

# Comparative performance of 18 laboratories in the measurement of smoke markers in wine

# AWRI

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## Background

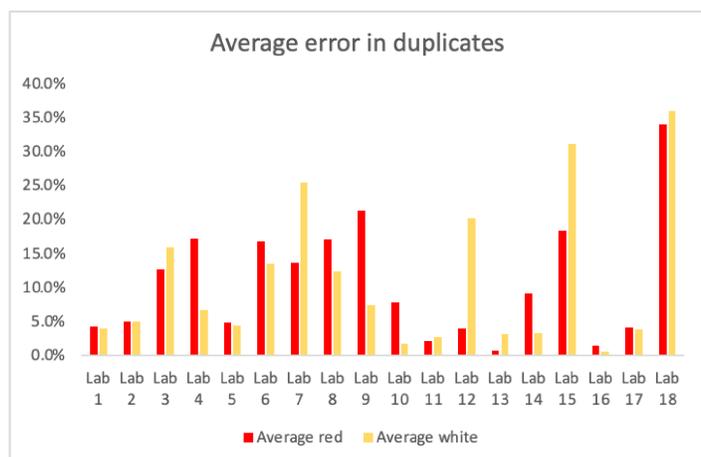
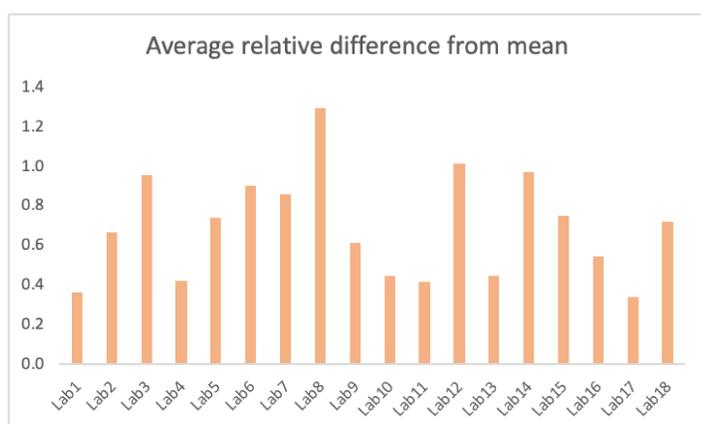
- Around the world, the impact of wildfires and controlled burns on maturing grapes is significant and has been increasing over the last two decades.
- A key aspect of managing this impact is the measurement of smoke markers in grapes and wines and ensuring that results are comparable between different facilities
- Free volatile and bound smoke markers (volatile phenols and their glycosides) are both important in understanding smoke impacts

## Methodology

- 18 laboratories in Australia, Europe, South America and USA took part in a comparative testing program for their smoke marker analyses
- Each laboratory tested ten sample wines (five red and five white) with varying degrees of smoke exposure.
- One sample of each of the red and white wines was a duplicate of another sample within the set.
- Laboratories tested wines for seven volatile and six bound marker compounds as per the AWRI's standard list
- Statistical analysis assessed the variability in the results

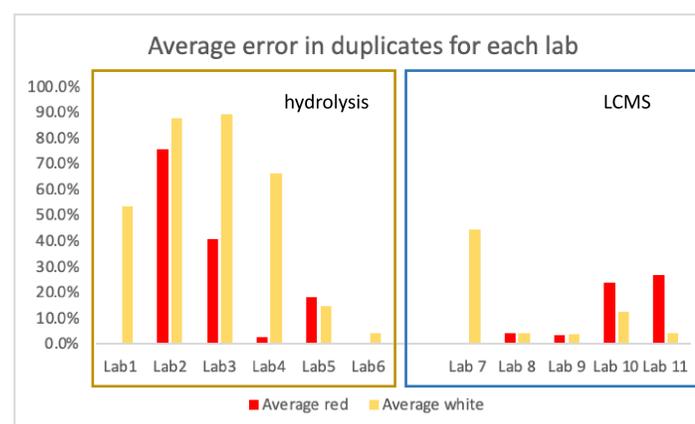
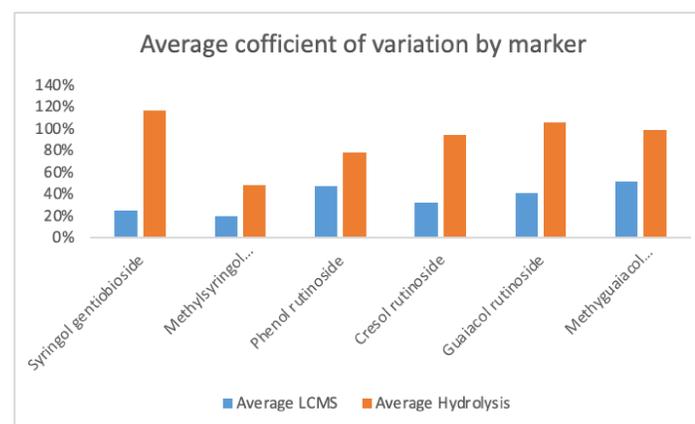
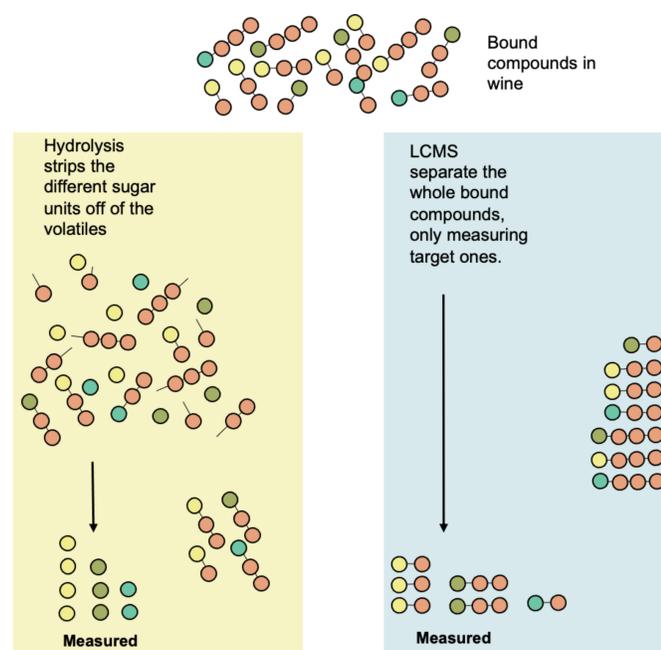
### Volatile markers

All laboratories use essentially the same GCMS method



### Bound markers

Two different methods are commonly used – hydrolysis and LCMS



## Conclusions

- How to measure smoke markers in wine must be clearly defined across industry and academia.
- For **volatile markers**, results across different laboratories were generally well aligned, although further work needs to be done on ensuring consistent QA and appropriate standards.
- For **bound markers**, the hydrolysis method showed much greater variability than the LCMS method, suggesting it is not suitable for comparing results between laboratories or comparing the efficacy of taint mitigation technologies; however, the LCMS method can be used in these applications.