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Dipeptidyl peptidase IV (CD26/DPP-IV) inhibitory and cryptoprotective role of some antidiabetic plants

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A novel approach for treatment of type- 2 diabetes is based on the incretin gut hormone glucagon-like peptide-1 (GLP-1) and glucose-dependent insulin tropic polypeptide (GIP). GLP-1 is secreted by the gastrointestinal tract in response to food intake to stimulate insulin secretion and reduced postprandial glycaemia. However, these gut hormones (GLP-1 & GIP) are no longer in an active form due degradation by endogenous dipeptidyl peptidase-IV enzyme (DPP-IV) expressed on the surface of various types of cells. Thus, preventing the degradation of the gut hormones by this enzyme became a new approach for therapeutic strategy for type 2 diabetes mellitus and cryptoprotective role also enhance the effect of antioxidant activity to break the free radicals generated by metabolic disease. Plethora of scientific literature is available on the regulation of type 2 diabetes mellitus by herbal extracts. The DPP-IV activity and cytoprotective were studied based on different antioxidant activity assays such as in vitro DPP-IV activity; hepatic lipid per-oxidation; erythrocytes haemolysis inhibition; DPPH radical scavenging efficacy; ferric reducing potential and total phenolic contents at the varying concentrations in some of the antidiabetic plants methanolic extract *M. charantia* (family Cucurbitaceae), *O .sanctum* (family Labiate), *W.somnifera* (family Solanaceae), *T. foenum-graecum* (family Leguminosae) and *B. purpurea* (family Fabaceae). The result of DPP-IV inhibitors activity was showed (51.3.25±0.09%), (62.38±0.12%), (68.39±0.19%), (48.6±0.24%) and (36.9±0.63%) respected and showed some good cytoprotective potential efficacy and can be developed as therapeutic molecules for type 2 diabetes mellitus and also suggested that this plant could be used as an additive in the food industry providing good protection against oxidative damage.

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