

Nitjakarn Kanamnuay 2007: Diversity and Efficiency of *Bacillus* sp. on Inorganic Phosphate Solubilization. Master of Science (Microbiology), Major Field: Microbiology, Department of Microbiology. Thesis Advisor: Mrs. Surang Suthirawut, Dr. Agr. 76 pages.

The ability of phosphate solubilization of bacteria was screened on Pikovskaya's medium (PVK) and National Botanical Research Institute's Phosphate growth medium (NBRIP). Twelve of 344 isolates of bacteria from various soil and commercial phosphate rocks were able to solubilize phosphate on both agar plates. All selected isolates were clearly identified as *Bacillus megaterium* by conventional method. Comparison of the efficiency of phosphate solubilization by the twelve strains of *B. megaterium*, 7 strains of *Bacillus* sp. and *Pseudomonas* sp. N11 were studied in PVK and NBRIP broth by analyzing soluble phosphate after 7 days incubation. The highest yield of soluble phosphate were obtained from *Pseudomonas* sp. N11 with 450.6 and 595.9 mg P L⁻¹ in PVK and NBRIP broth, respectively, whereas soil phosphate solubilizing bacteria (PSB), *B. megaterium* C411, was able to solubilize more phosphate than other strains of *Bacillus* sp., 216.4 and 453.4 mg P L⁻¹, respectively.

The relationship among bacterial growth, pH and phosphate solubilization of *Pseudomonas* sp. N11, *B. megaterium* C411 and *B. megaterium* T1RP13 were also studied in broth media. Phosphate solubilization was shown to be relative to the bacterial growth and even getting higher when it reached the stationary phase within 1-3 days. Moreover, production of acids during the bacterial growth could result in an increase of phosphate solubilization. It also indicated that 7 days incubation period of bacteria could be reduced to 1-3 days

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Thesis Advisor's signature

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