

平成26年度 環境科学院 修士論文内容の要旨

Effects of *Gnetum gnemon* extracts on the metabolism ability of the offspring of fructose-treated pregnant rats

(フルクトース投与妊娠ラットからの新生仔における代謝能へのグネツム・グネモンの影響)

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*Gnetum gnemon*, commonly known as melinjo, is a dioecious plant that is widely cultivated in Southeast Asia, especially in Indonesia. Its seeds were found to primarily contain dimeric stilbenoid compounds such as gnetin C, gnemonoside A, gnemonoside D and trans-resveratrol. Stilbene compounds and its derivatives especially resveratrol are known to possess various bioactivities such as cardioprotection, antioxidant, anti-obesity and anti-diabetic activities. It is also known to decrease the secretion rates of cholesterol esters and triglycerides. Fructose, a known lipogenesis stimulant, is a simple sugar that has been greatly part of human diet for the past decades. To determine the effect of *G. gnemon* extracts on the offspring of the rats, fructose were incorporated to the diet of pregnant rats during gestation period. *G. gnemon* extracts were then incorporated to the diet of the offspring during lactation period. Plasma and hepatic parameters of the offspring of the treated pregnant rats were measured. Expression of key metabolic enzymes such as AMP-activated protein kinase (AMPK) and acetyl-CoA carboxylase (ACC) was measured through western blotting analyses.

In this study, the effects of *G. gnemon* extracts on the metabolism of the offspring of fructose-treated pregnant rats are discussed. Results revealed that indeed, maternal fructose consumption in gestation period followed by *G. gnemon* extract maternal consumption during lactation period affected the metabolism of the offspring. Although there were no significant differences on the body and organ weights, female adult offspring of fructose treated group had higher plasma glucose levels compared to the control while *G. gnemon* extract-treated group did not show any significant difference. *G. gnemon* extracts contributed in the lowering of plasma glucose levels in the female adult offspring.