

# Effect of Antioxidative Lactic Acid Bacteria on Rats Fed a Diet Deficient in Vitamin E

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Lactic acid bacteria, including *Bifidobacterium*, with antioxidative activity were selected by in vitro screening. The effect of the antioxidative activity was investigated by in vivo experiments using rats that were deficient in vitamin E.

In the first stage of screening, 570 strains were examined; intracellular cell-free extracts of 19 strains (16 lactobacilli, 2 streptococci, and 1 lactococci) had antioxidative activity as determined by an assay using rat liver microsomes and thiobarbituric acid. In the second stage of screening, 7 strains of lactobacilli showed over 70% inhibition of oxidation activity. The highest activity was obtained by heterofermentative *Lactobacillus* sp. SBT 2028.

The effect of two strains, *Lactobacillus* sp. SBT 2028 and *Lactobacillus casei* ssp. *rhamnosus* SBT 2257, was evaluated for improvement of the condition of rats fed a diet deficient in vitamin E. Intracellular cell-free extracts of those two strains were also used for in vivo experiments. Hemolysis of red blood cells was inhibited in rats that were administered the extract of *Lactobacillus* sp. SBT 2028, which proved that the extract improved the vitamin E deficiency status. Antioxidative activity of an extract from *L. casei* ssp. *rhamnosus* SBT 2257 determined by hemolysis was relatively weak compared with the activity of *Lactobacillus* sp. SBT 2028 extract.

**Key Words:** lactic acid bacteria • antioxidative effect • vitamin E-deficient diet

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