

The compounds of Japanese sake that bring relaxation effect

We revealed that some compounds of Japanese sake activate GABA receptor in cooperation with the Kinki University. Alcohol has various influences on the nerve cells of the brain and brings drunkenness. The relaxation effect is one of the characteristics of the drunkenness. GABA and alcohol activate neuronal GABA receptor and bring relaxation effect. Japanese sake includes thousands of compounds and there is a possibility that it includes compounds affecting the activity of GABA receptor other than those substances. Metabolome analysis of Japanese sake was conducted, and we revealed that some organic acids activate GABA receptor which had been expressed in *Xenopus* oocytes. We also examined the anti-anxiety effects of some of these organic acids on mouse behavior by the elevated plus-maze test. As a result, significant anxiolytic effects were observed in some compounds.

H. Izu et al., *J. Brew. Soc. Japan.*, **104**, 787-795 (2009)

H. Izu et al., *J. Brew. Soc. Japan.*, **105**, 664-671 (2010)

Y. Yamada et al., *J. Brew. Soc. Japan.*, **105**, 609-614 (2010)

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Compounds activating GABA_A receptor in Japanese sake

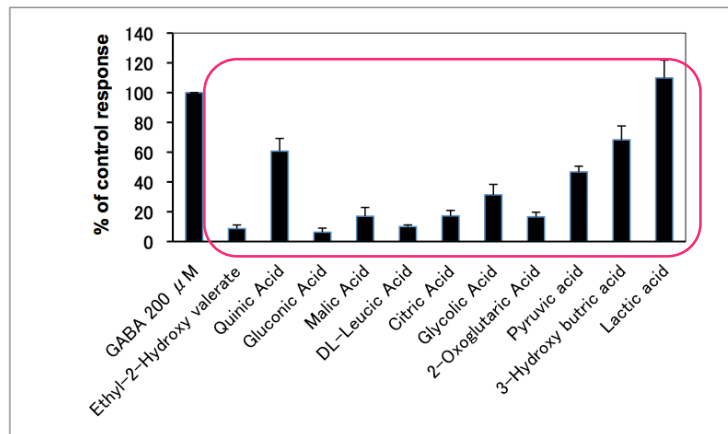
GABA and alcohol activate neuronal GABA_A receptor and bring relaxation effect. It is a cause of "the drunkenness" with alcohol.



Metabolome analysis of organic acid fraction in Japanese sake (64 compounds identified)

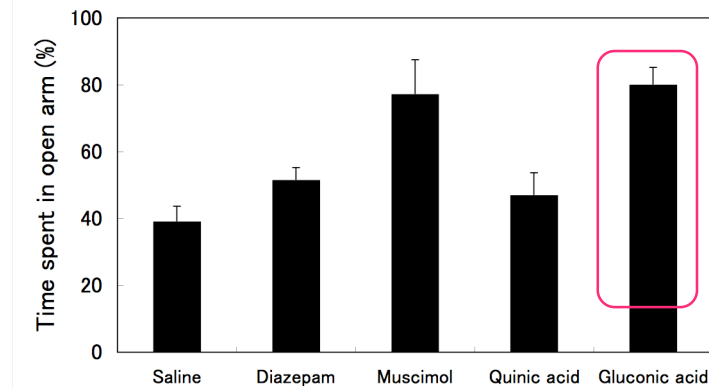
GABA
(gamma-aminobutyric acid)

The activity measurement using *Xenopus oocyte*



13 compounds activate GABA receptor

The elevated plus-maze test using mice



Relaxation effect

(Collaborative investigation with the Kinki Univ.)