عنوان مقاله:

Changes in intestinal microbiota, liver and intestine histopathology of Cyprinus carpio in response to Mentha piperita extract-supplemented diets

محل انتشار:

ششمین کنگره بین المللی تحقیقات شیلات و آبزیان (سال: 1401)

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خلاصه مقاله:

This study was aimed to evaluate the effects of Mentha piperita methanolic extract on Cyprinus carpio intestinal microbiota, including total microorganism's gram-negative bacteria, lactic acid bacteria, and fungi count. Liver and intestinal histopathology, and the activity of liver enzymes, was also used to evaluate the possible side effects of peppermint extract. A total of ۹۶ healthy C. carpio fries (۷۶.۷۶±۲۰.۲۶ g) were allocated to four treatment groups with three replications in a completely randomized design. The fries were fed with diets containing ۰, ۰.۵, ۱, and ۲% extract for ۴۰ days at the rate of ۲% of body weight during the experiment. Results showed a significant decrease in total microorganisms, enteric gram-negative bacteria, and total fungi counts (p<۰.۰۵). The total lactic acid bacteria count in ۰.۵% treatment was significantly lower than in the control and ۲% treated fish (p<۰.۰۵). Peppermint exteract did not affect AST, while it led to a significant increase in ALT level. Simultaneously, ALP represented significantly higher activity in the control group (p>۰.۰۵). Microscopic findings revealed marked lesions including congestion and cell degeneration in the livers of the three groups of fish fed with the extract. The intestinal folds were shortened and blunted in the treatment groups. Furthermore, the intestinal mucosa was necrotic, and the lamina propria was significantly thickened with mononuclear inflammatoryc cells (p<۰.۰۵). Although M. piperita extract significantly affected intestinal microbiota, its consumption at ۲% is not recommended for C. carpio due to the lesions made in the liver and intestine.

کلمات کلیدی:

Peppermint, Intestinal microbiota, Liver, Cyprinus carpio