
A169 An alpha-amylase assay for the guided fractionation of anti-diabetic plants*K. Bawden, J. Quant and A. Raman*

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Diabetes mellitus, a heterogeneous disorder responsible for a disruption of glucose homeostasis resulting from either an insulin deficiency or a degree of insulin resistance is becoming a serious health care challenge worldwide with an expected incidence of 239 million people in 2020 (1). The need for new approaches in controlling diabetes has increased significantly over the last decade where one such example is to investigate traditional plant remedies as sources of novel anti-diabetic agents.

As part of an ongoing research program for the discovery of anti-diabetic compounds a bioassay which would allow activity-guided fractionation of α -amylase inhibitors was developed. This digestive enzyme is responsible for hydrolysing dietary starch to maltose which breaks down to glucose, prior to absorption. Inhibition of the enzyme should reduce the unfavourable high postprandial blood-glucose peak in diabetics, which is associated with many complications.

The Sigma-Aldrich assay (2) for measuring α -amylase activity was modified and used to evaluate the inhibitory properties of 30 plant extracts prepared from traditional anti-diabetic remedies. Of these, 1 mg/mL cold hexane extracts of the plants *Murraya koenigii* Spreng. (Rutaceae) and *Cyperus rotundus* L. (Cyperaceae) were discovered to be significant α -amylase inhibitor (44.79% and 66.80% inhibition, respectively).

Sequential soxhlet extraction using hexane, chloroform, methanol and water confirmed that the hexane extract of *Murraya koenigii* (1 mg/mL) and the methanolic extract of *Cyperus rotundus* (1 mg/mL) contained the highest levels of the active inhibitory compounds (44.79% and 61.95% inhibition, respectively).

Further activity-guided fractionation by vacuum liquid chromatography and flash chromatography are underway.

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A170 Hypolipidemic activity of seeds of *Cassia tora* L.*Umesh K. Patil and V.K. Dixit*

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Cassia tora (Caesalpinaceae) is a small shrub growing as common weed in Asian countries. Many medicinal properties such as antimicrobial, antihepatotoxic and antimutagenic activities have been attributed to this plant (1,2). In Chinese medicine it is claimed for the treatment of hyperlipidemia (3). The aim of present work was to further evaluate the hypolipidemic activity of *Cassia tora* which grows as common weed in India. Ethanolic extract of seeds and its fractions were investigated for hypolipidemic activity on Triton WR 1339 induced hyperlipidemic profile in albino rats (Wistar strain). Ethanolic extract and its ether soluble and water soluble fraction decreased serum level of total cholesterol by 42.07%, 40.77% and 71.25% respectively. On the other hand ethanolic extract, ether soluble fraction and water soluble fraction increased the serum HDL-cholesterol level by 6.72%, 17.20% and 19.18%, respectively. Ethanolic extract, ether fraction and water fraction decreased triglyceride level by 26.84%, 35.74% and 38.46%, respectively. The reduction in LDL-cholesterol level by ethanolic extract, ether soluble fraction and water soluble fraction were 69.25%, 72.06% and 76.12%, respectively. The difference among the mean were analyzed by the student t-test at 95 percent ($p < 0.05$) confidence level. The present study evidenced the hypolipidemic activity of *Cassia tora* seeds.

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