

RESEARCH DIRECTIONS

Fashionable Wine Flavours

Dr Vincent Higgins from the Nanoscale Organisation and Dynamics Research Group, together with Laffort Oenology and the Australian Wine Research Institute (AWRI) has been awarded a UWS Research Partnership Grant to identify the mechanisms that regulate yeast flavour production during the wine making process.

'The aroma and flavour of wine are among the main characteristics that determine its quality and value. This project aims to gain a better understanding of the biochemical and molecular processes important in the flavour production qualities of yeast during wine fermentation', says Dr Higgins. 'The relative importance of flavour compounds has been regarded as low, resulting in little study, however, with a more diverse and demanding consumer base, taste expectations have shifted and winemakers need to respond with the ability to make very precise aroma and taste profiles.'

Shiraz wines will be made on a small-scale at the Hickinbotham Roseworthy Wine Science Laboratory from grapes sourced from the Barossa Valley. Two commercial yeast strains will be tested.

To identify the key genes, microarray analysis will be used to first identify the patterns of gene expression and cluster genes. Then a shared scientific resource, the *Saccharomyces* Genome Database (SGD) will be used to identify genes in each of the clusters and enable identification of which are affected during the wine making process. Once key genes have been identified from this analysis, the effect on flavour production of deleting them can be analysed.



The project outcomes will make a significant contribution to understanding the effect of yeast on aroma development in wine. It will also, hopefully, lead to a more competitive Australian wine production industry - wine production is currently the fourth most valuable agricultural export commodity.

Project Title: The effect of yeast strains and nutrients on the metabolic formation of flavour compounds during wine fermentations

Funding has been set at: \$20,000

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http://www.uws.edu.au/research/ors/funding_opportunities/internal_research_grants