

Effects of Chitooligosaccharides on Alcohol Metabolism and Antioxidative System in Rats after Acute Alcohol Intake

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Abstract

This study was designed to investigate the biological activities of chitooligosaccharides (COSs) on alcohol metabolism and antioxidative system in rats after acute alcohol intake. The experimental groups were divided into four groups: control (25% v/v ethanol, 5 g/kg body weight); group I (ethanol treated with COSs 0.2 g/kg body weight); group II (ethanol treated with COSs 0.8 g/kg body weight); group III (ethanol treated with COSs 2 g/kg body weight). To assess whether the COSs are effective in alcohol metabolism in rats, we determined the blood alcohol concentrations. And to examine whether the blood alcohol concentrations is originated in promotion of alcohol metabolism, we measured the activities of alcohol metabolism enzymes, alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (ALDH) existed in liver¹⁾. In addition, the activities of antioxidative enzymes such as glutathione peroxidase (GSH-px)²⁾, catalase (CAT)³⁾, and superoxide dismutase (SOD)⁴⁾ were measured to determine the effects of the COSs on antioxidant system.

References

1. Cheung C. et al. (2003), Species variations in cutaneous alcohol dehydrogenases and aldehyde dehydrogenases may impact on toxicological assessments of alcohols and aldehydes, *Toxicology* 184, 97-112.
2. Flohe. L. et al. (1978), Assay of glutathione peroxidase, *In Methods in Enzymology* 53, 973-684.
3. Abei. H. Catalase in vitro (1984), *In Methods in Enzymology*. 5, 121-126.
4. Flohe. L. and Ötting, F. (1984), Superoxide dismutase assays, *In Methods in Enzymology* 105, 93-104.