



An Efficient Microbiological Growth Media for Screening Phosphate Solubilizing Microorganisms

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Abstract

Phosphate solubilizing microorganisms were isolated and their potential for phosphate solubilization was assessed with NBRIP (National Botanical Research Institute Phosphorus medium) and PVK (Pikvoskya's medium) medium. Based on the diameter of the solubilizing halos on PVK and NBRIP mediums, four bacterial isolates (HK5R1S1, HK3R1S2, HK4R9S1, and KB1R1S1) were isolated from soil samples of agricultural fields. Comparatively, the halos formed around colonies in NBRIP solid medium were not prominent as those in PVK solid medium where the halos were much clear. Among the isolates, the highest phosphate solubilization Index was recorded on HK5R1S1 (SI = 2.197) plates at day 3 of the incubation in NBRIP solid medium and at day 1 (SI = 2.21) in PVK solid medium. However, the results showed that the isolates had significantly ($P \leq 0.05$) higher phosphate solubilization and pH reduction in NBRIP liquid medium when compared with PVK liquid medium. The isolate KB1R1S1 showed the highest phosphate solubilization (1030 $\mu\text{g/ml}$) and pH reduction (2.29) in NBRIP liquid medium and significantly ($P \leq 0.05$) low phosphate solubilization (629.9 $\mu\text{g/ml}$) and low pH reduction (3.89) in PVK liquid medium after five days of the incubation. Therefore it can be concluded that NBRIP liquid medium is better for the screening of efficient phosphate solubilizers compared to PVK medium.

Keywords: NBRIP medium, Phosphate solubilization, Phosphate solubilizers, PVK medium

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