

**ISOLATION AND CHARACTERIZATION OF BACTERIA FROM COCOA
(*Theobroma cacao*) RHIZOSPHERIC SOILS FOR DIFFERENT PLANT
GROWTH PROMOTION (PGP) ACTIVITIES**

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ABSTRACT

ISOLATION AND CHARACTERIZATION OF BACTERIA FROM COCOA (*Theobroma cacao*) RHIZOSPHERIC SOILS FOR DIFFERENT PLANT GROWTH PROMOTION (PGP) ACTIVITIES

Plant growth promoting rhizobacteria (PGPR) are a group of bacteria that can be found in the rhizosphere part which is near to the roots. PGPR could enhance the growth of plant through direct or indirect mechanism. However, there is no enough information on bacteria that can enhance the growth of cocoa. In this study, plant growth promoting bacteria for cocoa is isolated from the rhizosphere of cocoa. This study will attempt to explain more detail about the cocoa growth promoting bacteria and the benefits of the bacteria towards the tree. In the present work, cocoa rhizospheric soil sample was collected from Malaysia Cocoa Board, Jengka Pahang (MCB). A total of four bacteria were isolated and *in vitro* screening was done for different plant growth promotion activities such as nitrogen fixation, phosphate solubilization, ammonia production and catalase activity. In the present study, the four bacteria were positive for nitrogen fixation ability, phosphorus solubilization, ammonia production and catalase activity. Further identified on the basis of colony morphology and gram staining method was done to identify the bacteria species. The results indicate that the bacteria are most probably *Bacillus* sp., *Enterobacter* sp. and *Serratia* sp. PGPR are very effective in increasing nutrient in soil and act as biofertilizer. In conclusion, these isolated bacteria can be useful for the development and growth of cocoa.

Keywords: PGPR, cocoa environment, in vitro study, biofertilizer