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Adaptive evolution of Saccharomyces kudriavzevii to enhance glycerol production

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In the ever-dynamic market, the wine industry faces unexpected challenges due to the increasing market demand and uncontrolled climate change. Thus, there is an ongoing search to find yeast strains that can not only develop more ethanol in a short amount of time but can also yield better flavour and taste to the wine. The Saccharomyces kudriavzevii strains are relatively novel and they divert more flux for glycerol production and cellular maintenance. They can thus be utilised for producing wine with higher glycerol content. Glycerol has organoleptic properties (an aspect of wine that creates an individual experience through the senses). The wine obtained has a better flavour and is also sweeter. To achieve this, the Saccharomyces kudriavzevii can be modified using adaptive evolution techniques so that there is an increased amount of glycerol production. According to a study, Saccharomyces kudriavzevii strains were initially isolated from decayed leaves and used in the production of triplicate starter populations. Evolving populations of Saccharomyces kudriavzevii from triplicate starter populations were then used for the increased production of glycerol and ethanol. This method, if successful on a pilot scale, can be commercialised which will hence have a huge impact on the wine industry. This newly modified strain of Saccharomyces kudriavzevii produces wine that is much sweeter than regular wine produced from Saccharomyces cerevisiae strains. Therefore, the demand for this product will increase and will additionally garner a higher market value, thus bringing in a large profit to the wine industry.

Keywords: Wine, Saccharomyces, Glycerol, Ethanol, Flavour

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