Motility Test Medium

M260

Motility Test Medium is 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 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 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 (1). Use of such semisolid media to observe or detect motility was reported by Tittsler and Sandholzer (2). 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 (1). 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) (3, 4).

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
M260: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 48 hours.

Organism	Inoculum (CFU)	Growth	Motility
Cultural Response			
Escherichia coli ATCC 25922	50-100	luxuriant	positive, growth away

			from stabline causing turbidity
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	positive, growth away from stabline causing turbidity
Klebsiella pneumoniae ATCC 13883	50-100	luxuriant	negative, growth along the stabline, surrounding medium remains clear
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	positive, growth away from stabline causing turbidity
Staphylococcus aureus ATCC 25923	50-100	luxuriant	negative, growth along the stabline, surrounding medium remains clear

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1.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.
2.Tittsler R. P. and Sandholzer L. A., 1936, J. Bacteriol., 31:575.
3.DAmato R. F., and Tomfohrede K. M., 1981, J. Clin. Microbiol., 14 (3), 347-348.
4.MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore

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