VP Medium (for Listeria)

M2095I

Intended Use:

Recommended for the differentiation of *Listeria* from other species based on VP testfrom food and animal feeds, environmental samples in the area of food production and food handling. The composition and performance criteria of this medium is as per the specifications laid down in ISO 11290-1 : 2017 and ISO 11290-2 : 2017and ISO 11133:2014 / Amd.2 :2020 (E)

Composition**

ISO specifications : VP Medium

Ingredients	g / L
Enzymatic digest of animal tissue	7.000
Dextrose (Glucose)	5.000
Sodium chloride	5.000
Final pH (at 25°C)	6.9±0.2

M2095I- VP Medium (for Listeria)

Ingredients	g / L
Peptone#	7.000
Dextrose (Glucose)	5.000
Sodium chloride	5.000
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters
Equivalent to Enzymatic digest of animal tissue

Directions

Suspend 17.0 grams in 1000 ml of purified / distilled water. Heat if necessary to dissolve the medium completely.
Distribute in test tubes in 3 ml amounts and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Methyl Red and Voges-Proskauer test are among the two various tests used in the biochemical identification of bacterial species. These tests were originally studied by Voges, Proskauer (1) and subsequently by Clark and Lubs (2) to differentiate between members of the coli- aerogens group. Both the tests are based on the detection of specific breakdown products of carbohydrate metabolism.

This medium is specified by ISO for the differentiation of *Listeria* species from other bacteria based on VP Test from food and animal feeds, environmental samples in the area of food production and food handling (3,4,5). Peptone provides nitrogenous and carbonaceous compounds, long chain amino acids, vitamins and other essential growth nutrients. Dextrose is the fermentable carbohydrate. Sodium chloride maintains the osmotic balance.

The medium is dispensed in 3 ml quantity, inoculated with test culture and incubated at 37°C for 22-26 hours. After incubation, add 0.6ml of Baritt reagent A and 0.2ml of Baritt reagent B. Incubate for 15 minutes to 1 hour. A positive reaction is indicated by a strong red colour.

Type of specimen

Pure isolates from food and animal feeds, environmental samples in the area of food production and food handling.

Specimen Collection and Handling

For food and animal feeds, environmental samples in the area of food production and food handling., follow appropriate techniques for sample collection and processing as per guidelines (3,4,5).
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. Further biochemical tests must be carried in conjunction 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
Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium
Light yellow coloured clear solution without any precipitate

Reaction
Reaction of 1.7% w/v aqueous solution at 25°C. pH : 6.9±0.2

pH
6.70-7.10

Cultural Response
Cultural characteristics observed after an incubation at 30-32°C for 18-48 hours.

Organism	Growth	VP Test - Characteristic reaction $
Listeria monocytogenes ATCC 35152 (00109*)	luxuriant	positive reaction$$
Listeria monocytogenes ATCC 13932 (00021*)	luxuriant	positive reaction$$
Listeria innocua ATCC 33090 (00017*)	luxuriant	positive reaction$$
Escherichia coli ATCC 25922 (00013*)	luxuriant	negative reaction^
Escherichia coli ATCC 8739 (00012*)	luxuriant	negative reaction^
Escherichia coli NCTC 13167 (00179*)	luxuriant	negative reaction^
Escherichia coli ATCC 11775 (00090*)	luxuriant	negative reaction^

Key : *Corresponding WDCM numbers.

$ On addition of Baritt reagent A and Baritt reagent B

$$ Formation of a pink to bright red layer within 15 min of adding the required reagents and shaking

^ No formation of a pink to bright red layer

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2 - 8°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 (6,7).

Reference

1. Voges O. and Proskauer B., 1898, Z. Hyg. Infektionskr., 28:20.
2. Clark W. M. and Lubs H. K., 1915, J. Infect. Dis., 17:160.
3. Microbiology of the food chain- Horizontal method for the detection and enumeration of *Listeria* and *Listeria* spp. Part-1. Detection method ISO 11290-1 : 2017
4. Microbiology of the food chain- Horizontal method for the detection and enumeration of *Listeria* and *Listeria* spp. Part-2 Enumeration method. ISO 11290-2: 2017

5. Microbiology of food,animal feeding stuffs and water- Preparation, production,storage and performance testing of culture media, EN ISO 11133:2014 /Amd. 1:2018 (E).
6. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
7. 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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