



Effect of Mamao Pomace Extract on Insulin Resistance in Type 2 Diabetic Rats

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Background and Objective: High fat diet (HFD) can cause insulin resistance which plays a major pathogenic role in the development of type 2 diabetes mellitus. Interestingly, an *in vitro* antihyperglycemic activity of Mamao (*Antidesma thwaitesianum* Mull. Arg) has been reported including anti-alpha-amylase and anti-alpha-glucosidase. Thus, this study aimed to investigate the effect of Mamao pomace ethanolic extract (MPE) on insulin resistance, blood glucose, lipid profiles and serum adipokines in HFD/Streptozotocin (STZ)-induced type 2 diabetic rats.

Methods: Male Sprague-Dawley rats were fed HFD (60% lard oil) throughout the experiment. Normal control rats were fed normal chow. At week 4 of HFD feeding, STZ 30 mg/kg was injected intraperitoneally. Two weeks after STZ injection, treatments were applied for further six weeks as followed: Group I: distilled water (diabetic control); Group II-IV: MPE 250, 500 and 1000 mg/kg respectively; Group V: pioglitazone 10 mg/kg. Then, fasting blood glucose (FBG), oral glucose

tolerance test (OGTT), serum insulin, serum adiponectin and lipid profiles were examined. Homeostasis Model Assessment-Insulin Resistance (HOMA-IR), an indicator of insulin resistance was calculated.

Results: MPE (500 and 1000 mg/kg) significantly decreased the FBG and improved OGTT as compared to DM-control group ($p<0.05$). HOMA-IR score of DM rats receiving MPE was significantly decreased whereas serum adiponectin was significantly increased as compared to DM control. Moreover, MPE significantly lowered serum total cholesterol, triglyceride, and raised high-density lipoprotein cholesterol (HDL).

Conclusion: The results indicate that MPE improves insulin resistance, hyperglycemia and lipid profiles in type 2 diabetic rats, possibly via its adiponectin secretion-enhancing effect.

Key words: *Antidesma thwaitesianum*; Mamao pomace, insulin resistance; type 2 diabetes mellitus.

Poster

