

DETERMINATION OF ANTI-AMYLASE ACTIVITY IN FOUR EDIBLE LEAVES

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The associated complications of synthetic drugs have led to a shift towards natural resources for control of most non-communicable diseases. Diabetes mellitus is a common metabolic disorder characterized by high blood glucose mainly due to ineffective or deficiency of insulin hormone. Occurrence of type II diabetes accounts for a large proportion in medical history of Sri Lanka. Recent surveys indicate that diabetes affect 10-16% of urban population and 5-10% of rural population in India and Sri Lanka. The most common approach to minimize elevated blood glucose level is to use oral anti-diabetic drugs, even though there are known side effects associated with synthetic drugs. Controlling elevated blood glucose level has been the mechanism in the management of diabetes. Acarbose is a widely used anti-diabetic drug which inhibits α -amylase enzyme that is responsible for hydrolysing disaccharides and polysaccharides into glucose. Many leafy vegetable extracts have been found to possess similar inhibitory effects. The natural herbs have no proven apparent side effects and are less expensive in comparison to synthetic hypoglycemic drug. This study was conducted to determine the effects of four different edible leaves on anti-amylase (hypoglycemic) activity. Lane-Eynon titration method and phenol sulphuric acid method were used to quantify the glucose. Leaf extracts of *Gymnema sylvestre*, *Costus speciosus*, *Moringa oleifera* and *Passiflora edulis* were added to α -amylase digesting cooked starch and the resultant glucose content was measured. The amylase activity on the soluble cooked starch was inhibited by addition of leaf extracts causing significant reduction in glucose. According to the results, these four leaf extracts exhibited significant anti-amylase activity. Among the four leaf extracts, *G. sylvestre* has the highest glucose reduction percentage (23.94%), followed by *C. speciosus* (13.48%), *M. oleifera* (8.02%) and *P. edulis* (3.07%). Results of the study indicate that the four edible leaf extracts tested have a plant based amylase inhibitory activity on starch digestion.