

Technical Information

Pikovskayas Agar

Product Code: DM 1520

Application: - Pikovskayas Agar is recommended for detection of phosphate-solubilizing soil microorganisms.

Composition**

Ingredients	Gms / Litre
Yeast extract	0.500
Dextrose	10.000
Calcium phosphate	5.000
Ammonium sulphate	0.500
Potassium chloride	0.200
Magnesium sulphate	0.100
Manganese sulphate	0.0001
Ferrous sulphate	0.0001
Agar	15.000

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Phosphate exists both in organic as well as inorganic forms in soil. Organic matter derived from dead and decaying plant debris is rich in organic sources of phosphorus. However, plants are able to utilize phosphorus from soil only in the free available form which is made available either by plant roots or by soil microorganisms. Therefore, phosphate-dissolving soil organisms play an important role in correcting phosphorus deficiency of crop plants ⁽¹⁾. Pikovskayas Agar was modified by Sundara Rao and Sinha ⁽²⁾ for detection of phosphate-solubilizing bacteria from soil.

Yeast extract in the medium provides nitrogen and other nutrients necessary to support bacterial growth. Dextrose acts as an energy source. Different salts and yeast extract supports the growth of organisms. Phosphate-solubilizing bacteria will grow on this medium and form a clear zone around the colony, formed due to phosphate solubilization in the vicinity of the colony.

Methodology

Suspend 31.3 grams of powder media in 1000 ml distilled water. Shake & heat to dissolve the medium completely and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance

White to light yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

White with flocculant precipitate opaque gel forms in Petri plates

Cultural Response/Characteristics

DM 1520: Cultural characteristics observed after incubation at 35-37°C for 48 hours.

Organism	Inoculum (CFU)	Phosphate solubilization
* <i>Aspergillus brasiliensis</i> ATCC 16404	luxuriant	positive reaction, clear zone surrounding the colony
<i>Bacillus subtilis</i> ATCC 6633	good	moderate clear zone surrounding the colony
<i>Pencillium notatum</i> ATCC 10108	luxuriant	positive reaction, clear zone surrounding the colony
<i>Pseudomonas aeruginosa</i> ATCC 27853	luxuriant	positive reaction, clear zone surrounding the colony

Key: Formerly known as Aspergillus niger
ATCC 16404

Storage and Shelf Life

Dried media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth, Oxford and IBH Publishing Co., New Delhi. Revision : 1 / 2011
2. Sundara Rao W. V. B. and Sinha M. K., 1963, Ind. J., Agric. Sci., 33:272.

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