical attributes (weight, volume, berry height...) of grape berries.

Key words:

Texture analysis, phenol extractability, sugar level, mechanical properties, grapes.

**A lire aussi :**

- [La présentation PPT faite à Macrowine à Turin le 17 juin 2010](#)