Defining ‘green’ flavour in Cabernet Sauvignon wines

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Introduction

The term ‘green’ is often used in the wine world, but it has an ambiguous meaning. What do people mean when they use ‘green’ to describe a flavour? A number of sensory techniques were employed to investigate this question. A trained descriptive analysis panel and a winemaker panel were used to identify sensory attributes associated with the ‘green’ concept in 18 Cabernet Sauvignon wines. A subset of the wines were also assessed for liking by an untrained group of consumers. The information was combined to understand how winemakers and consumers see ‘green’ characters.

Descriptive analysis

Nine trained, experienced panellists from the AWRI’s sensory descriptive analysis panel characterised the wines using carefully detailed terms. In the Principal Component Analysis biplot to the right, the main differences can be seen from left to right, with those wines plotted to the far left of the figure rated highly in ‘green stalks’ aroma and flavour, as well as ‘vegetal’ aroma and bitterness. Wines to the right in the figure were rated lower in these attributes and higher for the attributes ‘dark fruit’ aroma, ‘viscosity’ and ‘overall fruit flavour’. Separation of the wines from top to bottom was based on the attributes ‘eucalypt’ and ‘mint/herbs’.

Winemaker mapping

Twenty wine professionals participated, with each judge producing two replicates maps. Judges evaluated each wine, identified only by a three-digit code, and placed it on a large sheet of paper according to their own criteria, with similar wines placed close together and dissimilar wines far apart. Judges were also asked to write comments beside the wines regarding their characteristics. The group map obtained can be seen in the figure to the left. The generation of the map from the winemakers allows a link to be made regarding the descriptors winemakers use compared to the trained panel. It indicates that the term ‘green tannin’ used by winemakers for these wines relates to low flavour intensity and viscosity, and high bitterness, ‘vegetal’ and ‘capsicum-like flavour. The ‘eucalypt’ or ‘mint’ attributes did not relate to perception of ‘green’ characters by the winemakers.

Consumer Preference

A consumer tasting was conducted by 113 individuals from the AWRI’s Adelaide-based untrained consumer panel, rating overall liking for six of the wines. The least liked wine was one indicated by winemakers as having ‘green tannin’, and was characterised by the trained sensory panel as being higher in ‘vegetal’, ‘green stalks’, acidity, astringency and bitterness than the other wines tasted by the consumers. The two well-liked wines were both rated high in ‘red fruit’, ‘dark fruit’ and ‘oak’, and relatively low in acidity, bitterness and astringency by the descriptive panel.

Conclusions

The descriptive panel showed that the wines had two groups of ‘green’ attributes. The winemaker panel results showed that their terms ‘green’ and ‘green tannin’ related to the descriptive panel’s attributes ‘green stalks’, ‘vegetal’ and ‘bitter’. Regular red wine consumers responded negatively to wines with ‘green’ characteristics.

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