Technical Information

Citrate Agar

Product Code: DM 1728

Application: - Citrate Agar is recommended for cultivation of iron bacteria from soil samples.

Composition**

Ingredients	Gms / Litre
Ammonium sulphate	0.500
Sodium nitrate	0.500
Magnesium sulphate	0.500
Dipotassium phosphate	0.500
Calcium chloride	0.200
Ferric ammonium citrate	10.000
Agar	15.000
Final pH (at 25°C)	6.7±0.1

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

The iron bacteria oxidize ferrous iron to ferric state, which precipitate as ferric hydroxide around cells. These bacteria are usually non-filamentous and spherical or rod shaped. Certain algae also transform ferrous salts to ferric state and deposit the precipitation around the colonies. The ferric hydroxide deposits give a brown or rust red colour to these organisms. Citrate Agar is recommended by Subba Rao[1] for the isolation and detection of iron bacteria. A modification of the original formulation of Subba Rao is recommended by APHA[2] for the isolation of heterotrophic iron-precipitating bacteria[3].

Dipotassium phosphate provides buffering to the medium. Magnesium sulphate, ammonium sulphate and calcium chloride are sources of ions that enhance metabolism. Ferric ammonium citrate is used as a source of carbon and sodium nitrate acts as a source of nitrogen.

Methodology

Suspend 27.2 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (12 1°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance

Cream to greenish yellow homogeneous free flowing powder

Gelling

Firm,comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Light amber coloured, clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 2.72% w/v aqueous solution at 25°C. pH : 6.7±0.1

pH range 6.60-6.80

Cultural Response/ characteristices

DM 1728: Cultural characteristics observed after an incubation at 35-37°C for upto 7 days.

Organism	Growth
Escherichia coli ATCC 25922	inhibited
Sphaerotilus natans ATCC 13338	good-luxuriant

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^{o} in sealable plastic bags for 2-5 days.

Further Reading

1. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth, Oxfordand IBH Publishing Co., New Delhi.
2. Greenberg A. E., Eaton A. D., and Clesceri L. S., (Eds.), 1998, Standard Methods for the Examination of Water and Wastewater, 20th Ed., APHA, Washington, D.C.
3. Clark F. M., Scott R. M. and Bone E., 1967, Heterotrophic, iron-precipitating bacteria, J. Am. Water Works Assoc., 59: 1036.

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- User must ensure suitability of the product(s) in their application prior to use.
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