Aleksandrow Agar

Intended Use
Aleksandrow Agar 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*, *Acidothiobacillus 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 solubililizing bacteria by providing the essential nutrients. The source of potassium salts is potassium alumino silicates. Potassium solubilizing bacteria will grow on this medium and form a clear zone around the colony, formed due to potassium solubilization in the vicinity of the colony.

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
Agar	20.0
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 29.60 g of the powder in 1000 mL purified / distilled water.
2. Heat to boiling to dissolve the powder completely.
3. Sterilize by autoclave at 121°C (15 psi) for 15 minutes as per validated cycle.
4. Cool to 45°C-50°C.
5. Mix well and pour into sterile petridishes.

Quality Control

Dehydrated Appearance: Cream to white coloured, homogeneous, free flowing powder.
Prepared Appearance: White coloured with flocculant precipitate, opaque gel forms in petridishes.
Cultural Response: Cultural characteristics observed after an incubation of 24-48 hours at 35°C-37°C.

Organisms (ATCC)	Growth	Potassium solubilization
Potassium solubilizing isolate	Good	positive reaction, clear zone surrounding the colony

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 mucilaginous) 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.	Product description	Pack Size
201010960500	Dehydrated Culture Media	500 g