

## ABSTRACT

Endophytic bacteria are harmless in most plant species; and known to boost the growth and development of the host plants probably by secreting plant growth hormones. The isolation, identification and screening of endophytic bacteria for the plant growth regulators like cytokinin are needed to get the leads for their application in agriculture sector. The main aim of this study is to isolate cultivable endophytic bacteria from local plants and to screen them using cucumber cotyledon greening bioassay (CCGB) for cytokinin-like compounds. In this thesis, we report the isolation and identification of the bacterial endophytes from the leaves [and fruits of *Elaeis guineensis* (African oil palm)] samples collected for 31 monocotyledonous plants species from 11 states in Peninsular Malaysia, and their screening for cytokinin-like compounds. We have successfully isolated 488 endophytic bacterial isolates (EBIs) from the collected leaves and fruits samples of 31 different plant species. Isolated bacterial endophytes were grown separately in Luria Bertani (LB) medium. For all EBIs 16S rDNA was amplified using 16S rRNA gene-specific primers (Bak11 W-F and Bak-R). All 488 EBIs were successfully identified based on the 16S rDNA sequences analysis by Blastn program. Further analysis of the identified EBIs suggests that 488 EBIs belong to 19 genera and 52 species of bacteria. Out of 488 EBIs, 403 (82.58%) EBIs were from the family of *Bacillaceae*. Whereas within *Bacillus* genus, *Bacillus cereus* was the most abundant species; and out of 488 EBIs, 112 (22.95%) isolates were of *Bacillus cereus*. The ethyl acetate extracts of the EBIs-broth were prepared separately and analyzed using CCGB. In bioassay, the total chlorophyll content in cucumber cotyledon samples was estimated by spectrophotometry and compared with positive and negative controls. In total 428 extracts of the EBIs showed positive results in CCGB. However, statistical analysis of the data by using one way ANOVA method suggests that ethyl acetate extracts of 399 (81.76%) isolates are significantly positive. In conclusion, we have isolated and identified 488 EBIs; and 399 EBIs are showing positive results and should be studied further to develop a suitable mechanism to apply them for various applications in agriculture.