

Mannitol Motility Test HiVeg™ Medium

MV770

Intended Use:

Recommended for studying mannitol fermentation and motility of bacteria.

Composition**

| Ingredients | g / L |
|---------------------|---------|
| HiVeg™ peptone | 20.000 |
| Mannitol | 2.000 |
| Potassium nitrate | 1.000 |
| Phenol red | 0.040 |
| Agar | 3.000 |
| Final pH (at 25°C) | 7.6±0.2 |

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 26.04 grams in 1000 ml of 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 the tubes to cool in an upright position.

Principle And Interpretation

Mannitol Motility Test HiVeg™ Medium is prepared by using vegetable peptones in place of animal based peptones which make the media free of BSE/TSE risks. Mannitol Motility Test Medium is designed to differentiate bacteria on the basis of their motility and ability to ferment mannitol (1). The highly nutritious peptone supports luxuriant growth of fastidious bacteria like Staphylococci. Semisolid nature of the medium due to 0.3% agar helps to detect motility. Motile bacteria produce diffused growth throughout the medium while non-motile bacteria grow only along the line of inoculation. Fermentation of mannitol produces acidity in the medium. Phenol red is the pH indicator, which detects acidity by exhibiting a visible colour change from red to yellow.

Type of specimen

Water samples

Specimen Collection and Handling:

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards. (2) 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. It is not a confirmatory test hence complete identification should include the morphology, gram reaction, biochemical and serological tests.
2. Further biochemical and serological tests need to be carried out for confirmation.

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 pink homogeneous free flowing powder

Gelling

Semisolid, comparable with 0.3% Agar gel.

Colour and Clarity of prepared medium

Red coloured clear to slightly opalescent gel forms in tube as butts

Reaction

Reaction of 2.6% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH

7.40-7.80

Cultural Response

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

| Organism | Inoculum (CFU) | Growth | Mannitol fermentation | Motility |
|---|----------------|-----------|--|---|
| <i>Escherichia coli</i> ATCC 35218 | 50-100 | luxuriant | positive reaction, yellow colour | positive, growth away from stabline causing turbidity |
| <i>Proteus mirabilis</i> ATCC 25933 | 50-100 | luxuriant | negative reaction, no colour change or red | positive, growth away from stabline causing turbidity |
| # <i>Proteus hauseri</i> ATCC 13315 | 50-100 | luxuriant | negative reaction, no colour change or red | positive, growth away from stabline causing turbidity |
| <i>Salmonella</i> Typhi ATCC 6539 | 50-100 | luxuriant | positive reaction, yellow colour | positive, growth away from stabline causing turbidity |
| <i>Shigella sonnei</i> ATCC 25931 | 50-100 | luxuriant | positive reaction, yellow colour | negative, growth along the stabline, surrounding medium remains clear |
| <i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*) | 50-100 | luxuriant | positive reaction, yellow colour | negative, growth along the stabline, surrounding medium remains clear |
| <i>Staphylococcus epidermidis</i> ATCC 12228 (00036*) | 50-100 | luxuriant | negative reaction, no colour change or red | negative, growth along the stabline, surrounding medium remains clear |

Key : *Corresponding WDCM numbers. #- Formerly known as *Proteus vulgaris*

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. 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 (3,4).

Reference

1. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.
2. MacFaddin J. F., 2000, (Ed.), Biochemical Tests for the Identification of Medical Bacteria, 3rd Ed., Williams and Wilkins, New York.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. 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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Disclaimer :

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