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BIOACTIVE COMPOUNDS IN *TRIGONELLA FOENUM-GRAECUM* L. SEEDS WITH PANCREATIC AMYLASE AND LIPASE INHIBITORY ACTIVITIES

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Trigonella foenum-graecum L. (TF) (Local name-Uluhal) seeds, is an ingredient in spiced Sri Lankan foods. Long traditions of the use of TF in the diet, as well as in the indigenous medicines has proven its safety and efficacy. Various reports have demonstrated that TF seeds can lower blood glucose and cholesterol levels. This has generated an interest in understanding the biological effects of TF seeds, and to identify the modes of action in our body. The objective of this study was to evaluate the pancreatic lipase and amylase inhibitory activities of different extracts of TF seeds and to evaluate their safety *in-vitro*.

Dried and powdered seeds of TF were extracted with methanol (M) using a sonicator and the crude methanol extract was then partitioned by stepwise solvent-solvent extraction using hexane (H), ethyl acetate (EA), and water (W). The extract and the fractions were subjected to bioassays for antioxidant activity using the spectrophotometric method, and Lipase and Amylase inhibitory activity using colorimetric methods.

The crude methanol extract was found to have a radical scavenging activity of $90.76 \pm 0.41\%$, lipase inhibitory activity of $25.7 \pm 0.32\%$ and amylase inhibitory activity of $8.69 \pm 0.23\%$. Lipase inhibition of H, EA and W extracts of TF were $10.21 \pm 0.81\%$, $35.01 \pm 1.21\%$ and $61.61 \pm 0.98\%$ respectively. Further these extracts were also subjected to the assay for amylase inhibition and only the M extract ($4.57 \pm 0.87\%$) and the EA extract ($9.81 \pm 0.65\%$) showed inhibitory activity. Published research reports of TF seeds have indicated its hypoglycemic effect and hypo-lipidemic effect *in-vivo* and this result indicates that one of the possible modes of these effects could be due to the inhibition of the digestive enzymes.

Extracts of *Trigonella foenum-graecum* L has shown lipase and amylase inhibitory activity which have increased upon fractionation. Further fractionation of TF has enhanced the lipase inhibitory activity significantly.

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