

Grape composition during ripening, in two cultivars and different sites of “Beira Interior” region

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The grape composition along the ripening period will determine the must characteristics and, consequently, wine quality. To study the grape chemical composition during the ripening period, about 60 samples with 100-200 grapes per sample were collected and analysed for total soluble solids (TSS), total acidity, total polyphenols, colour intensity and tint, in ‘Síria’ and ‘Aragonês’ (syn. ‘Tinta Roriz’; ‘Tempranillo’) cultivars, and in three different locations of the “Beira Interior” region of Portugal. TSS was evaluated by refractometry and total acidity was determined by acid-base titration. Total polyphenols index ($A_{280\text{ nm}}$), colour intensity ($A_{420+520+620\text{ nm}}$) and tint ($A_{420/520\text{ nm}}$), were evaluated by UV/VIS spectroscopy.

Using the thermal time (sum of temperatures $\geq 10^{\circ}\text{C}$ from 1st of January) to represent the natural conditions influencing vine ecophysiology during the ripening period, the results showed a similar trend for increasing TSS and decreasing total acidity and total polyphenols, despite some differences between locations. Those differences agreed in general with the differences of vines location, more northern (cold) or more southern (warm) ones. Local differences in total polyphenols were more pronounced than in TSS or total acidity. The colour intensity and tint of the ‘Aragonês’ red grape generally increased until the middle of the ripening period and then decreased until the harvesting. The differences between sites were not pronounced, except for tint in the southernmost vineyard. In the white grape ‘Síria’, colour intensity and tint have shown any regular pattern with thermal time.

In conclusion, it seems that grape characteristics, as sugars and acidity, are primary influenced by general environmental conditions, while others, as polyphenols, colour intensity and tint, are rather depending on specific or local factors.

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