

## Anti-obesity Effects of Safflower Seeds (SS) on the Differentiation of 3T3-L1 Pre-adipocytes and Obese Mice Fed a High-fat Diet

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Safflower seeds, classified as a member of the Asteraceae family, a dicotyledonous plant, contain linoleic acid as a major component, known for its pharmacological effect of strengthening bones. Additionally, safflower seeds have been reported to have pharmacological effects on vascular diseases such as atherosclerosis. In this study, we investigated the anti-obesity effect of safflower seed extract by examining its impact on adipocyte differentiation using Oil Red O staining, triglyceride quantification, and GPDH activity measurement. The results showed that safflower seed extract significantly inhibited adipocyte differentiation. Furthermore, we confirmed that safflower seed extract improved body weight, liver weight, adipose tissue size, glucose, and triglyceride levels in a high-fat diet-induced mouse model. These findings suggest that safflower seed extract exhibits potent anti-obesity activity both *in vitro* and *in vivo* and has the potential to be developed as a material for future anti-obesity therapies.

**Key words:** Adipocyte, Anti-obesity, Linoleic acid, Safflower seeds

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