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The mechanism underlying hyperglycemia in streptozotocin injected rats and the effect of a dietary supplement.

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Abstract : Oxidation stress and increased incretin concentration are among the factors involved in the occurrence of hyperglycemia in diabetic patients. The mechanism underlying these phenomena is not well understood. In the present study hyperglycemia was produced in rats by intraperitoneal injection of streptozotocin as 60 mg/kg B wt and a trial was made to correct the resulting hyperglycemia with a dietary supplement composed of guar gum, chicory, cape gooseberry fruit, turmeric, blackberry, *Ginko biloba* leaves and sumac. Estimation of the antioxidant power of the ethanol and methanol extracts of this formula by five different methods of antioxidant assays (DPPH, TPTZ, LPIA, β-carotene and TEAC) proved the efficiency of this formula to scavenge different types of free radicals. This formula was able to prevent the shedding of DPP4 from cell membrane or inhibit its activity in streptozotocin injected rats, thus caused increased incretin which prolong insulin action. Thus, it can be seen that oxidation stress and release of DPP4 to circulation are among factors contributing to hyperglycemia due to either insulin insufficiency or resistance. The formula composed of the mentioned ingredients was able to correct hyperglycemia and deal with its complications to a great extent.

Key words: Hyperglycemia, streptozotocin, DPP-4, incretin, antioxidant, dietary supplement, DPPH, TPTZ, LPIA, β-carotene, TEAC.

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