

# Exploring the varietal effect of flavour precursors derived from grape marc on wine flavour

AWRI

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## BACKGROUND

- Grape marc contains an abundance of flavour precursors, but is often discarded
- Re-introduction of phenol-free grape marc extract to wine can contribute to the release of beneficial volatile compounds

## METHOD

- Floral and non-floral grape varieties were collected across 2016, 2017, 2018 and 2019
- Grapes were pressed and the juice and marc stored at -18°C
- The marc was extracted into water for 24 hours, strained then centrifuged
- FPX66 resin was used to isolate the flavour precursors from phenolics before eluting with ethanol
- The marc extract was concentrated under rotary evaporation and lyophilised to dryness
- Each marc extract was added into a commercial Chardonnay wine at 0.4 g/L, crown sealed and cellared at 15°C for five months

## RESULTS

- Geraniol glucoside concentration increased before plateauing during the first six months of storage
- Monoterpenes contributing to 'floral' aroma were abundant in wines irrespective of grape marc variety
- β-Damascenone was the dominant C<sub>13</sub>-norisoprenoid affected as a result of non-floral extract addition
- There were clear differences in sensory properties due to variety: Muscat marc extracts gave more 'floral' and 'rose'; Shiraz and Cabernet Sauvignon marc extracts increased 'red fruit' and 'pink' colour



## CONCLUSION

The flavour of wine can be altered by addition of extracts from repurposed grape marc, post-fermentation. The addition of grape marc extract from Muscat varieties showed increased 'floral' attributes; however, the high level of potential flavour from Muscat varieties may require it to remain separate from that of other varieties.

## BUT..?

What happens to bound aroma precursors in wine during storage? What impact does the addition of marc extract from different varieties contribute to the overall flavour of wine?

