

F03 Effects of *Lactobacillus casei* Shirota (LcS) supplementation on growth performance, intestinal histology, fecal AFB₁ and fecal bacterial profile of AFB₁-exposed rats

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The objectives of this study are to investigate the effects of *Lactobacillus casei* Shirota (LcS) supplementation on body weight, food intake, intestinal morphometry biomarkers, the composition of *Lactobacillus* spp. and *Bifidobacterium* spp. in feces, and the fecal aflatoxin B1 (AFB₁) in AFB₁-exposed rats. Thirty-two male Sprague Dawley rats were divided into Control, AFB₁, AFB₁+LcS and LcS groups. AFB₁ was given at a complete dosage of 25 µg AFB₁/kg body weight, while LcS supplementation was given at 2×10^9 CFU/ml per day via oral gavage for four weeks. The AFB₁ group showed no significant increment of body weight ($p>0.05$) from Week 2 to 4, unlike other groups which had significant body weight increment ($p<0.05$) throughout the study. The food intake of AFB₁ group reduced significantly ($p<0.05$) throughout treatment period, but AFB₁+LcS group showed significant increase ($p<0.05$) in food intake from Week 3 to 4. Histomorphometric analysis of AFB₁ group showed a significantly lower ($p<0.05$) villus height in duodenum and ileum, and lower ($p<0.05$) surface area in ileum in comparison to LcS group, indicating AFB₁ toxicity towards the intestine. Nonetheless, the AFB₁+LcS group showed a higher duodenal and ileal villus height, and surface area of ileum. The H&E staining showed a mild to moderate inflammation in all parts of the intestine of AFB₁ group, while only mild inflammation was observed in the jejunum and ileum of AFB₁+LcS group. *Bifidobacterium* spp. counts showed increment in three groups, while AFB₁ group showed a significant reduction ($p<0.05$) after four weeks. Besides, the fecal AFB₁ in AFB₁ group was significantly lower ($p<0.05$) than in AFB₁+LcS group at the end of the study and this finding showed the formation of AFB₁-probiotic complex, wherein it is eventually excreted. The AFB₁ exposure can affect the growth performance, intestinal histology, and *Bifidobacterium* spp. composition and AFB₁ in feces of rats, where these adverse effects were alleviated with LcS supplementation.