

Thesis Title Efficiency of Some Microbes on Potassium Solubilization from Feldspar and Its Availability for Sugarcane Growth

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M.S. (Agriculture) Soil Science

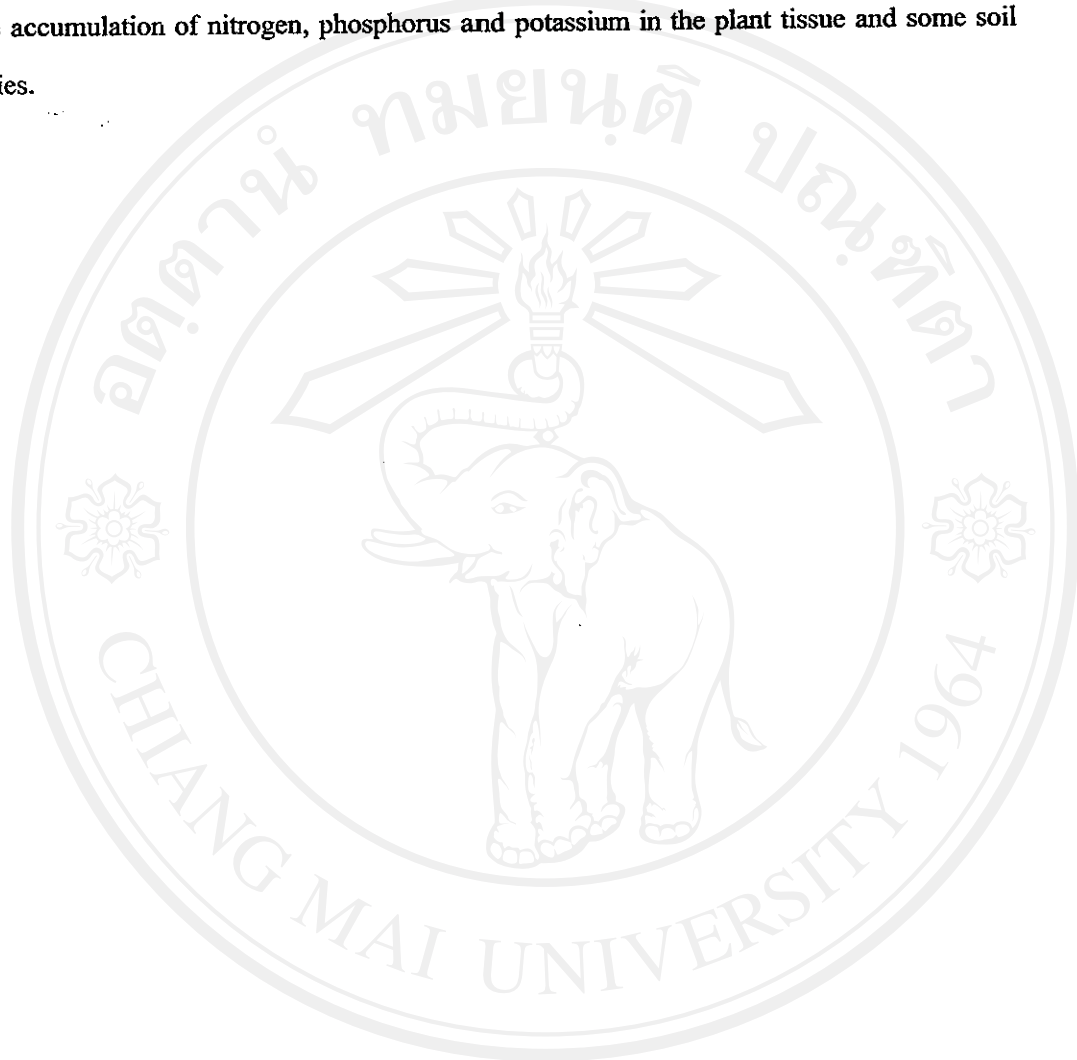
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Abstract

The efficiency of some microorganisms on potassium solubilization from feldspar was investigated to determine the availability of soluble potassium for sugar cane growth. Feldspar solubilizable bacteria were isolated from soil samples collected from four different locations; Huay-Pongmahong, MaeJam District, Chiang Mai; Huay-Jumpa, Hot District, Chiang Mai; Ton-Lan Reservoir, ChomTong and agricultural area of Jul 's Thai Silk Co., Petchaboon. The bacteria were isolated and collected on silicate medium with Bromthymol Blue by selection acid producing colony. Twenty two bacterial isolates were collected; two from Huaypongmahong; two from Huay- Jumpa; seven from Ton-Lan reservoir and eleven from Jul 's Thai Silk Company. These bacteria and *Bacillus circulans*, a reference strain, isolated from Biopotassium fertilizer of Institute of Microbiology, Hebei Academy of Science P.R. China, were inoculated in liquid silicate medium using feldspar (10% total K) as a K source. Solubility of potassium was evaluated every six hours intervals for 168 hours. Results found that the medium inoculated with bacteria isolates no 14 and no. 16 gave the highest quantity of soluble potassium, 3.15% and 3.07%, respective as where *Bacillus circulans* was at 1.62%. Determination the effect of feldspar and potassium-releasing bacteria, on growth of sugar cane, sugar cane plantlets were grown in pots containing 20 kg soil and inoculated with 10^6 cell/g soil three of there bacterial

isolates, no. 14 no. 16 and *Bacillus circulans*. The bacteria were inoculated results found that there was no significant individually at combination of isolated. Difference effects of the bacteria and feldspar on the growth and yield component such as sugar concentration (%Brix) and the accumulation of nitrogen, phosphorus and potassium in the plant tissue and some soil properties.



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