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Potassium uptake of rootstock varieties and hybrids - implications for wine quality

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Abstract: Australian wines, in particular those from hot irrigated areas, often have high pH values, which leads to low acidity, brownish colour and microbial instability. High K concentrations have been implicated in the development of high pH in grape juice and wine from these regions. Studies in the hot irrigated areas have demonstrated effects attributable to rootstocks on K concentrations and the pH of grape juice.

In field studies a correlation was found between the rootstock effects on scion grape juice pH and K accumulation in the petioles of ungrafted rootstock plants. This indicates that the effect of rootstocks on the scion grape juice pH is linked to their ability to accumulate K. The rootstock varieties Dog Ridge, Rupestris du Lot and Freedom had high K accumulation in their petioles and gave high scion grape juice pH, while the varieties 140 R, 1103 P, 1202 C had low K accumulation in their petioles and low scion grape juice pH.

The results indicate that measurement of K accumulation in the petioles of ungrafted rootstocks has potential for routine screening of genotypes which will result in low grape juice pH with grafted scion varieties and improved wine quality.