EFFECTS OF TORCH GINGER ESSENTIAL OIL ON PATHOGENS OF DRAGON FRUIT [*HYLOCEREUS POLYRHIZUS* (WEBER) BRITTON & ROSE]

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Dragon fruit is susceptible to postharvest diseases. This study aimed to isolate the pathogens that infect Malaysian dragon fruit during postharvest storage and evaluate the antimicrobial activity of torch ginger leaf essential oil (EO) against these pathogens. *Bipolaris cactivora* and *Fusarium incarnatum* were identified as the causal pathogens of dragon fruit during storage. In the poison agar study, 0.5% EO inhibited 60.22% of *B. cactivora* mycelial growth compared to 38.11% for *F. incarnatum*. However, conidial germination, minimum inhibitory concentration (MIC), and minimum fungicidal concentration (MFC) tests indicated that *B. cactivora* was more resistant to EO, showing higher conidial germination, MIC, and MFC values than *F. incarnatum*. Additionally, spore counts revealed that 0.5% EO completely inhibited spore production in *F. incarnatum*, while it only reduced the spore count of *B. cactivora*. Analysis of the EO showed that aldehydes and alcohols, particularly dodecanal and 1-dodecanol, were the major compounds, which are believed to be effective in controlling fungal pathogens associated with fruit rot in dragon fruit. In conclusion, torch ginger leaf EO demonstrated potential as a natural antifungal agent against both dragon fruit pathogens in vitro.

Keywords: Antifungal, composition, essential oil, *Hylocereus polyrhizus*, pathogen identification