



Effects of curcumin and its nano-micelle structure form on body weight, insulin resistance, adiponectin, and blood biochemical parameters of streptozotocin-induced diabetic rats

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Abstract

The effects of curcumin and its nano-micelle form on body weight, insulin resistance, adiponectin, and blood biochemical parameters of streptozotocin-induced diabetic rats were studied. Fifty male wistar rats were induced diabetes and divided into 5 groups and treated with 1) no dietary supplements, 2 and 3) 40 and 80 mg/kg curcumin, 4 and 5) 40 and 80 mg/kg nano-micelle curcumin. A group of 10 untreated male wistar rats was also considered as healthy control. The serum concentrations of AST, ALT, glucose, insulin, insulin resistance, triglycerides, cholesterol, HDL-C, LDL-C and adiponectin were assessed. Body weight and weights of liver, heart and pancreas were also evaluated. Induction of diabetes increased the serum concentrations of AST, ALT, glucose, triglycerides, cholesterol, LDL-C and insulin resistance and decreased the serum concentrations of insulin, adiponectin, and HDL-C, and also body weight and weights of heart and pancreas ($P < 0.05$). Nano-micelle form of curcumin alleviated the negative effects of diabetic rats for glucose, lipid profile, and liver enzymes ($P < 0.05$).

In conclusion, nano-micelle form of curcumin showed better efficiency compared to curcumin for alleviating the adverse effects of diabetes. It can be suggested that nano-micelle form of curcumin at specific doses can be used for diabetes treatment.

Keywords: Curcumin, Nano-curcumin, Diabetic animals, Insulin resistance, Lipid profile