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# Evaluation Of the Antifungal Activity of *Cassia fistula*

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Abstract

*Citrus sinensis* is a prominent tropical fruit with *nutritional* and economic benefits for humans. However, it can also be plagued by fungal diseases, causing global economic and production reduction. The extensive application of synthetic fungicides in agricultural systems has posed increased toxicological risks to humans and ecosystems. However, the varying phytochemicals found in medicinal plants have enabled them to be regarded as safe and effective alternatives. However, few studies have evaluated the use of *Cassia fistula* extracts as potential bio-fungicides. This research purposed to evaluate the antifungal activity of *Cassia fistula* leaflet extracts against phytopathogenic fungi. Ethanol as well as aqueous extracts of *Cassia fistula* leaves were assessed for antifungal activity. The agar well-diffusion technique was implemented for *in vitro* screening, minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC) of all different extracts against isolated fungal species of *Aspergillus*, *Penicillium* and *Geotrichum*. All fungal isolates identified from the spoiled oranges were *Aspergillus flavus*, *Aspergillus fumigatus*, *Geotrichum* sp. and *Fusarium* sp. Preliminary phytochemical screening exhibited the presence of carbohydrates, terpenoids, quinones and saponins in both ethanolic and aqueous extracts. At 1000 mg/ml, the aqueous and ethanolic extracts had the highest antifungal activity against *A. flavus* (40 mm) and *Fusarium* sp. (38 mm), respectively. Both extracts had no antifungal activity against *A. fumigatus* at 62.5 mg/ml but zones of inhibition were observed from the positive and negative controls of ketoconazole and DMSO, respectively. The minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC) were evaluated at 62.5 mg/ml and 250 mg/ml, respectively. This study's findings demonstrated the antifungal potential of *C. fistula* leaf extracts as a bio-fungicidal agent against fungal invasion in plants.

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