

**Title** EFFECTS OF KAEMPFERIA PARVIFLORA EXTRACT TO REDUCE THE ABNORMALITIES IN MICE INDUCED BY HIGH FAT AND HIGH SUCROSE DIET

**Author** Nittaya Promson

**Advisor** Supaporn Puntheeranurak, Ph.D.

**Co - Advisor** Sakara Tunsophon, Ph.D.

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### ABSTRACT

Increasing consumption of high fat and high sucrose diet is a factor responsible for metabolic syndrome (MetS). MetS is a cluster of metabolic disorder which increasing the risk of type 2 diabetes mellitus and cardiovascular disease. *Kaempferia parviflora* extract (KPE) is used as a traditional medicine for treatment of various diseases such as anti-inflammatory, pain relief and prevention of endothelial dysfunction. Nonetheless, there are a few studies to evaluate the action of KPE on metabolic disease. Thus, the aim of this study was to evaluate the effects of KPE on body weight, blood pressure, fasting blood glucose level, dyslipidemia, visceral fat deposition and adipocyte hypertrophy in mice induced by high fat high and sucrose diet. The C57BL/6 Mlac mice were divided into 6 groups as follows Control(C), C+KPE10, C+KPE100, HFHS-C, HFHS+KPE10 and HFHS+KPE100. The HFHS groups received high fat and high sucrose diet while the C groups received normal diet for 20 weeks, after that the mice were treated with vehicle or KPE 10 or 100 mg/kg BW once daily for 8 weeks. Food intake and body weight were recorded by weighing. Fasting blood glucose level and oral glucose tolerance test were examined by the glucose oxidase method and blood pressure was assessed by tail cuff method. After the animals were sacrificed, visceral fat was removed for weighing and adipocyte morphology was evaluated by histological analysis. The serum cholesterol, triglycerides and high-density lipoprotein cholesterol (HDL-C) concentration were

measured by using the enzymatic colorimetric test kits. The results indicated that KPE treatment reduced fasting blood glucose, cholesterol and adipocyte hypertrophy in both HFHS treated groups and reduced triglycerides and visceral fat in the HFHS+KPE10 group only compared to the HFHS-C group. Moreover, HDL-C concentration was significantly increased in both HFHS treated groups compared to the HFHS-C group. Body weight, blood pressure and oral glucose tolerance in all groups was not significantly different after treated with KPE. In conclusion, KPE is effective in improving of the symptoms of various disorders in mice induced by high fat and high sucrose diet by reduced blood glucose, cholesterol, triglycerides, visceral fat deposition and adipocyte hypertrophy and increased HDL-C.