

# Mechanism on the Amelioration of Alcoholic Steatohepatitis and Alcoholic Liver Disease by Use of a Combination of Mass

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## ABSTRACT

Alcoholic liver disease (ALD) and alcoholic steatohepatitis (ASH) are chronic disease. They are induce by drinking alcoholic beverages. Since alcoholic beverage drinking become a social behavior, it is important to ameliorate these diseases. In this study, we use a multistrain combination of lactic acid bacteria (MCLAB) as a food supplement to reduce the ALD or ASH. We evaluated the effect of oral administration of a MCLAB on the amelioration of ALD and ASH of C57BL/6N mice fed with high alcohol containing diet. Experimentally, a total of 24 C57BL/6N mice were divided into 3 groups: (1) control diet-fed group (blank) (n=8) (2) ethanol-containing diet-fed group (n=8) (3) ethanol-containing diet and MCLAB feeding group (n=8). During the four week experimental period, the body weights of mice were recorded, and their blood was collected once every two weeks. The levels of GOT, GPT, triglyceride and total cholesterol in mouse sera were had been analyzed. At the end of eight weeks, mice were sacrificed, their livers were collected and the gene expression level of ALD-related genes, the activities of glutathione (GSH), glutathione peroxidase (GPx), glutathione reductase, superoxide dismutase (SOD) and catalase were assayed. In addition, the triglyceride content in liver tissue, and the H&E stained was used to analyse the liver histopathology, followed by microscopic examination. Results showed that GOT, GPT and triglyceride levels in serum of the ethanol-containing diet-fed mice were higher and the number as well as size of oil droplets in liver were greater than those of the control group. Oral administration of the MCLAB significantly reduce the GOT, GPT levels and the number of oil droplets. There were not significant difference in total serum cholesterol ( $P > 0.05$ ). Comparing to the results from the mice fed with alcohol containing diet, the fold change of gene expression on sterol regulatory element-binding proteins-1 (SREBP-1) and tumor necrosis factor- (TNF- ) in mice fed with alcoholic diet plus MCLAB, were significantly down-regulated, i.e., about 4 folds and 4.3 folds respectively. Also in mice fed with alcoholic diet plus MCLAB, their activities of Glutathione (GSH), Glutathione peroxidase (GPx) and Glutathione reductase (GSH Rd) significantly increased ( $P < 0.05$ ), about 6.8%, 58.1% and 22.7% respectively, while the activity of superoxide dismutase (SOD) and catalase were not affected significantly ( $P > 0.05$ ). Also, the liver triglyceride value in alcoholic mice could be reduced by MCLAB. In conclusion, results from this study showed that after feeding a combination of lactic acid bacteria, the symptom of ALD and AST could be ameliorated.

Keywords : Alcoholic fatty liver、GOT、GPT、Triglyceride、Ameliorate、Combination of lactic acid bacteria

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