



## Bioremediation potential of soil microbes for nutrient management in calcareous soil

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**Abstract:** Soil fertility is a serious concern and a major threat in the process of increasing the crop productivity to feed the growing population. Calcareous soils are sick soil suffering from nutrient deficiency and high calcium carbonate which makes the soil more infertile. It is the need of the hour to incorporate more land under agriculture to increase crop productivity. Chemical amelioration proving to be insufficient and an integrated approach are required to remediate these sick soils. Microbial bioremediation can be a suitable amendment for calcareous soil having severe nutrient deficiencies. Soil sample collected from different arid region were enumerated for native microbes. Two alkali tolerant isolates were obtained and were able to solubilise major nutrients at high alkaline pH. Both the isolates show prominent capacity to solubilise calcium carbonate and other insoluble compounds like zinc oxide, magnesium carbonate, tri-calcium phosphate etc. The isolates were identified as *Burkholderia stabilis* and *Burkholderia anthina*, show prominent growth at pH 7.0-11.0. The maximum growth for both the isolates was recorded as  $11.3 \times 10^9$  and  $13 \times 10^9$  at pH 7.0 to  $6.2 \times 10^9$  and  $4.33 \times 10^9$  at pH 11.0 respectively after 48 h of incubation. The isolates prove to be a potent source of bioremediation of nutrient deficient calcareous soil.

**Key Words:** Calcareous soil, Micronutrient Deficiency, Microbial Nutrient Management, Bioremediation.