Selection Phosphate Solubilizing Microorganisms for Agricultural Application

Nuanjun Pasda[1*] Vuttichai Juntarasombat[1] Monravee Peravutchara[1] and Vera Ropundung[2]

ABSTRACT

Phosphate solubilizing microorganisms was selected from 424 soil samples. The number of Phosphate solubilizing bacteria and fungi were 81 isolate and 53 isolate respectively. Microbial activity was measured as releasing of available phosphate. The concentration phosphate rang from 986.23-1,103.41 mg kg^{-1} from 32 bacterial isolate and 703.99-955.18 mg kg^{-1} from 11 mold isolate. Six best, PSB 8 PSB 220 PSF 42 PSF 221 PSF 3 and PSF 035 isolates were selected for releasing of available phosphate using rock phosphate as P-source. The results showed that 3 isolate, 2 baterial, 1 fungi were the highest activity. The releasing phosphate solubilizing were 98.38 95.65 and 94.44 mg kg^{-1} mg kg^{-1} in PSF 221 PSF 035 and PSB 8.

Moreover, the 3 best isolate were conducted in greenhouse for studying the effect of maize growth. The releasing of Phosphorus in the soil sample were 184.65 199.17 and 219.34 mg kg^{-1} in PSF 221 PSF 035 and PSB 8. The hight of maize was 29.43 28.53 และ 27.13 cm. respectively. Also, in the field condition , maize production was highest in the treatment with PSF 221, The production was 2,240 kg. rai^{-1} nearly than utilization of chemical fertilizer. The results showed that P concentration in soil increased to 29.34 mg kg^{-1}. The conclusion should be PSF 221 was the best activity for releasing Phosphorus

[1]Soil Biotechnology Division, Land Development Department,
Ministry of Agriculture and cooperatives

2 Land Development Regional Office 5, Land Development Department,
Ministry of Agriculture and cooperatives