Aleksandrow Broth

**Intended Use:**
Recommended for isolation and detection of Potassium solubilizing bacteria from soil samples.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium sulphate</td>
<td>0.500</td>
</tr>
<tr>
<td>Calcium carbonate</td>
<td>0.100</td>
</tr>
<tr>
<td>Potassium alumino silicate</td>
<td>2.000</td>
</tr>
<tr>
<td>Dextrose (Glucose)</td>
<td>5.000</td>
</tr>
<tr>
<td>Ferric chloride</td>
<td>0.005</td>
</tr>
<tr>
<td>Calcium phosphate</td>
<td>2.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.2±0.2</td>
</tr>
</tbody>
</table>

**Formula adjusted, standardized to suit performance parameters**

**Directions**

Suspend 9.60 grams in 1000ml of purified / distilled water. Heat if necessary to dissolve the medium completely. Dispense into tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

**Principle And Interpretation**

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 (6). Potassium-solubilizing bacteria have been reported to exert beneficial effects on growth of cotton, pepper and cucumber (3), sorghum (1), wheat (7) and Sudan grass (2). Therefore potassium solubilizing bacteria are extensively used as biofertilizers.

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.

**Type of specimen**

Soil sample.

**Specimen Collection and Handling**

For soil samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(8) After use, contaminated materials must be sterilized by autoclaving before discarding.

**Warning and Precautions :**

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

**Limitations :**

1. Further biochemical identification of organisms is required for confirmation.

**Performance and Evaluation**

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.
Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium
Cream to light yellow coloured solution with white precipitate forms in tubes

Reaction
Reaction of 0.96% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH
7.00-7.40

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

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium solubilizing isolate</td>
<td>50-100</td>
<td>good-luxuriant</td>
</tr>
</tbody>
</table>

Storage and Shelf Life
Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal
User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

Reference
6. 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

Disclaimer:
User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.