

BIOACTIVITY OF *ALCALIGENES FAECALIS* AND *LECANICILLIUM* SP. AGAINST *ERWINIA PSIDII* OF PAPAYA DIEBACK DISEASE

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Papaya dieback disease (PDD) is an important disease causing major losses to the industry worldwide. The causal pathogen for this disease was reported to be *Erwinia mallotivora* and *E. papaya*. As opposed to existing reports, in 2017, we found *E. psidii* to be the causal pathogen of PDD in Sabah, Malaysia. The present report is on the potential of using biocontrol agents against this pathogen. Twenty soil samples with the depth of 15 cm from the top were collected from Crocker Range of Sabah. Out of the 20 samples, 154 bacteria and 55 fungi isolates were successfully isolated and screened for their antagonistic activity against *E. psidii*. The fungi *Lecanicillium* sp. and the bacteria *Alcaligenes faecalis* showed the highest inhibition level to *E. psidii* growth ($P \leq 0.05$). We extracted secondary metabolites from both isolates in order to determine their bioactivity against *E. psidii*. Micro-well dilution method was used to determine minimum inhibitory concentration (MIC) for each microbe's extract. GC-MS analysis was carried out to determine their secondary metabolites. *Lecanicillium* sp. (Diethyl ether, chloroform and ethyl acetate) extracts and *A. faecalis* (Diethyl ether extract) showed positive inhibition ($P \leq 0.05$) against *E. psidii*. GC-MS analysis revealed that both *A. faecalis* and *Lecanicillium* sp. had secreted secondary metabolites that may involve in the growth inhibition of *E. psidii*. Our data suggest the potential of *A. faecalis* and *Lecanicillium* sp. as biocontrol agents against *E. psidii* and merit further investigations.

Keywords: *Alcaligenes faecalis*, *Lecanicillium* spp, *Erwinia psidii*, papaya dieback disease