

## Histological Evaluation of the Neuroprotective Roles of Trans Cinnamaldehyde against High Fat Diet and Streptozotocin Induced Neurodegeneration in Wistar Rats

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**Abstract :** Substantial evidence has shown an association between type 2 diabetes (T2D) and cognitive decline, Trans Cinnamaldehyde (TCA) has been shown to have many potent pharmacological properties. In this present study, we are currently investigating the effects of TCA on type II diabetes-induced neurodegeneration. Neurodegeneration was induced in forty (40) adult wistar rats using high fat diet (HFD) for 4 months followed by low dose of streptozotocin (STZ) (40 mg/kg, i.p.) administration. TCA was administered orally for 30 days at the doses of 40mg/kg and 60mg/kg body weight. Animals were randomized and divided into following groups; A- control group, B- diabetic group, C- TCA (high dose), D- diabetic + TCA (high dose), E- diabetic + TCA (high dose) with high fat diet, F- TCA Low dose, G- diabetic + TCA (low dose) and H- diabetic + TCA (low dose) with high fat diet. Animals were subjected to behavioral tests followed by histological studies of the hippocampus. Demented rats showed impaired behavior in Y- Maze test compared to treated and control groups. Trans Cinnamaldehyde restores the histo architecture of the hippocampus of demented rats. This present study demonstrates that treatment with trans- cinnamaldehyde improves behavioral deficits, restores cellular histo architecture in rat models of neurodegeneration.

**Keywords :** neurodegeneration, trans cinnamaldehyde, high fat diet, streptozotocin

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