

Antifungal activity of *Psidium guajava*, *Musa* sp. and *Vigna radiata* against *Candida albicans*

Wickramanayake H.M.D.N.¹, Fernando M.M.M.R.¹, Sihara W.H.¹,
Samarakoon D.N.A.W.^{1*}, Siriwardhene M. A.²

¹ Department of Biomedical Science, KIU, Sri Lanka

² Department of Pharmacy and Pharmaceutical Sciences,
University of Sri Jayawardenapura, Sri Lanka

Psidium guajava (Guava) and *Musa mysore* (“Embul” banana) are common tropical fruits while *Vigna radiata* (Green grams) is a commonly consumed grain in Sri Lanka. *P. guajava* has been used for medicinal purposes since ancient times. But the medicinal value and therapeutic potential of them against fungal infections have not been proven scientifically. This study aims to determine the antifungal activity of the aqueous extracts of *P. guajava* leaves, *M. mysore* fruit, and *V. radiata* seeds for their antifungal activity against *Candida albicans* (ATCC 10231). The agar well diffusion assay method has been used in the study. The percentage Zone of inhibition (ZOI) of each extract was determined after incubating the extracts for 48 hours at 37°C. The potency of each extract was determined against Nystatin which was used as the Positive control. When compared with Nystatin (100 mg/mL) *P. guajava* exhibited a considerable inhibition at 500 mg/mL. The percentage ZOI according to the concentration of 500 mg/mL, 250 mg/mL and 125 mg/mL was calculated as 91.33%, 68.8%, and 55% after 24 hours and 50%, 42.5%, and 38.75% after 48 hours, respectively. *M. mysore* fruit, and *V. radiata* did not exhibit any zone of inhibition even at 500 mg/mL after the incubation at 37°C for 24 and 48 hours.

The phytochemical analysis revealed that, both aqueous and methanolic extracts of *P. guajava* contains Triterpenoids, Cardiac glycosides, Alkaloids, reducing sugars, and *Musa* sp. contains Cardiac glycosides and Flavonoids. *V. radiata* shows a trace amount of Cardiac glycosides in methanolic extracts and moderate amount of Saponins in aqueous extracts. Hence, it can be stated that *P. guajava* leaves is a potent antifungal against *Candida albicans*, and it can be used to develop new antifungal agents against *Candida* infections.

Keywords: Antifungal, *Candida albicans*, aqueous extracts, *Psidium guajava*

Acknowledgement: Financial assistance was provided by KAATSU-Highly Advanced Medical Technology Training Centre (Pvt.) Limited.

*Corresponding author: nirmani@kiu.ac.lk