

Influence of Nitrogen on the Alcoholic Fermentation during Cabernet sauvignon (*Vitis vinifera*) Winemaking

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Introduction: A common event during the vinification is the "stuck fermentation", caused by the insufficient amount of nitrogen in the must. **Methods:** Faced with this problem, this study aimed to spray different ammonia concentrations in the soil (10, 60 and 120 kgN.Hectare-1) of the cultivar Cabernet Sauvignon and evaluate the efficiency of the management technique in supply nitrogen for the must and its influence on the alcoholic fermentation. As a control, some vineyard parcels not received ammonia. At the time of the harvest, the grapes were harvested and microvinified. The alcoholic fermentation was monitored daily through the bottles weight loss (related to the conversion of carbohydrates into ethanol and CO₂). The musts were analyzed for assimilable nitrogen (FTIR) and amino acids (UPLC) and the wines were analyzed for oenological parameters (pH, alcohol content, sugar and total and volatile acidity) (FTIR). **Results:** The vineyard parcels sprayed with ammonia presented richest musts in assimilable nitrogen (129, 184 and 165 mg.L⁻¹) and amino acids (737, 998 and 907 mg.L⁻¹) compared to controls (115 and 601 mg.L⁻¹, respectively). The vineyard parcels that presented higher concentrations of these compounds in musts reduced their fermentation time of 9 to 8 days. The enological parameters of wine (pH, total acidity, volatile acidity, ethanol and sugars) showed small differences between parcels. There were positive correlations between the assimilable nitrogen and amino acids concentrations on the content of ethanol (0.95) and negative correlations between assimilable nitrogen and amino acids concentrations on the volatile acidity (-0.99). **Conclusion:** We conclude that the management technique applied was efficient, the vines were able to assimilate nitrogen from the soil, making it available for the alcoholic fermentation. This compound was immediately used by the yeast, resulting in increasing their biomass and acceleration of the alcoholic fermentation, ending the process in less time without damaging the quality of wines.
Capes e Capes-PDSE.

Palavras-chave: amônia, nitrogênio assimilável, aminoácidos, vinificação, *Vitis vinifera*.