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Antifungal activity of fresh fruit extract of *Garcinia quaesita* against *Fusarium proliferatum* causing crown rot disease in banana

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Tropical fruits and vegetables are susceptible to several devastating post-harvest diseases. The crown rot disease of bananas is caused by *Fusarium proliferatum*, which causes a drastic decrease in consumer compliance and becomes a problem related to consumption. Though it can be controlled by approved natural or commercial fungicides, natural antifungal plant extracts are safer options due to their non-toxicity compared to synthetic fungicides. *Garcinia quaesita* is an endemic plant in Sri Lanka used as a spice and a medicinal plant. The poisoned food technique was used to determine the percentage inhibition of mycelial growth and the minimum inhibitory concentration of the plant extract on the test pathogens. Hence, the main objective of this study was to determine the antifungal activity of hydroethanolic extract (1:1 v/v) of fresh fruit of *G. quaesita* at different concentrations against *F. proliferatum* using the standard food poisoning method. The same procedure was carried out with a positive control (50% Captan) and a negative control (dimethyl sulfoxide). A round disk of 6 mm diameter was taken from a 7-day-old culture with grown mycelium and inoculated in the center of the PDA media plate with the treatments. The zone of inhibition (mm) and the percentage of growth inhibition were determined using three different concentrations of *G. quaesita* fruit extract (5000 ppm, 2000 ppm, 1000 ppm) with three replicates. All three concentrations of the plant extract significantly inhibited mycelial growth compared to the negative control. *G. quaesita* fruit showed 47.39% growth inhibition of *F. proliferatum*. The minimum inhibitory concentration for *G. quaesita* extract was 5000 ppm, which was significantly different as determined by Tukey's mean comparison test ($p \leq 0.05$), with a zone of inhibition of 20 mm. The extract of *G. quaesita* shows promise as an alternative safe, eco-friendly, cheap, and easily degradable fungicide derived from plants. It also has great potential for providing new fungicides that are highly beneficial.

Keywords: Banana, Food poisoning method, *Fusarium proliferatum*, *Garcinia quaesita* extract, Zone of inhibition

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