Motility Test Medium

M260

Intended Use:

Recommended for detection of bacterial motility.

Composition**

Ingredients	Gms / Litre
Tryptose	10.000
Sodium chloride	5.000
Agar	5.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 20 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Dispense in tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Allow tubed medium to cool to 45-50°C in an upright position.

Principle And Interpretation

Bacterial motility can be observed directly on microscopic slide or it can be visualized on motility media having agar concentration of 0.4% or less (4). Use of such semisolid media to observe or detect motility was reported by Tittsler and Sandholzer (6). Motility Test Medium is a modification of their formulation. Motility can be visualized as a diffused zone of growth flaring out from the line of inoculation (4). Hanging-drop technique in motility tests has practical difficulties, which is efficiently eliminated by use of culture-based methods using semi-solid media, as in semisolid media; the results obtained are macroscopic and cumulative.

Tryptose serve as a source of essential growth nutrients required for bacterial metabolism. Sodium chloride maintains the osmotic equilibrium of the medium. Small amount of agar helps to create a semisolid medium.

Bacterial motility can be observed directly by examination of the tubes following incubation. Inoculation is done by stabbing through the centre of the medium. Incubate at appropriate temperature for 18-40 hours. Non-motile organisms grow only along the line of inoculation whereas motile organisms grow away from the line of inoculation or may show growth even throughout the medium. All weak or equivocal motility results should be confirmed by flagellum stain or by direct wet microscopy (hanging drop) (1,5).

Type of specimen

Isolated Microorganism

Specimen Collection and Handling:

With inoculating needle, stab centre of medium to approximately one-half of depth.(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.Growth from an 18-24 hr pure culture should be used. (5)

2. All weak or equivocal motility results should be confirmed by flagellum stain or by direct wet microscopy (hanging drop) (1,5).

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

Gelling

Semisolid, comparable with 0.5% Agar gel.

Colour and Clarity of prepared medium

Light yellow coloured clear to slightly opalescent gel forms in tubes as butts

Reaction

Reaction of 2.0% 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 18 - 48 hours.

Organism	Inoculum (CFU)	Growth	Motility
Escherichia coli ATCC 25922 (00013*)	50-100	luxuriant	positive, growth away from stabline causing turbidity
# Klebsiella aerogenes ATCC 13048 (00175*)	50-100	luxuriant	positive, growth away from stabline causing turbidity
Klebsiella pneumoniae ATCC 13883 (00097*)	50-100	luxuriant	negative, growth along the stabline, surrounding medium remains clear
Salmonella Enteritidis *ATCC 13076* (00030*)	50-100	luxuriant	positive, growth away from stabline causing turbidity
Staphylococcus aureus subsp. aureus ATCC 25923 (00034*)	50-100	luxuriant	negative, growth along the stabline, surrounding medium remains clear

Key : (*) Corresponding WDCM numbers.
(#) Formerly known as *Enterobacter aerogenes*

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 (2,3).

Reference

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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.Koneman E. W., Allen S. D., Janda W. M., Schreckenberger P. C., Winn W. C. Jr., (Eds.), 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed., J. B. Lippinccott Company.

5.MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore

6.Tittsler R. P. and Sandholzer L. A., 1936, J. Bacteriol., 31:575.

Revision :03/ 2019