

Reduction of aflatoxin level in aflatoxin-induced rats by the activity of probiotic

ABSTRACT

Aims: Aflatoxin B1 (AFB1) is considered as the most toxic food contaminant, and microorganisms, especially bacteria, have been studied for their potential to reduce the bioavailability of mycotoxins including aflatoxins. Therefore, this research investigated the efficacy of oral administration of *Lactobacillus casei* Shirota (LcS) in aflatoxin-induced rats. **Methods and Results:** Sprague Dawley rats were divided into three groups of untreated control, the group induced with AFB1 only, and the group given probiotic in addition to AFB1. In the group induced with AFB1 only, food intake and body weight were reduced significantly. The liver and kidney enzymes were significantly enhanced in both groups induced with AFB1, but they were lower in the group given LcS. AFB1 was detected from all serum samples except for untreated control group's samples. Blood serum level of AFB1 in the group induced with AFB1 only was significantly higher than the group which received probiotic as a treatment ($P < 0.05$), and there was no significant difference between the control group and the group treated with probiotic. **Conclusions:** LcS supplementation could improve the adverse effect of AFB1 induction on rats' body weight, plasma biochemical parameters and also could reduce the level of AFB1 in blood serum. **Significance and Impact of the Study:** This study's outcomes contribute to better understanding of the potential of probiotic to reduce the bioavailability of AFB1. Moreover, it can open an opportunity for future investigations to study the efficacy of oral supplementation of probiotic LcS in reducing aflatoxin level in human.

Keyword: Aflatoxin B1; Chronic aflatoxicosis; Probiotic *Lactobacillus casei* Shirota