عنوان مقاله:

Dose-dependent Effect of β-caryophyllene on Glycemic Control of High-Fat Diet and Fructose-Induced Type-۲ Diabetic Rats

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خلاصه مقاله:

Background: Among many human diet-related disorders, Diabetes mellitus (DM) stands on the top of the table, its persistent and perdurable threat/stress response to systemic functions and endocrine control makes it's more popular. The management of diabetes and related chronic diseases has focused on the use of indigenous natural compounds, derived from plant sources that possess medicinal properties.Methods: Wistar albino rats were fed with high-fat diet comprising ۲% cholesterol, ۱% cholic acid, ۳۰% coconut oil, ۶۷ % percent regular rat feed, and ۲۵% fructose through drinking water for ۶۰ days to induce type-۲diabetic. After induction, type-۲ diabetic rats were treated with β-Carophyllene (۵۰, ۱۰۰, ۲۰۰, and ۴۰۰mg/kg body weight once a day, orally) for ۳۰ days, respectively. Fasting Blood glucose, liver and kidney function markers were analyzed.Results: Diabetic animals showed elevated blood glucose level when compared to control. Treatment with ۵۰ and ۱۰۰ mg/kg b.wt β-Carophyllene did not reach control level. Whereas, ۲۰۰ and ۴۰۰ mg/kg b.wt doses effectively reduced the blood glucose levels in diabetic animals.Conclusion: Liver function markers such as ALT, AST, and ALP and kidney function markers like urea and creatinine were also found to be elevated in diabetic animals. β-Carophyllene effectively reduced it. No toxicity was found in ۲۰۰ and ۴۰۰ mg/kg b.wt β-Carophyllene treated animals. Since blood glucose was restored to normal range at ۲۰۰ mg dose itself, the same dose was selected as optimal dose for further study to elucidate the anti-diabetic potential.

کلمات کلیدی:

High-fat diet& fructose, Type-۲ diabetes, β-Caryophyllene, liver function markers, kidney function markers