# Curry Leaves, Lemongrass and Ceylon Cinnamon Demonstrates Antihyperglycemic and Antihyperlipidemic Potential under *In-vitro* Conditions

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Atherosclerosis, insulin resistance, and associated inflammatory responses are the precursors to glycaemic stress, oxidative stress, and associated inflammatory responses, which cause cardiovascular illnesses and type 2 diabetes mellitus. In order to determine the effectiveness of cinnamon, curry leaves, and lemongrass as dietary therapy candidates to lower post-prandial hyperglycaemia and post-prandial hyperlipidaemia, this study evaluated the in-vitro inhibitory capability of these ingredients against pancreatic lipase and pancreatic -amylase. The relevant plant powders were created via air drying and size reduction. The plant powders were subjected to chlorophyll removal, sonication and rotary evaporation respectively prior to free drying. Pancreatic lipase and pancreatic -amylase inhibition assays were used to test freeze dried extracts for their in-vitro antihyperglycemic and antihyperlipidemic potential, and the data were collected using UV-Visible Spectrophotometry. Mild but significant ($P<0.05$) pancreatic lipase inhibitory activity levels of 38.81%, 24.52% and 22.16% were noted for the aqueous extracts of lemongrass, curry leaves and cinnamon consequently. Moreover, moderate but significant ($P<0.05$) α-amylase inhibitory activity levels of 15.31%, 39.97%, and 46.05% respectively were noted for same aqueous extracts of lemongrass, curry leaves and cinnamon respectively. Lemongrass extract shows considerable ($P<0.05$) lipase inhibition whereas the inhibitory effects of cinnamon and curry leaves were not significantly different ($P>0.05$) from each other. However, there was a statistically significant ($P<0.05$) difference for α-amylase inhibition amongst the three extracts. The results of this study suggest that cinnamon, curry leaves, and lemongrass are potential options for dietary therapy. These aqueous extracts can be potentially used to lower the risk of developing post-prandial hyperglycaemia and post-prandial hyperlipidaemia. Cinnamon (*Cinnamomum zeylanicum)*, Curry leaf (*Murraya koenigii)*, and Lemongrass (*Cymbopogon citratus)* can be potentially used in dietary therapy for adults at risk of type-2 diabetes mellitus, atherosclerosis. To establish the relevance and effectiveness of the observed in-vitro actions in human subjects, more research is needed.

**Keywords:** Enzyme inhibition, Alpha-amylase, Pancreatic lipase, Post-prandial hyperglycaemia, Post-prandial hyperlipidaemia