New flavors for lager beer—successful generation of hybrid yeasts

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Image: John White

VTT Technical Research Centre of Finland Ltd has been the first to publish a scientific study on the successful generation of hybrid lager yeasts. For centuries the same few yeast strains have been used in the production of lager beer, in contrast to ale, whisky, wine and cider, for which there is a wide range of yeast strains available to produce different nuances of flavour. VTT has been developing hybrid lager yeasts so as to impart new flavour to the beer and accelerate the production process.

Traditionally, even very different tasting lagers have been produced using the reliable and cold-hardy *Saccharomyces pastorianus* yeast species. Studies have shown that this trustworthy brewmaster's helper is actually a hybrid composed of two different yeast species. One of them is the *Saccharomyces cerevisiae* yeast commonly used in the production of ale, while the other, only recently discovered in the wild, has been named *Saccharomyces eubayanus*.

These findings have opened up possibilities for researchers to create new, customised lager yeasts through selective mating of strains of different yeast species. This enables the production of new flavours for beer or the acceleration of the fermentation phase in beer production, for example.

VTT has screened its own microbial strain collection and the ale yeast strains of commercial collections in order to identify the properties that affect the beer fermentation process. We succeeded in finding suitable yeast strains and mating them with *Saccharomyces eubayanus* yeast.

The hybrid yeasts generated by VTT's researchers have inherited useful properties from their "parents". The new yeasts accelerate the wort fermentation process and improve the production of ethanol. They are also more tolerant to cold than their *Saccharomyces cerevisiae* parent strain, and settle better after fermentation than their predecessors.

The study was published in the online version of the *Journal of Industrial Microbiology and Biotechnology* publication series on 15 February 2015.

The study shows that VTT's method is suitable for the generation of new lager yeast strains and the creation of new properties affecting the flavour of beer, as well as improving the beer production process. New lager yeast strains can now be generated entirely without genetic modification technology.

More information: Krogerus, K., Magalhães, F., Vidgren, V. & Gibson, B. (2015) New lager yeast strains generated by interspecific hybridization. *Journal of Industrial Microbiology and Biotechnology*. link.springer.com/article/10.1 … 07/s10295-015-1597-6