

The Effects of Eriocitrin on Obesity and Hepatic Steatosis in High-Fat Diet-Induced Obese C57BL/6 Mice

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Abstract : Lemon (*Citrus limon*) has various beneficial effect. Eriocitrin (eriodictyol 7-rutinoside) is the main ingredient of lemon fruit and is known to have antioxidative effects. However, there has been little research about the effects of eriocitrin on obesity and regulation of lipid profiles levels. In the present study, we investigated the anti-obesity and lipid-lowering effects of eriocitrin in mice fed high-fat diet (HFD). The 4 week-old male C57BL/6 mice were randomly divided into two groups and were fed HFD (20% fat, w/w) and HFD supplemented with eriocitrin (0.005%, w/w, EC) for 16 weeks. Food intake, body weight and white adipose tissue weight (WAT) were measured and plasma free fatty acid (FFA), apolipoprotein (Apo) B100 level and hepatic enzyme activity were analyzed. No differences were shown between the HFD and EC groups in body weight and food intake. However EC supplementation significantly reduced the weights of epididymal, subcutaneous and total WAT. In addition, the levels of plasma FFA and Apo B100 were significantly decreased in the EC group compared with the HFD group. Moreover, the activities of glucose-6-phosphate dehydrogenase (G6PD) and malic enzyme (ME) related to fatty acids synthesis were significantly lower in the EC group than in the HFD group in liver. Therefore, this study indicates that eriocitrin has beneficial effects on adiposity and nonalcoholic fatty liver diseases by modulating hepatic lipid-regulating enzyme activities and plasma lipid profile.

Keywords : antiobesity, eriocitrin, high fat diet, lipid lowering

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