

Sake yeast with low production of DMTS precursor —

Verification of effectiveness and points of note

The yeast strain mde-D1 jointly developed by the National Research Institute of Brewing and Nihon Sakari Co. Ltd. is a strain with low production of DMTS-P1, a precursor of dimethyl trisulfide (DMTS) which is the main component of hineka (off-flavor), and is effective in reducing hineka of sake. However, this strain exhibits different characteristics, such as slower growth in comparison with the parent strain K701. For that reason, the Brewing Society of Japan conducted test marketing of this yeast from Jan. 2020, and we analyzed produced sake and information relating to sake brewing conditions therewith, in order to clarify its effectiveness in actual sake brewing and points to note.

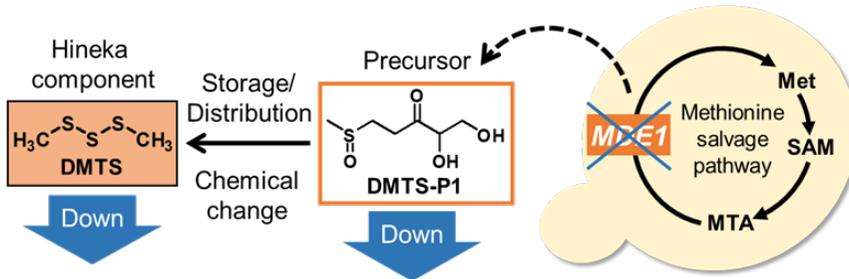
As a result, the mean values of the DMTS-P1 concentration and the DMTS-producing potential (DMTS-pp, the DMTS concentration after one week of storage at 70°C, which functions as the index of the tendency to deteriorate) in the sake brewed using the mde-D1 yeast were approximately 1/10 of the control sake, indicating that the generation of DMTS after storage could be suppressed to a low level even under a variety of brewing conditions. Moreover, in relation to the point that the growth of mde-D1 is

slow, inoculation of higher volume of yeast into starter culture and higher temperature of main fermentation were shown to be effective. However, care needs to be exercised to prevent over-dissolution of the rice and yeast death because DMTS-pp was positively correlated with the amino acid and alcohol contents of brewed sake and temperature of main fermentation.

A reduction in the generation of the hinea compound DMTS after storage is enabled by using mde-D1 yeast under a variety of brewing conditions.

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Yeast strain, mde-D1 with low production of DMTS precursor



- Reduced production of the DMTS-P1, a precursor of main hineka component dimethyl trisulfide (DMTS)
 - **Effective reduction in hineka**
- Different characteristics from the parent strain K701, such as slower growth



Research of sake and information on brewing conditions by test marketing of the yeast

Analysis of the sake and brewing conditions

Sake and information on brewing conditions were obtained from 30 sake breweries

- The DMTS-P1 and DMTS-pp of brewed sake
 - Mean values were **1/10** of the controls
- Tips for brewing conditions
 - Fermentation delay tended to be mitigated by
 - **Higher inoculum of yeast into starter culture**
 - **Higher temperature of main fermentation**
- Positive correlation between DMTS-pp and amino acid and alcohol contents, and temperature of main fermentation
 - Care needed to **prevent yeast death and over dissolution of rice**

