

## البحث رقم 7

**Title:** Assessment of Anti-Hyperglycemic Effects and the Probable Mode of Action of *Cynara scolymus* Leaf and Flower Head Hydroethanolic Extracts in Type 2 Diabetic Wistar Rats

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### **Abstract**

**Introduction:** The prevalence of type 2 diabetes mellitus has been increasing steadily all over the world. Because of the side effects of the conventional Antidiabetic chemical drugs, the development of alternative medicines is needed. Thus, this study was designed to assess the effect of *Cynara scolymus* (artichoke) leaf and flower head hydroethanolic extracts on oral glucose tolerance and to suggest their probable mode of actions in experimentally-induced type 2 diabetic Wistar rats.

**Materials and Methods:** Type 2 diabetes mellitus was induced by a single intraperitoneal injection of streptozotocin (60 mg/kg body weight) dissolved in cold 0.01M citrate buffer (pH 4.5), 15 minutes after intraperitoneal injection of nicotinamide (60 mg/kg body weight). After induction of diabetes mellitus, the rats were allocated into four groups (each of six rats). Group 1 was kept as normal control. Group 2 was diabetic control. Groups 3 and 4 were diabetic groups that were respectively treated with *Cynara scolymus* leaf and flower head extracts at dose of 100mg/kg body weight/day by oral administration for 28 days.

**Results:** The treatment of the diabetic rats with leaf and flower head extracts resulted in a significant improvement of the impaired oral glucose tolerance, the lowered serum insulin and C-peptide levels, and the decreased  $\beta$  cell insulin content and HOMA- $\beta$  cell function in association with amendment of the pancreatic islets histological architecture and integrity. The lowered visceral adipose tissue mRNA expression of adiponectin and the elevated resistin mRNA expression were significantly ameliorated in diabetic rats as a result of treatment with leaf and flower head extracts.

The lowered HOMA-IS and raised HOMA-IR in diabetic rats was significantly alleviated due to treatment with flower head extract.

**Conclusion:** The *Cynarascolymus* leaf and flower head hydroethanolic extracts successfully improved the oral glucose tolerance probably *via* amendment of pancreatic islets histological integrity, enhancement of the insulinogenic effects and attenuation of insulin resistance. The leaf extract had more potent antihyperglycemic effect than the flower head extract.

**Keywords:** Type 2 diabetes mellitus; *Cynara scolymus*; Glucose Tolerance; Insulin; Adiponectin; Resistin.