

α -Amylase Inhibitory Effects of Common Edible Fruit Extract

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An approach for decreasing postprandial hyperglycaemia in diabetes is to prevent or to reduce the absorption of glucose by inhibiting carbohydrate hydrolysing enzymes like α -amylase and α -glucosidase. Currently acarbose, which inhibits α -amylase and α -glucosidase, is used as a second line drug. However, it can cause hypoglycaemia. Thus we have been focusing on new chemical entities from edible fruits which can act as α -amylase inhibitors.

Edible part of ripe fruits of *Citrullus lanatus*, *Limonia acidissima*, *Nephelium lappaceum*, *Passiflora edulis* and *Phyllanthus emblica* were separately crushed and filtered. This filtrate was successively partitioned with *n*-hexane (JH) and ethyl acetate (JE). The resulting aqueous phase was freeze dried (JW). Filter cake was sequentially extracted into *n*-hexane (RH), ethyl acetate (RE) and methanol (RM). All extracts were screened for pancreatic α -amylase inhibitory activity. JE extract of *L. acidissima* showed IC₅₀ 975 ppm. JW and RM extracts of *P. emblica* showed 77% and 79.5% inhibition at 1250 ppm respectively. RE extract of *L. acidissima*, JE extract of *N. lappaceum*, RE and JE extracts of *P. edulis* and of *P. emblica* did not inhibit α -amylase. Other extracts did not show any activity. All the fruits except *C. lanatus* showed α -amylase inhibitory activity. The presence of inhibitors of carbohydrate hydrolyzing enzymes in plant derived foods is of important in the control of blood glucose level in diabetic patients.

Information on the health benefits of these fruits will improve marketability, their value as cash crops and contribute to the national economy. Further studies on the extracts could lead to the identification of novel inhibitors. It can be concluded that the edible part of ripe fruits of *L. acidissima*, *N. lappaceum*, *P. edulis* and *P. emblica* contain α -amylase inhibitors.

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