

Effect of probiotics *Lactobacillus casei* and *Bifidobacterium lactis* on superoxide dismutase and malondialdehyde levels in kidney tissue of streptozotocin-induced diabetic rats

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Received: January 2025

Accepted: April 2025

Abstract

Diabetes mellitus is one of the most common metabolic diseases and causes kidney damage through increased oxidative stress. The use of antioxidants reduces oxidative stress and reduces the amount of damage. The use of antioxidants reduces oxidative stress and reduces the amount of damage. The aim of this study was to investigate the effect of probiotics *Lactobacillus casei* and *Bifidobacterium lactis* on the levels of superoxide dismutase and malondialdehyde in kidney tissue in streptozotocin-induced diabetic rats. In this experimental study, 28 male Wistar rats were divided into four groups: control, diabetic, and diabetic groups treated with probiotics *Lactobacillus casei* and *Bifidobacterium lactis*. Diabetic groups (type 1) received streptozotocin (dose 60 mg/kg) by intraperitoneal injection and the probiotics were gavage for 35 days. At the end of the fifth week, the levels of glucose, insulin, superoxide dismutase and malondialdehyde in kidney tissue were examined. The data obtained were evaluated using SPSS software, one-way ANOVA, Tukey test and P less than 0.05. In the present study, the levels of blood glucose and insulin, superoxide dismutase and alondialdehyde in kidney tissue of the diabetic group showed significant differences compared to the control group ($P < 0.001$). In the groups treated with *Lactobacillus casei* and *Bifidobacterium lactis*, significant changes were also shown compared to the diabetic group ($P < 0.05$). This study showed that in diabetic rats, the consumption of probiotics *Lactobacillus casei* and *Bifidobacterium lactis* has a positive effect on oxidative stress indices.

Keywords: Streptozotocin, Diabetes, Superoxide Dismutase, Malondialdehyde, probiotic, Rat.