

Effects of Cassia tora Seeds Extract on Type 2 Diabetes Induced Mice

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Abstract : Type 2 diabetes (T2D) is characterized by insulin resistance, the inability of β -cell and the dysfunction of mitochondria. To characterize effects of Cassia tora extract on mitochondrial dysfunction related T2D, the reduced glutathione level, amount of mitochondrial complexes and activities of mitochondrial complexes were measured. Three groups of mice were modeled; a control group was fed a normal diet, a diabetic group was fed a diabetic diet high in fat and carbohydrates, and a third group was fed a diabetic diet + 70% ethanol extracted Cassia tora seeds for 12 weeks. The amount of mitochondria was determined by Bradford assay after isolation of mitochondria in liver from each group. During isolation of mitochondria, cytosolic fractions of the tissue were collected to measure the reduced glutathione level. Interestingly, high level of the reduced glutathione was observed in Cassia tora treated group and decreased activities of mitochondrial complexes in Cassia tora treated group compared to the diabetic diet group. It indicates that Cassia tora has the potential to increase the reduced form of glutathione functioned as an important antioxidant in cells, and to reduce mitochondrial metabolic compensatory mechanism.

Keywords : antioxidant, Cassia tora, diabetes, electron transport chain, glutathione, mitochondria, spectrophotometry

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