

Technical Information

Modified McBride Listeria MiVeg Agar Base

Product Code :VM1891

Application:- Modified McBride Listeria MiVeg Agar Base is a selective media used for isolation and cultivation of *Listeria monocytogenes* from foodstuffs, clinical samples etc.

Composition

| Ingredients | Gms / Litre |
|---------------------|-------------|
| MiVeg hydrolysate | 5.00 |
| MiVeg peptone | 5.00 |
| MiVeg extract | 3.00 |
| Sodium chloride | 5.00 |
| Glycine anhydride | 10.00 |
| Lithium chloride | 0.50 |
| Phenyl ethanol | 2.50 |
| Agar | 15.00 |
| Final pH (at 25°C) | 7.3±0.2 |

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Modified McBride Listeria Agar Base is prepared by using vegetable peptones in place of animal based peptones which are free from BSE/ TSE risks. McBride Listeria Agar Base is formulated as described by McBride and Girard (1) for selective isolation of *Listeria* species from foodstuffs (2) and clinical specimens (3). The Miveg medium serves the same purpose. MiVeg hydrolysate, MiVeg extract, MiVeg peptone present in the medium provides nitrogen, carbon, sulphur and trace nutrients necessary for the growth of *Listeria*. Phenyl ethyl alcohol is bacteriostatic for gram- negative bacteria as it inhibits DNA synthesis (4). Glycine inhibits certain gram-negative and gram-positive bacteria including *Escherichia coli* and *Enterococcus faecalis*. Lithium chloride also has antibacterial activity. Sodium chloride maintains the osmotic equilibrium of the medium.

The detection of *Listeria monocytogenes* is greatly improved by pre-enrichment in liquid media either by one step or two step method. In one step method (5), infected material is inoculated directly in Listeria Enrichment MiVeg Broth (VM1569). Whereas in two steps method (6) infected material is inoculated in Tryptose MiVeg Broth (VM1177) and then incubated at refrigeration temperature of 4°C for few weeks for cold enrichment, as the organism has the ability to grow in low temperature. Then it is inoculated in Listeria Enrichment MiVeg Broth (VM1569), followed by plating onto Modified McBride Listeria MiVeg Agar Base. The presumptive *Listeria* colonies are selected under 45° transillumination. *Listeria* colonies are dense white to iridescent white appearing crushed glass. Small colonies tend to be blue, while non-*Listeria* show yellowish orange colonies and are further purified by restreaking on Tryptone Soya Yeast Extract MiVeg Agar (VM2214). This medium can be used as a plating medium with or without supplementation of blood.

Methodology

Suspend 46 grams of powder media in 1000 ml distilled water. Mix thoroughly. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool below 50°C. Before gelling, aseptically add sterile defibrinated blood to a final concentration of 5% v/v to the media and add rehydrated contents of 1 vial of McBride Listeria Supplement, Modified (MS2171). Mix well and pour into sterile petri plates.

Warning : Lithium chloride is harmful. Avoid bodily contact and inhalation of vapours. On contact with skin, wash with plenty of water immediately.

Quality Control

Physical Appearance

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

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Light amber coloured, clear to very slightly opalescent gel forms in petri plates. With the addition of 5% blood, cherry red coloured slightly opalescent gel forms in petri plates

Reaction

Reaction of 4.6 % w/v aqueous solution pH: 7.3 ±0.2 at 25°C

pH range

7.1-7.5

Cultural Response/Characteristics

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

| Organisms (ATCC) | Inoculum (CFU) | Growth* | Recovery | Growth *** |
|---------------------------------------|-------------------------------------|-------------------|----------|----------------|
| <i>Listeria monocytogenes</i> (19112) | 10 ² -10 ³ | Good to luxuriant | >50% | Good-luxuriant |
| <i>Escherichia coli</i> (25922) | 10 ³ - 2x10 ³ | none-poor | <10% | none-poor |
| <i>Pseudomonas aeruginosa</i> (27853) | 10 ² -10 ³ | none-poor | <10% | none-poor |
| <i>Enterococcus faecalis</i> (29212) | 10 ² -10 ³ | none-poor | <10% | none-poor |

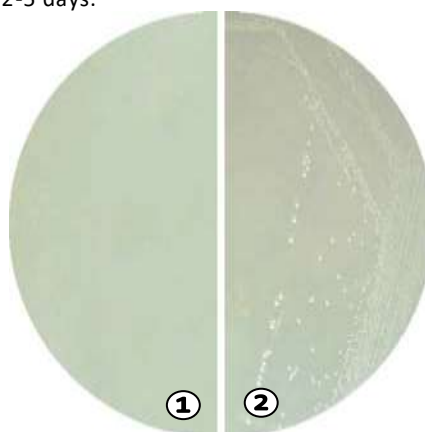
Key : * = with the addition of MS2171

***= with the addition of 5% v/v blood

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 days.



VM1891 Modified McBride Listeria MiVeg Agar Base (Without addition of blood)
(Against dark background)

1. Control

2. *Listeria monocytogene*

Further Reading

- McBride M.E. and Girard K.F., 1960, J. Lab. Clin. Med., 55:153.
- Vanderzant C. and Splittstoesser D. (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd ed., APHA, Washington, D.C.
- Finegold S.M., Martin W.J. and Scott E.G., 1978, Bailey and Scott's Diagnostic Microbiology, 5th ed., The C.V. Mosby Company, St Louis.
- Dowell, Hill and Altemeier, 1964, J. Bact., 88:1811.
- Lovett J. and Hitchins A., 1989, Bacteriological Analytical Manual, 6th ed., Supplement, Sept. 1987, (Second printing, 1989):29.01.
- McClain D. and Lec. W., 1989, Lab. Comm No. 57, Revised, May 24, 1989, U.S.



Dehydrated Culture Media
Bases / Media Supplements

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