

Resistin Mediates Tomato and Broccoli Extracts Effects on Glucose Homeostasis in High Fat Diet Induced Obesity in Rats

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Abstract : Resistin was identified as an adipocyte hormone that participates in regulation of glucose metabolism. Elevated levels of Resistin are postulated to cause insulin resistance. This may link obesity, and increased fat mass to type II diabetes and insulin resistance. We hypothesized that tomato and broccoli extract treatment regulates glucose homeostasis via modulation of resistin levels in high fat diet induced obesity rats (HFD). 63 male albino rats were divided into 8 groups as follows: control, HFD, stop fat diet (SD), Tomato 200 mg/kg (T200), Tomato 400mg/kg (T400), Broccoli 200 mg/kg (B200), Broccoli 400 mg/kg (B400), Chromax (CX). Treatment continued for 1 month. Serum levels of resistin, leptin, adiponectin, glucose and insulin were measured using ELISA, and spectrophotometry. Serum level of resistin was significantly reduced in T 200, T 400, B 200, B 400 and CX groups to: 4.13 ± 0.22 ng/ml, 1.51 ± 0.04 ng/ml, 4.13 ± 0.22 ng/ml, 2.32 ± 0.15 ng/ml and 1.37 ± 0.03 ng/ml respectively compared to HFD group and SD group (P value < 0.0001). Non-significant difference was found between T 400, B 400 and CX groups. Mean serum level of leptin was significantly reduced in T 400 (22.7 ± 0.84 Pg/ml) group compared to B 400 (41 ± 2.45 Pg/ml) and CX groups (45.7 ± 2.91 Pg/ml), P value < 0.001. The mean serum level of adiponectin was significantly increased in T 400 group (131 ± 3.84 Pg/ml) compared to CX group (112 ± 4.77 Pg/ml), P value was < 0.01. Our results demonstrate that tomato and broccoli extract treatment regulates glucose homeostasis via reduction of serum resistin and may be a useful non-pharmacological therapy for obesity. Further studies are required to assess the potential use of these extract as a treatment for type II diabetes and obesity.

Keywords : broccoli, obesity, resistin, tomato

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