

Research Title	Enhancement of Photosynthesis and Yields in Cassava by Siderophore Producing Plant Growth Promoting Rhizobacteria (PGPR)
Resaercher	Assistant Professor Dr. Nuttabodee Viriyawattana Assistant Professor. Dr. Surachat Sinworn
Organization	Faculty of Science and Technology, Suan Dusit University.
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Abstract

The objective of this study is to select Plant Growth Promoting Bacteria (PGPR) which is capable of producing siderophore. Preparation of immobilized bacterial cells gel form. Study the swelling of immobilized cells gel, the amount of release of bacteria and survival of bacteria in the form of immobilized cells gel in various conditions to be applied to the cassava field. By collecting soil samples around cassava roots without a history of disease in Nakhon Ratchasima province. Isolated bacteria that have plant growth promoting properties such as phosphate solubilization assay and siderophore production. Bacteria that have plant growth promoting properties and the ability to create siderophore one isolate were extracted from Genomic DNA and increased DNA in the conserved region of 16S rRNA by PCR using specific primer. Sequence analysis compared to other sequences in the NCBI GenBank database, it had a sequence similar to *Pseudomonas fluorescens* strain IGFRI_PSB_9a (2) _16S (2) _16S to ๙๙%. In the form of immobilized cells gel, the concentration of 3% sodium alginate in 0.05 mol calcium chloride solution was suitable for encapsulation that help the survival of bacteria. Survival studies in various conditions found that bacteria can survive in conditions at pH 6 to 8 and temperature 37 to 45 degrees celsius, which is the condition in the soil of Thailand suitable for microbial activities. Therefore, it was suitable to applied to increase the efficiency of photosynthesis and cassava production in agricultural areas.