In-vitro Antihyperglycemic and Antihyperlipidemic Potential of Curry Leaves (*Murrya koenigii*), Lemongrass (*Cymbopogon citratus*) and Ceylon Cinnamon (*Cinnamomum zeylanicum*)

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Glycemic stress, oxidative stress and associated inflammatory reactions are the precursors to atherosclerosis and insulin resistance that lead to cardiovascular diseases and type-2 diabetes mellitus. This study was conducted to evaluate the *in-vitro* inhibitory potential of cinnamon, curry leaves and lemongrass against pancreatic lipase and pancreatic α-amylase, and to relate their efficacy as dietary therapeutic candidates to reduce post-prandial hyperglycemia and post-prandial hyperlipidemia. The Selected plant materials were air dried and their aqueous extracts were freeze dried. Dried extracts were tested for *in-vitro* antihyperglycemic and antihyperlipidemic potential, employing pancreatic lipase and α-amylase inhibition assays. A moderate, but significant ($P<0.05$) pancreatic lipase inhibitory activity of 38.81%, 24.52%, 22.16% and α-amylase inhibitory activity of 15.31%, 39.97%, and 46.05% was observed for lemongrass, curry leaves and cinnamon extracts respectively. Lemongrass extract had a significantly ($P<0.05$) high lipase inhibition compared to the other extracts, and the inhibitory effects of curry leaves and cinnamon extracts was not significantly ($P>0.05$) different. However, all three extracts had a significantly ($P<0.05$) different α-amylase inhibition, among one another. According to the findings of this study it can be presumed cinnamon, curry leaves and lemongrass as potential dietary candidates to reduce the risk of type-2 diabetes mellitus and atherosclerosis and by reducing post-prandial blood glucose levels and post-prandial triglyceride levels. However, further studies are required to confirm the applicability and the efficacy the observed *in-vitro* activities in human subjects.

Keywords: Enzyme inhibition, Alpha-amylase, Pancreatic lipase, Post-prandial hyperglycemia, Post-prandial hyperlipidemia

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