

Abstract

Project Code: MRG6180101

Project Title: Effect of Mao-Luang (*Antidesma Bunius*) extract on fat metabolism in liver tissues of rats

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Abstract: Obesity and dyslipidemia are major risk factors associated with non-alcoholic fatty liver disease (NAFLD). Increasing free fatty acids to the liver leads to increase oxidative stress, inflammation, and eventually hepatocytes malfunction. Mao-Luang [*Antidesma buni* (Linn) Spreng] is an economically fruit cultivated successfully in many regions particularly in Northeastern part of Thailand. Mao-Luang fully ripen fruits are rich in polyphenol as well as anthocyanin with high antioxidant activity. The study aims to investigate the effect of standardized Mao-Luang fruits extract on fat metabolism in liver tissues of rats. Adult male rats are fed with high fat (HF) diet for 4 weeks. Then, they were divided into 5 groups receiving Mao-Luang treatment ranged from 250 -1000 mg/kg BW for 12 weeks. Statin, a lowering lipid drug, were used in a positive control group by feeding with high fat diet. Feeding Maoberry juice in high dose showed decreasing liver triglyceride, liver TBARS, and the mRNA expression of inflammation markers (TNF- α and IL-6), key enzyme and transcription factor of lipogenesis pathway (GPAT-1 and ACC) in comparison with HF group ($p<0.05$). Moreover, histopathological study of the liver showed reduction of fat droplets in Maoberry juice treatment groups, especially in high dose as well as a statin treatment groups. This study showed the significant decrease of the lipid lowering, antioxidant activity, and anti-inflammatory effects of Maoberry juices, containing high levels of phenolic and flavonoid compounds could be seen clearly after 12 weeks supplementation.

Keywords: Fat metabolism, anthocyanin-rich fruits, liver, high fat diet