

Lipase and Amylase Inhibitory Activity of Spices

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Hyperlipidaemia and hyperglycaemia had become serious public health problems, which lead to cardiovascular diseases and complications associated with Type 2 Diabetes mellitus. Dietary therapy is important and could be considered as the first choice of prophylactic treatment. Digestive enzymes have been targeted as potential avenues for modulation of blood lipid and glucose concentrations through inhibition of the enzymatic breakdown dietary fat and carbohydrates which will reduce their absorption. Objective of this study was to determine the lipase and amylase inhibitory activity of spices, commonly used as food additives.

Methanolic crude extracts of ten commonly used spices were screened for inhibitory activities against pancreatic lipase and pancreatic amylase. The pancreatic lipase inhibitory activities of the extracts were evaluated *in vitro* by using 2,3-dimercapto-1-propanol tributyrate (DMPTB) as the substrate and amylase inhibitory activity was evaluated using potato starch as the substrate.

Among the crude extracts, *Trigonella foenum-graecum* (25.7%), *Myristica fragrans* (22.7%) *Cuminum cyminum* (19.7%), *Elettaria cardamomum* (12.3%), *Brassica juncea* (8.8%) and *Coriandrum sativum* (6.3%) showed lipase inhibitory activities. However, *Curcuma longa*, *Foeniculum officinale* and *Cinnamomum zeylanicum* showed lipase activating activities. *Syzygium aromaticum* (58.3%), *Curcuma longa* (52.2%), *Cinnamomum zeylanicum* (33.3%), *Brassica juncea* (20.1%), *Foeniculum officinalis* (28.5%) and *Trigonella foenum-graecum* (8.3%) showed amylase inhibitory activities, whereas *Myristica fragrans*, *Elettaria cardamomum*, *Coriandrum sativum* and *Cuminum cyminum* demonstrated amylase activating activities.

The study reveals that majority of the spices tested possess lipase and amylase inhibitory activities. Consumption of these spices would exert beneficial effects in controlling hyperlipidaemia and hyperglycaemia.