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GC-MS/MS Analysis and *In Vitro* Anti-Diabetic Activity of leaves of *Trigonella foenum-graecum*

Suganya G. and Anuradha R.*

PG and Research Department of Biochemistry, Sengamala Thayaar Educational Trust Women's College, Sundarakkottai, Mannargudi-614 016. Tiruvarur (Dt), Tamil Nadu, South India.

Abstract: The nature has provided abundant plant wealth for all the living creatures, which possess medicinal virtues. Therefore, there is a necessity to explore their uses and to ascertain their therapeutic properties. Hence, the present study aims to open new avenues for the improvement of medicinal uses of *Trigonella foenum-graecum* (Leguminosae) leaves for the selected area for anti-diabetic activity. Dried (crude) ethanolic extracts of leaves of *Trigonella foenum-graecum* was subjected for *in-vitro* anti-diabetic activity. Diabetes mellitus is a heterogeneous metabolic disease characterized by altered carbohydrate, lipid and protein metabolism. So many traditional herbs are being used by diabetic patients to control the disease. But very few studies are performed to investigate the efficacy of these herbs clinically. The results obtained indicate that the extracts possessed significant level of activity; the highest concentration of extract was high effective as an anti-diabetic agent. Gas Chromatography-Mass Spectrometry analysis to determine the chemical constituents present in ethanol extract of leaves. Totally 32 different compounds from ethanol extract were identified. However, these effects need to be confirmed using *in vivo* models and clinical trials for its effective utilization as therapeutic agents.

Keywords: *Trigonella foenum-graecum*, GC-MS/MS analysis, *in vitro* antidiabetic activity

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