

## **Chromatographic detection of phytohormones from the bacterial strain UPMP3 of *Pseudomonas aeruginosa* and UPMB3 of *Burkholderia cepacia* and their role in oil palm seedling growth**

### **ABSTRACT**

Different rhizospheric microorganisms of various plants are likely to synthesize and release phytohormones. Phytohormones act as signalling molecule in the regulation of plant growth. It influences the plant physiological process and plays a role in plant microbe interaction. The purpose of this study was to detect phytohormones from the two Plant Growth Promoting Rhizobacterial (PGPR) strain *Pseudomonas aeruginosa* UPMP3 and *Burkholderia cepacia* UPMB3 isolated from oil palm rhizosphere and their effect growth on plant growth responses. Three phytohormones namely Indole-3- acetic acid (IAA), Salicylic acid (SA) and Zeatin (Z) were detected by thin layer chromatography (TLC) from the both bacterial strains. The influence of phytohormones produced by the PGPR on oil palm seedling growth was carried out in the pot experiment. The germinated oil palm seedlings were treated with the extract of both bacterial strains and observed a positive effect on seedling growth in respect to average root number, root length, shoot length, leaf number and leaf length. Plant Growth Promoting Rhizobacteria producing phytohormones, play an important role in rhizobacteria-plant interactions. Moreover, bacterial IAA increases root surface area and length, and thereby provides the plant greater access to soil nutrients. Thus, rhizobacterial phytohormones are identified as an effector molecule in plant-microbe interactions, both in phytostimulation and pathogenesis.

**Keyword:** Phytohormone; *Pseudomonas aeruginosa* UPMP3; *Burkholderia cepacia* UPMB3; Oil palm; Thin layer chromatography