

A Comprehensive Pharmacological in vitro Study of Ayurvedic Phytocompound Mangiferin Using Spectral and Cell Line Studies

Somashekhar, Divya (School: James Madison High School)

Mangiferin, a xanthone glycoside, is extracted primarily from mango trees (*Mangifera indica*) and is mentioned in Ayurvedic texts to contain several biomedical properties. According to Ayurvedic texts, Aamra was a mango tonic prepared by Vedic doctors to treat Madhumeha (diabetes). Extracts of Mangiferin are still used as traditional treatments. In this research, Mgfn extracted from 50% ethanol solvent from dried mango leaves was quantified using an RP-HPLC to be at 4.35%. Spectrophotometric absorbance data for the ROS scavenging activity of MgFn using DPPH assay showed the IC₅₀ value at 55 µg/mL, proving MgFn to be a strong antioxidant. Further, Elisa Microplate reader data for the assay of mangiferin exhibited a good α-glucosidase inhibitory action using PNPG substrate having an IC₅₀ value of 9.72 µg/µL suggests MgFn as a potential antiglycemic agent. MTT assay for cytotoxicity using RIN-5F cell lines was performed and % cell viability calculated from the absorbance values suggests very little to no toxic effects of Mangiferin. In all, Mangiferin has great potential to be an inexpensive and accessible therapeutic phytocompound.

Awards Won: