

# **Contribution to the study of the impact of vegetation management on microclimatic dynamics and grape quality**

**Guelmani-Hesnaoui Naima**

[naima\\_hesnaoui@yahoo.fr](mailto:naima_hesnaoui@yahoo.fr)

Natural Resources Laboratories, University Mouloud Mammeri,  
Tizi Ouzou, Algeria.

**Houamdi-Idir Ouiza**

Natural Resources Laboratories, University Mouloud Mammeri,  
Tizi Ouzou, Algeria.

[houamdi@yahoo.fr](mailto:houamdi@yahoo.fr)

**Abderrahmane Mellak**

Hydrocarbons and Chemicals Faculty – Director of Laboratory of Hydrocarbon  
Engineering (LGPH), Université M'Hamed Bougara, Boumerdès. Algeria.

[a.mellak@univ-boumerdes.dz](mailto:a.mellak@univ-boumerdes.dz)

**Kaddour El Heit**

University Mouloud Mammeri,  
Tizi Ouzou, Algeria.

[kaddy62003@yahoo.fr](mailto:kaddy62003@yahoo.fr)

## **Abstract**

The grape is the fruit of the vine (*Vitis vinifera* of the Vitaceae family), the most cultivated in the world. At the end of our work, the objective of which is the technological and biochemical characterization of the cardinal variety. The study was conducted at a private farm in Draa-Ben-Khedda. In this context, we contributed to the study of the impact of the exposure and topography factors on the microclimatic dynamics and the physicochemical quality of the grapes, in this case the Cardinal grafted on the SO4 rootstock, from samples and the Station A (low-lying) and Station B (25% slope) bays were weighed. From the must, we determined the sugar content, the total acidity, the index of the total polyphenols. The vineyard planted on a slope and oriented towards the Southwest is sunnier, favorable to the maturation of the berries, have their acidity lowered and the organoleptic and aromatic quality increased. The OIV analysis methods were our main reference. The exposed canopy area (SECV) is higher in plot A (shallow bottom), this is due to the fact that it is wetter, colder; favorable to vegetative development, therefore, to fungal diseases such as downy mildew, powdery mildew and gray mold. A statistical study is carried out in order to highlight the most discriminating parameter: the temperature. However, analysis of the variance, with two factors (station, exposure), revealed that there are very highly significant differences and an appreciable coefficient of variation for most of the studied parameters, it appears that all the parameters are positively correlated with temperature except for pH and acidity, which leads to the conclusion that the temperature of the microclimate conditions the agro-technological quality of the grapes.

**Key words:** Impact, microclimatic dynamics, station, exposure, Cardinal, grape quality, physico-chemical analysis.