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

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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 a-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.

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