

## Identification of the component that causes hineka in sake

Dimethyl trisulfide (DMTS) is involved in the unpalatable aroma of stale sake, called “hineka”; however, the mechanism underlying the formation of DMTS during the storage of sake has not been elucidated. Here we investigated the precursors of DMTS in sake and identified one of the precursor compounds as 1,2-dihydroxy-5-(methylsulfinyl)pentan-3-one (DMTS-P1), which has not previously been reported in the literature. DMTS production during storage was doubled when the concentration of DMTS-P1 in a sake sample was doubled, which suggests that DMTS-P1 contributes to the production of DMTS. We are trying to control DMTS-P1 through the elucidation of its formation mechanism in sake-making process. We hope it will lead to a technology that controls hineka.

Hineka :

Unpalatable aroma that generates during storage of sake. It is also called over aged aroma.

Dimethyl trisulfide (DMTS) :

A compound that presents onion or Japanese pickles-like odor. It is widely distributed in foods and beverages such as cooked onion, broccoli, cheese, whiskey, and shochu, among others.

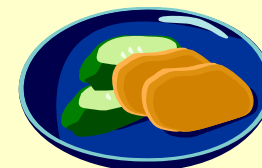
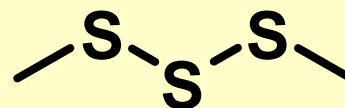
A. Isogai et al., *J. Agric. Food Chem.*, **57**, 189-195 (2009)

A. Isogai et al., *J. Agric. Food Chem.*, **58**, 7756-7761 (2010)

# Identification of precursor compound of dimethyl trisulfide (DMTS)

Precursor in sake

Storage



DMTS

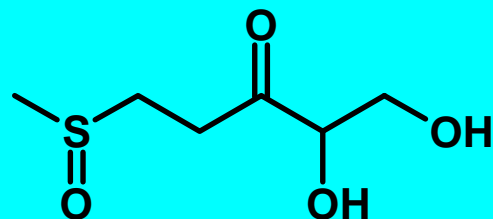
One of the main components of hineka (off flavor)

1. Screening from sake components measuring DMTS producing potential as an index
2. Structure analysis

Does it contribute to DMTS production?

DMTS production was doubled when the content of DMTS-P1 in sake was doubled.

DMTS-P1



1,2-dihydroxy-5-(methylsulfinyl)  
pentan-3-one

If we can control the content of DMTS-P1 in sake,  
**we can control hineka in sake.**