

Cucurbita pepo L. Attenuates Diabetic Neuropathy by Targeting Oxidative Stress in STZ-Nicotinamide Induced Diabetic Rats

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Abstract : Diabetic neuropathy is one of the most common microvascular complications of diabetes mellitus which affects more than 50% of diabetic patients. The present study targeted oxidative stress mediated nerve damage in diabetic rats using a hydro-alcohol extract of *Cucurbita pepo* L. (Family: Cucurbitaceae) and its potential in treatment of diabetic neuropathy. Diabetes neuropathy was induced in Wistar rats by injection of streptozotocin (65 mg/kg, i.p.) 15 min after Nicotinamide (230 mg/kg, i.p.) administration. Hydro-alcohol extract of *C. pepo* seeds was assessed by oral administration at 100, 200 and 400 mg/kg in STZ-nicotinamide induced diabetic rats. Thermal hyperalgesia (Eddy's hot plate and tail immersion), mechanical hyperalgesia (Randall-Selitto) and tactile allodynia (Von Frey hair tests) were evaluated in all groups of streptozotocin diabetic rats to assess the extent of neuropathy. Tissue (sciatic nerve) antioxidant enzymes (SOD, CAT, GSH and LPO) levels were measured along with the formation of AGEs in serum to assess the effect of hydro-alcohol extract of *C. pepo* in ameliorating oxidative stress. Diabetic rats exhibited significantly decreased tail-flick latency in the tail-immersion test and decreased paw withdrawal threshold in both Randall-Selitto and von-Frey hair test. A decrease in the nociceptive threshold was accompanied by significantly increased oxidative stress in sciatic nerve of diabetic rats. Treatment with the *C. pepo* hydro-alcohol extract significantly attenuated all the behavioral and biochemical alterations in a dose-dependent manner. *C. pepo* attenuated the diabetic condition and also reversed neuropathic pain through modulation of oxidative stress and thus it may find application as a possible therapeutic agent against diabetic neuropathy.

Keywords : advanced glycation end products, antioxidant enzymes, cucurbita pepo, hyperglycemia

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