



## Long-term effects of evodiamine on expressions of lipogenesis and lipolysis genes in mouse adipose and liver tissues

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**ABSTRACT.** Evodiamine, the major alkaloid component isolated from the fruit of dried, unripened *Evodia rutaecarpa* Bentham, affects the plasma levels of cholecystokinin and various biological events such as gastric emptying and gastrointestinal transit; these effects of evodiamine were previously investigated in male rats. In this study, we aimed to investigate the effects of evodiamine on average daily weight gain, rectal temperature, and expressions of genes involved in lipid metabolism in liver and adipose tissues. Evodiamine was added as a supplement, comprising 0.02, 0.04, and 0.06% of the diet fed to mice for 1, 2, 3, and 4 weeks. Results showed that average daily weight gain and rectal temperature decreased significantly over time in a dose-dependent manner. Evodiamine changed expressions of the peroxisome proliferator-activated receptor- $\gamma$  (PPAR $\gamma$ ) in mouse adipose and liver tissues in time- and dose-dependent manners. We found that evodiamine

decreased mRNA expression of the sterol-regulatory element binding protein (SREBP-1c) and fatty acid synthase in adipose tissue. In addition, evodiamine increased expressions of hormone-sensitive lipase in both liver and adipose tissues. Interestingly, evodiamine increased the expression of triglyceride hydrolase only in adipose tissue. In conclusion, evodiamine could influence lipid metabolism through regulation of the expressions of its key genes, as well as reduce body heat and body weight.

**Key words:** Evodiamine; Long-term effect; Gene expression; Adipose; Metabolism