A study of Antrodia cinnamomea mycelium powder on the effect of lowering plasma glucose and improving insulin sensitivity of non-insulin-dependent diabetes mellitus rats

Shih-Liang Chang, Shih-Hong Liao
E-mail: slchang@mail.dyu.edu.tw

ABSTRACT
Aim and Background: Antrodia cinnamomea (AC), a Taiwanese endemic medicinal fungi and a folk medicine often used in the clinical treatments, has been discovered its therapeutic effects, but its mechanisms have not been fully understood yet. The purpose of this study was intended to compare the effects of AC between normal rats and neonatal streptozotocin (STZ) induced non-insulin dependent diabetes mellitus (NIDDM) rats in insulin sensitizing effect and hypoglycemic effect.

Materials and Methods: The normal rats, and neonatal streptozotocin (STZ) induced non-insulin-dependent diabetes mellitus (NIDDM) rats were fed the optimal hypoglycemic dose of Antrodia cinnamomea extracts divided into experimental group and control group randomly. Blood samples collected from the femoral vein, then the plasma insulin was measured. The changes of plasma glucose levels were assayed to study the hypoglycemic effect and using different doses (100, 200, 500 mg/kg) of AC to explore the optimal effective dose. Further, the insulin resistance index (HOMA-IR) on the NIDDM rats were assayed to study the insulin sensitivity.

Results: The NIDDM rats were fed AC powder (dose 200 mg/kg) orally for 60 min to observe the effect of lowering plasma glucose levels from 143±25 to 116±30 mg/dL (p<0.05). Also, the insulin sensitivity was shown to have been improved, the HOMA-IR was decreased from 1.8±0.4 to 1.2± 0.3 (p<0.05). Further, to investigate the effect of AC to improve insulin sensitivity by the impact of blood free fatty acids and insulin signal proteins.

Conclusion: AC solid state culture dried at low temperature, treated NIDDM rats at 200 mg/kg has significant effect on lowering blood glucose and improving insulin sensitivity.

Keywords: Antrodia cinnamomea, streptozotocin, Insulin sensitivity, plasma glucsoe

REFERENCES