

The effect of *L. Japonica Thunb* on Blood Glucose Levels and Lipids Metabolism in Streptozotocin-Induced Diabetic Rats

Mi-Ae Bang, Hyeon-A Kim, Young-Ja Cho*

(Dept. of Food & Nutrition Mokpo National University)

L. japonica Thunb locally is known as Indong-Cho and belonging to the family of Caprifoliaceae. This plant has been used for many centuries in Korea as a traditional medicine for the treatment of fever and pharmacological disorders. The purpose of the study is to investigate the effect of *L. japonica Thunb* on the blood glucose levels and lipid metabolism streptozotocin(STZ)-induced diabetic rats. Six-week-old male Spargue-Dawley rats(180-200g) are randomly divided into treatment four groups : i.e., control diet group(C), *L. japonica Thunb* diet group(P), STZ-treated control diet group(CD), and STZ-treated *L. japonica Thunb* diet group(PD). Weaning rats are fed control diet and experimental diet containing 5%(w/w) dried *L. japonica Thunb* powder for six weeks. Diabetes was induced by a intraperitoneal(i.p) STZ injection (60mg/kg in freshly prepared 10mM sodium citrate, pH 4.5) in group CD and PD. On the other hands, both group C and P are received a topical application of 10mM sodium citrate(pH 4.5) and serve as STZ-untreated control groups. The food and water intakes do not show any significant difference among the four groups. The body weight, blood sugar and serum cholesterol levels of the diabetic rats(group CD and PD) are significantly lower than the normal rats(group C and P) throughout the experiment($P < 0.05$). The Serum cholesterol, triglyceride(TG), and HDL-cholesterol levels of diabetic rats are higher than those of the normal rats. However, the cholesterol and HDL-cholesterol levels of group P are lower than those of group C. The activities of glutathione reductase(GR) and glutathione peroxidase(GPx) in kidney homogenates on the diabetic rats were significantly higher than those of group C and P. The activities of GPx, GST and thiobarbituric acid reactive substance(TBARS) concentrations in

liver are not significant. But the activity of hepatic GR in group PD is significantly higher than of the other groups. The dietary of dried *L. japonica Thunb* powder effectively decreases serum lipids levels in normal group(C and P) and kidney GST activity in diabetic rats.

In this experiment, we have evaluated the antioxidant therapy in the disease state that is characterized by antioxidant states. The experiments show that 5% *L. japonica Thunb* powder diet may inhibit the oxidative stress. Therefore, the health benefits of *L. japonica Thunb* in diabetic state may be due to the antioxidant properties of their compounds such as Luteolin, Tannin, Inositol.