Carbon Utilisation Agar

M363

Intended Use:

Recommended for characterization of *Streptomyces* on the basis of carbon utilization studies.

Composition**

Ingredients	Gms / Litre
Ammonium sulphate	2.640
Potassium dihydrogen phosphate	2.380
Dipotassium hydrogen phosphate trihydrate	5.650
Magnesium sulphate heptahydrate	1.000
Copper sulphate pentahydrate	0.0064
Ferrous sulphate heptahydrate	0.0011
Manganese chloride heptahydrate	0.0079
Zinc sulphate heptahydrate	0.0015
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 24.83 of grams of dehydrated medium in 900 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add 100 ml of 10% filter sterilized desired carbohydrate solution. Mix well and dispense as desired.

Principle And Interpretation

Streptomyces are a group of gram-positive bacteria belonging to *Actinobacteria* found in soil and decaying vegetation. Carbon Utilization Agar is developed as per International Streptomyces Project (1,4) for the cultivation and differentiation of *Streptomyces purpureus* and other *Streptomyces* species based on carbohydrate utilization. The various salts provide the electrolytes and minerals essential for the growth of *Streptomyces* species. The carbohydrates used for the studies are glucose, sucrose, xylose, arabinose, inositol, mannitol, fructose, rhamnose, raffinose or cellulose.

Type of specimen

Soil sample; Decaying vegetation

Specimen Collection and Handling:

For soil samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(5) 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 specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1.This medium is general purpose medium and may not support the growth of fastidious organisms.

2. The reactions of this medium alone are not sufficient for identification to the species level.

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
Off-white to light yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Colourless, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 2.48%w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response
Cultural characteristics observed after an incubation at 30-32°C for 48-72 hours with added 100ml/litre of 10% filter sterilized carbohydrate.

Organism	Growth
Streptomyces albus subsp albus ATCC 3006	good-luxuriant
Streptomyces lavendulae ATCC 8664	good-luxuriant
Streptomyces peucetius ATCC 29050	good-luxuriant
Streptomyces purpureus ATCC 27787	good-luxuriant

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

Reference

1. Atlas R. M., 1993, Handbook of Microbiological Media, Parks L.C. (Ed .), CRC Press, Inc.

2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

4. Shirling E. B. and Gottlieb D., 1966, Methods for Characterization of Streptomyces species, Int. J. Syst. Bacteriol., 16:313.

5. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth, Oxford and IBH Publishing Co., New Delhi.

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