

Genetic analysis of sake yeast characteristics

Sake yeast strains showed suitable characteristics for sake making compared to the laboratory yeast strains, *e.g.* higher production of ethanol and aromatic components, but genetic background of these characteristics was unclear.

We made the hybrid between a laboratory strain and a sake yeast. After sporulation of the hybrid strain, we obtained 100 haploid segregants of the hybrid. We carried out small scale sake fermentation tests using these segregants to determine the concentration of ethanol and aromatic components.

As a result, we identified 25 significant QTLs* involved in specification of fermentation characteristics including ethanol fermentation and the production of aromatic components. As the production of certain aromatic compounds was improved by alleles derived from the laboratory yeast strain, we confirm sake yeast strains are not necessarily perfect for sake making.

This is the first report about genetic analysis of practical properties of an industrial yeast strain.

*QTL:

Traits whose properties were designated as continuous values such as growth rate and product yield are determined by the multiple genes. Genetic loci responsible for such traits are called quantitative trait loci (QTL).

T. Katou et al., *Yeast*, **28**, 799-807 (2008)

T. Katou et al., *J. Biosci., Bioeng.*, **107**, 383-393 (2009)

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