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ANTIBACTERIAL ACTIVITY OF *Asystasia gangetica* LEAF CRUDE EXTRACTS AGAINST *Erwinia chrysanthemi*, PATHOGEN OF FRUIT COLLAPSE DISEASE IN JOSAPINE VARIETY OF PINEAPPLE

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ABSTRACT

This study was carried out to evaluate the antibacterial activities of *Asystasia gangetica* leaf extracts against pathogen of pineapple fruit collapse disease *Erwinia chrysanthemi* also known as *Dickeya zeae*. The dried leaves of *A. gangetica* were extracted by sequential extraction of increasing polarity solvents (hexane, chloroform, methanol, aqueous). The screening of antibacterial activity via in vitro assays against *E. chrysanthemi* showed that methanol leaf extracts gave the greater growth inhibition zone (17.6 mm) compared to hexane, chloroform and aqueous extracts with 5 mm, 11.9 mm, and 14.4 mm zone of inhibition respectively. Furthermore, methanol extracts also showed a greater inhibition zone compared to positive control (11 mm zone of inhibition) at concentration of 10 000 ppm. The phytochemical screening showed that saponin, alkaloid, flavanoid, glycoside, tannins and terpenoid present in *A. gangetica* leaf extracts. The active crude extracts (methanol) were further purified by Flash Vacuum Chromatography (FVC) fractionation, resulted in total of 11 fractions. The fraction (F5) eluted with ethyl acetate: methanol in the ratio of 5: 5 showed the most active fraction to show the antibacterial activity against *E. chrysanthemi*. The determination of major compound in methanol crude extract by Gas Chromatography Mass Spectrometry (GCMS) analysis as done to confirm the presence of Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, methyl ester as the major compound. The effectiveness of active crude extract in vivo assays was conducted and found that the preventive control was more effective with the lower severity than curative control. The results proven that *A. gangetica* leaf potentially can be used as biocontrol sources for bacterial fruit collapse disease of pineapple.

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