

## Aleksandrow Broth

### Intended Use

Aleksandrow Broth is used for isolation and detection of potassium solubilizing bacteria from soil sample.

### Summary

Among the Nitrogen (N), Phosphorus (P) and Potassium (K), Potassium is the third important plant nutrient. Potassium is essential macronutrient for plant growth and plays significant roles in activation of several metabolic processes.

Soil potassium supplementation relies heavily on the use of chemical fertilizer, which has a considerable negative impact on the environment. Potassium-solubilizing bacteria convert insoluble potassium in the soil into a form that plants can access. A wide range of bacteria namely *Pseudomonas*, *Burkholderia*, *Acidithiobacillus ferrooxidans*, *Bacillus mucilaginosus*, *Bacillus edaphicus*, *B. circulans* and *Paenibacillus* sp. has been reported to release potassium in accessible form from potassium bearing minerals in soils. Therefore potassium solubilizing bacteria are extensively used as biofertilizers

### Principle

Salts present in the medium support the growth of potassium solubilizing bacteria by providing the essential nutrients. The source of potassium salts is potassium alumino silicates.

### Formula\*

Ingredients	g/L
Magnesium Sulphate	0.5
Calcium Carbonate	0.1
Potassium Alumino Silicate	2.0
Glucose	5.0
Ferric Chloride	0.005
Calcium Phosphate	2.0
Final pH (at 25°C)	7.2 ± 0.2

\*Adjusted to suit performance parameters

### Storage and Stability

Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label.

### Type of specimen

Soil samples

### Specimen Collection and Handling

Ensure that all samples are properly labelled.

Follow appropriate techniques for handling samples as per established guidelines.

Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure. The samples must be stored and tested within the permissible time duration.

After use, contaminated materials must be sterilized by autoclaving before discarding.

### Directions

1. Suspend 9.60 g of the powder in 1000 mL purified / distilled water.
2. Heat if necessary, to dissolve the powder completely.
3. Dispense into tubes or flasks as desired.
4. Sterilize by autoclave at 121°C (15 psi) for 15 minutes as per validated cycle.

### Quality Control

**Dehydrated Appearance:** Cream to white coloured, homogeneous, free flowing powder.

**Prepared Appearance:** Colourless solution with heavy white precipitate forms in tubes which settles down on standing.

**Cultural Response:** Cultural characteristics observed after an incubation of 24-48 hours at 35°C-37°C.

**Organisms (ATCC)**

Potassium solubilizing isolate

**Growth**

Good

**Performance and Evaluation**

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

**Warranty**

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

**Reference**

1. Sheng, X.F., 2005, Growth promotion and increased potassium uptake of cotton and rape by a potassium releasing strain of *Bacillus edaphicus*. *Soil Biology and Biochemistry*, 37, 1918-1922.
2. Prajapati, K. B., & Modi, H. A. (2012). Isolation and characterization of potassium solubilizing bacteria from ceramic industry soil. *CIBTech J Microbiol*, 1(2-3), 8-14.
3. Han, H.S., Supanjani and Lee, K.D., 2006, Effect of co-inoculation with phosphate and potassium solubilizing bacteria on mineral uptake and growth of pepper and cucumber. *Plant Soil and Environment*, 52, 130-136.
4. Badr, M. A., Shafei, A.M. and Sharaf, S.H. El-Deen, 2006, The dissolution of K and phosphorus bearing minerals by silicate dissolving bacteria and their effect on sorghum growth. *Research Journal of Agriculture and Biological Sciences*, 2, 5-11.
5. Sheng, X.F. and He, L.Y., 2006, Solubilization of potassium bearing minerals by a wild type strain of *Bacillus edaphicus* and its mutants and increased potassium uptake by wheat. *Canadian Journal of Microbiology*, 52, 66-72.
6. Basak, B.B. and Biswas, D.R., 2008, Influence of potassium solubilizing microorganism (*Bacillus mucilaginosus*) and waste mica on potassium uptake dynamics by sudan grass (*Sorghum vulgare Pers*) grown under two Alfisols. *Plant Soil*, 317, 235-255
7. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

**Product Presentation:**

**Cat No.**

201010870500

**Product description**

Dehydrated Culture Media

**Pack Size**

500 g

**Disclaimer**

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.

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