

Technical Information

Listeria Enrichment Veg Medium Base (UVM)

Product Code :VM1890A

Application:- Listeria Enrichment MiVeg Medium Base (UVM Medium) is used for selective cultivation and isolation of the *Listeria monocytogenes* from clinical specimens.

Composition

| Ingredients | Gms / Litre |
|------------------------------------|-------------|
| MiVeg hydrolysate | 5.00 |
| MiVeg peptone No. 3 | 5.00 |
| MiVeg extract | 5.00 |
| Yeast extract | 5.00 |
| Sodium chloride | 20.00 |
| Monopotassium dihydrogen phosphate | 1.35 |
| Disodium hydrogen phosphate | 12.00 |
| Esculin | 1.00 |
| Final pH (at 25°C) | 7.4 ± 0.2 |

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Listeria Enrichment MiVeg Medium Base is prepared by adding Miveg hydrolysate in place of animal based peptones thus making the medium free from BSE/TSE risks. Listeria Enrichment MiVeg Medium Base is formulated as described by Donnelley and Baigent of University of Vermont (1) and its subsequent modification (2) with reduced Nalidixic acid concentration and increased concentration of acriflavin hydrochloride in the secondary selective enrichment. This medium is used as two-step selective enrichment medium resulting in a higher isolation rate of *Listeria monocytogenes* from meat products within 3 - 4 days. The UVM MiVeg Broth is recommended as a primary enrichment broth for recovery of heat-injured *Listeria* (3). For primary isolation, inoculate 25 gm or 25 ml specimen in 225 ml of Listeria Enrichment MiVeg Medium Base with added Listeria UVM Supplement I (MS2136). After 24 hours incubation at 30°C, spread 0.2 ml of this medium on Listeria Selective MiVeg Agar (VM1567). Simultaneously, transfer 0.1 ml of Enrichment broth to 10 ml of fresh Listeria Enrichment MiVeg Medium Base with added Listeria UVM Supplement II (MS2137). After 24 hours spread 0.2 ml of this medium on Listeria Selective MiVeg Agar (VM1567) plate.

MiVeg hydrolysate, MiVeg peptone No. 3, MiVeg extract and yeast extract supplies all the essential nutrients needed for the microorganisms growth while esculin offers differential properties to the medium. Nalidixic acid and Acriflavin hydrochloride together with higher concentration of phosphate render the medium selective for *Listeria*, by inhibiting gram-negative and gram-positive organisms.

Note: Precautions should be taken while handling *Listeria* Broth cultures as they are more dangerous than colonies on agar plates.

Methodology

Suspend 27.17 grams of powder media in 500 ml distilled water. Mix thoroughly and heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and aseptically add 1 vial of rehydrated contents of Listeria UVM Supplement I (MS2136) or 1 vial of Listeria UVM Supplement II (MS2137) as per the requirement. Mix well and dispense as desired.

Quality Control

Physical Appearance

Yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

Colour and Clarity of prepared medium

Medium amber coloured, slightly opalescent solution forms with a bluish tinge.

Reaction

Reaction of 5.43% w/v aqueous solution is pH 7.4 \pm 0.2 at 25°C.

pH Range

7.2 - 7.6

Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

| Organisms (ATCC) | Inoculum (CFU) | Growth* |
|---------------------------------------|------------------------|----------------|
| <i>Escherichia coli</i> (25922) | $2 \times 10^3 - 10^4$ | none to poor |
| <i>Listeria monocytogenes</i> (19111) | $10^2 - 10^3$ | good-luxuriant |
| <i>Listeria monocytogenes</i> (19112) | $10^2 - 10^3$ | good-luxuriant |
| <i>Listeria monocytogenes</i> (19117) | $10^2 - 10^3$ | good-luxuriant |
| <i>Listeria monocytogenes</i> (19118) | $10^2 - 10^3$ | good-luxuriant |
| <i>Staphylococcus aureus</i> (25923) | $2 \times 10^3 - 10^4$ | none to poor |

Key : * = on addition of Listeria UVM Supplement I (MS2136) or Listeria UVM Supplement II (MS2137).

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 day.

Further Reading

1. Donnelly C.W. and Baigent G.J., 1986, Appl. Environ. Microbiol., 52:689.
2. McClain D. and Lee W.H., 1988, J. Assoc. off Anal. Chem., 71:660.
3. Bailey J.S., Fletcher D.L. and Cox N.A., 1990, J. Food Prot., 53:473.

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