

## **Fenugreek Seed Extract Prevents Hippocampal Dendritic Atrophy in Streptozotocin Induced Diabetic Rats**

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### **Abstract**

**Introduction:** Over the past decade, there has been lot of reports which prove the association of Diabetes Mellitus, which can cause potential neuronal impairment and cognitive deficits. It has been shown that Diabetes can cause dendritic atrophy in crucial brain structures like hippocampus and prefrontal cortex which are considered to be the seat of memory and decision making. Most of the herbal extracts used for treatment of diabetes has focused mostly on the hypoglycaemic and anti-oxidant property and there are no studies which focused on its effect on altered dendritic architecture caused by Diabetes. This study was taken up to explore the effect of administration of *Trigonella Foneum Graceum* (Known as Fenugreek, Methi in Hindi) seed on diabetes induced dendritic atrophy in the Hippocampus of adult male Wistar rats.

**Materials & Methods:** Experimental diabetes was induced by administering single dose of Streptozotocin (60 mg/kg) through intraperitoneal dose. After inducing diabetes, treatment groups of rats were orally administered Tfg (1 g/kg) for 6 weeks. Following this, rats were sacrificed and the brains were removed, processed for the Golgi-Cox stain method, and analyzed by the Sholl's method.

**Results:** Clearly, the rats with diabetes mellitus induced by streptozotocin showed a decrease in the dendritic length and branching points in both apical and basal dendrites of both CA1 and CA3 pyramidal neurons from all the analyzed segments. Interestingly, the Fenugreek treated rats showed the reversal of dendritic atrophy in most of the segments analyzed in both CA1 and CA3 pyramidal neurons.

**Conclusion:** The present study demonstrates that Fenugreek seed extract having a proven hypoglycaemic and anti-diabetic property also processes protection to the Hippocampal pyramidal neurons from Diabetes associated Neuronal atrophy.

**Keywords:** Fenugreek seed, Dendritic atrophy, Diabetes Mellitus, Golgi Cox staining.