Moeller Decarboxylase Broth w/ Lysine HCl

M687

Intended Use:

Recommended for differentiation of bacteria on the basis of their ability to decarboxylate L-Lysine hydrochloride.

Composition**

Ingredients	g / L
Peptone	5.000
HM peptone B #	5.000
Dextrose (Glucose)	0.500
L-Lysine hydrochloride	10.000
Bromocresol purple	0.001
Cresol red	0.005
Pyridoxal hydrochloride	0.005
Final pH (at 25°C)	6.0±0.2

**Formula adjusted, standardized to suit performance parameters
Equivalent to Beef extract

Directions

Suspend 20.52 grams in 1000 ml purified/distilled water. Heat if necessary, to dissolve the medium completely. Dispense in 5 ml amount in screw-capped tubes and sterilize by autoclaving at 15lbs pressure (121°C) for 10 minutes. Cool the tubed medium in an upright position. Inoculate the tubes and overlay with 2-3 ml of sterile mineral oil.

Principle And Interpretation

Many species of bacteria possess enzymes capable of decarboxylating specific amino acids in the test medium releasing alkaline-reacting amines and carbon dioxide as byproducts. The decarboxylase activity of *Enterobacteriaceae* is most commonly measured with Moeller Decarboxylase Broth (1). This medium was formulated by Moeller for detecting the production of lysine and ornithine decarboxylase and arginine dihydrolase (2). Prior to Moellers work, bacterial amino acid decarboxylases were studied by Gale (3) and Gale and Epps (4).

Decarboxylase media are also recommended by standard methods for identification of bacteria (5-8). Moeller Decarboxylase Broth with lysine hydrochloride is used for differentiating bacteria on their ability to decarboxylate lysine hydrochloride. This medium contains HM peptone B and peptone which provide nitrogenous nutrients for the growth of bacteria. Dextrose is the fermentable carbohydrate and pyridoxal is the co-factor for the decarboxylase enzyme. Bromo cresol purple and cresol red are the pH indicators in this medium. When the medium is inoculated with the dextrose fermenting bacteria, the pH is lowered due to acid production which changes the colour of the indicator from purple to yellow. Acid produced stimulates decarboxylase enzyme. Decarboxylation of lysine yields cadaverine. Formation of the amine cadaverine increases the pH of the medium, changing the colour of the indicator from yellow to purple. If the organisms do not produce the appropriate enzyme, the medium remains acidic, yellow in colour. Each isolate to be tested should also be inoculated into the basal medium tube lacking the amino acid. After incubation, a decarboxylase test may show two layers of different colours, yellow and purple. Shake the tube gently before interpreting the results (9).

Type of specimen

Isolated Microorganism from clinical and non-clinical samples

Specimen Collection and Handling:

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic use only. For professional use only. 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. Inoculated tubes must be protected from air with a layer of sterile mineral oil. Exposure to air may cause alkalinization at the surface of the medium which makes the test invalid.
2. The test must be performed for isolated microorganism from clinical and non-clinical samples. It must not be used for mixed inoculum
3. Other biochemical and serological tests must be performed for complete identification.

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

Light yellow to greenish yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Purple coloured clear solution without any precipitate

Reaction

Reaction of 2.05% w/v aqueous solution at 25°C. pH : 6.0±0.2

pH

5.80-6.20

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for upto 4 days (Inoculated tubes are overlaid with sterile mineral oil).

Organism	Lysine decarboxylation
Citrobacter freundii ATCC 8090	negative reaction, yellow colour
# *Klebsiella aerogenes* ATCC 13048 (00175*)	positive reaction, purple colour
Escherichia coli ATCC 25922 (00013*)	variable reaction
Klebsiella pneumoniae ATCC 13883 (00097*)	positive reaction, purple colour
Proteus mirabilis ATCC 25933	negative reaction, yellow colour
$ *Proteus* hauseri ATCC 13315	negative reaction, yellow colour
^*Pseudomonas paraeruginosa* ATCC 9027 (00026*)	negative reaction, yellow colour
Salmonella Paratyphi A ATCC 9150	negative reaction, yellow colour
Salmonella Typhi ATCC 6539	positive reaction, purple colour
Serratia marcescens ATCC 8100	positive reaction, purple colour
Shigella dysenteriae ATCC 13313	negative reaction, yellow colour
Shigella flexneri ATCC 12022 (00126*)	negative reaction, yellow colour
Shigella sonnei ATCC 25931	negative reaction, yellow colour

Key : *Corresponding WDCM numbers. # Formerly known as *Enterobacter aerogenes*
$ Formerly known as *Proteus vulgaris* ^ Formerly known as *Pseudomonas aeruginosa*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-30°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. 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 (5,6).

Reference

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4. Gale and Epps, 1943, Nature, 152:327.
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6. 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.
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9. Moeller V., 1955, Acta Pathol. Microbiol. Scand. 36:158.
10. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, American Public Health Association, Washington, D.C.

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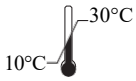
IVD ***In vitro* diagnostic medical device**



Storage temperature

EC REP CEpartner4U, Esdoornlaan 13,
3951DB Maarn, NL
www.cepartner4u.eu

CE **CE Marking**

Do not use if package is damaged

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