

**FEASIBILITY STUDY OF SRI LANKAN  
FELDSPAR  
USING AS A BIO FERTILIZER**

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by

**DISSANAYAKE MUDIYANSELAGE SURANGA  
DISSANAYAKE**

**Mineral Resources and Technology Degree Program  
Uva Wellassa University, Sri Lanka**

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## Abstract

Potassium is one of the three essential elements among, NPK, for the growth and reproduction of the plants and it plays major roles in its nutrition. The crop production in Sri Lanka relies completely on imports to meet its annual requirement of potash fertilizers; the high cost of conventional, water soluble K fertilizers constrains their use by most of the farmers in the country. In order to reduce the dependence on imported potash, feldspar a potash mineral in Kaikawala deposit matale, contains 14% K and therefore it could be a potential K-source for crop production. Novel approaches are needed to unlock K from the silicate structure of this mineral in order to render K more available for plant nutrition. Pure cultures of silicate dissolving bacteria SDB (*Bacillus mucilaginosus*, *Bacillus cereus* and *Aspergillus niger*) were used as bio inoculants. These studies were undertaken to evaluate the effectiveness of bacterial inoculation in combination with different particle sizes of feldspar, and potassium releasing ability was measured to get the best combination of microorganism and the feldspar particle sizes. However, incorporation of feldspar without bio inoculation had little effect on the degradation in controller medium. But bio inoculation has shown different and significant K concentration to the solution. However *Bacillus mucilaginosus* as a bio inoculant has given the highest K concentration in to the solution at the <125micron particle size of feldspar. According to that the Sri Lankan feldspar has significant ability as a potassium source with *Bacillus mucilaginosus* inoculation.