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# Artichoke Extract Directly Suppresses Inflammation and Apoptosis in Hepatocytes During the Development of Non-Alcoholic Fatty Liver Disease

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## Abstract

We evaluated the effect of artichoke leaf extract (ALE) on the livers of mice with non-alcoholic fatty liver disease (NAFLD) induced by high-fat/high-fructose diet and H<sub>2</sub>O<sub>2</sub>-treated HepG2 cells, as well as the mechanism underlying its hepatoprotective effects. Supplementation with ALE suppressed the NAFLD-induced increases in serum lipids, bilirubin, gamma-glutamyl transferase, aspartate transaminase (AST), and alanine aminotransferase. In addition, we observed that supplementation with ALE attenuated the increases in antioxidant enzyme activity, mRNA levels of proinflammatory cytokines, and apoptosis signaling pathways caused by a high-fat/high-fructose diet. We found that ALE treatment suppressed inflammation and apoptosis caused by H<sub>2</sub>O<sub>2</sub>-induced oxidative stress in HepG2 cells. These findings suggest that ALE supplementation directly suppresses inflammation and apoptosis in hepatocytes during the development of NAFLD. Based on these results, we suggest that supplementation with ALE may be useful for preventing the progression of liver diseases, including hepatic steatosis and non-alcoholic steatohepatitis.

**Keywords:** liver disease; non-alcoholic fatty liver disease; non-alcoholic steatohepatitis; steatosis; •artichoke.

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