

Fermented Chaga-Cheonggukjang attenuates obesity condition and suppresses inflammatory response of the liver in high fat diet-induced mice

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Chaga mushroom and Cheonggukjang have been used in alternative medicine. In this study, we determined the anti-obesity effects of fermented Chaga-Cheonggukjang (FCC), an extract prepared by secondary fermentation of a mixture of Cheonggukjang and Chaga by *Lactobacillus acidophilus* on high-fat diet (HFD)-induced mice. Male ICR mice were fed a normal diet or HFD in the presence or absence of 3% and 5% FCC (FCC3 and FCC5). After 3 months, the mice were sacrificed, and serum and tissue samples were examined. Body weight and epididymal fat pad (EFP) weight were significantly lowered in FCC3 and FCC5 groups compared to those in the HFD control group. FCC supplementation suppressed serum triglyceride (TG) and increased serum HDL levels. Serum GOT, GPT, leptin levels and hepatic COX-2 mRNA expression were significantly higher in the HFD groups, and these increases were significantly attenuated by FCC supplementation. FCC suppressed body weight and EFP weight gain, as well as inflammatory responses in the liver in HFD-fed mice. Thus, FCC supplementation may have protective effects for obesity-related disease.

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