Taking the stress off yeast produces better wine

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Turning grape juice into wine is a stressful business for yeasts. Dr Agustin Aranda from the University of Valencia, Spain has identified the genes in yeast that enable it to respond to stress and is investigating ways to improve yeast performance by modifying its stress response mechanism.

Speaking at the Society for General Microbiology meeting at Heriot-Watt University, Edinburgh, today (9 September), Dr Aranda described the stresses that wine yeasts undergo in the fermentation process. Industrial wine making involves adding dried yeast starter cultures to the juice; both the drying and reactivating processes cause stress damage to the yeast cells. As the juice is fermented into wine the rising ethanol (alcohol) levels also damage the yeast cells and oxidation causes further damage.

By manipulating the genes that control the stress response of the yeast, the researchers found that they could improve its performance in industrial fermentation processes. They found that a family of enzymes called sirtuins had an important role in controlling wine yeast lifespan.

"Our research aimed to improve winemaking techniques but our findings on oxidative stress and ageing in yeast could be potentially useful in understanding the positive roles of antioxidants present in grapes and grape juice," said Dr Aranda.

Source: Society for General Microbiology