Technical Information

Fraser Secondary Enrichment MiVeg Broth Base

Product Code : VM2083

Application:- Fraser Secondary Enrichment MiVeg Broth Base with added supplement is recommended for isolation, cultivation and enrichment of *Listeria monocytogenes* from food and environmental specimens.

Composition

Ingredients	Gms / Litre
MiVeg peptone No. 3	5.0
MiVeg hydrolysate	5.0
Yeast extract	5.0
MiVeg extract	5.0
Sodium chloride	20.0
Lithium chloride	3.0
Disodium phosphate	12.0
Monopotassium phosphate	1.35
Esculin	1.0
Ferric ammonium citrate	0.5
Final pH (at 25°C)	7.2 ± 0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Fraser Secondary Enrichment MiVeg Broth Base is prepared by using vegetable peptones in place of animal based peptones thus making the medium BSE/TSE risk free. Fraser Secondary Enrichment MiVeg Broth Base is a modification of UVM Secondary Enrichment Broth based on the formulation of Fraser and Sperber (1). This medium is found to be remarkably accurate in detecting *Listeria* species in food and environmental samples (2).
MiVeg peptone No.3, MiVeg hydrolysate, MiVeg extract and yeast extract supplies essential growth nutrients for the growth of *Listeria* species. Lithium chloride inhibits *Enterococci*. All *Listeria* species hydrolyze esculin to esculatin with formation of dark-brown to black complex due to 6-7 dihydroxycoumarin formation on reacting with the ferric ions (3). Ferric ammonium citrate enhances the growth of *Listeria monocytogenes* (3). High salt tolerance of *Listeria* is used as means to inhibit the growth of *Enterococci*. Fraser Secondary Enrichment MiVeg Broth Base is inoculated with Primary Enrichment Broth. All Fraser MiVeg Broth Enrichment cultures should be subcultured on plating medium for confirmation of presence or absence of *Listeria* species.

Methodology

Suspend 57.85 grams of powder media in 990 ml distilled water. Mix thoroughly. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add rehydrated contents of 1 vial of Fraser Enrichment Supplement (MS2065) or one vial of Fraser Selective Supplement (MS2125). Mix thoroughly and dispense as desired.

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.

Colour and Clarity of prepared medium

Yellow coloured, clear solution with slight precipitate. With addition of supplement, (MS2065/MS2125) the solution turns fluorescent yellow coloured with slight precipitate.

Reaction

Reaction of 5.78% w/v aqueous solution is pH 7.2 ± 0.2 at 25°C.

pH Range

7.0 - 7.4

Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 35-37°C for 24 - 48 hours on addition of Fraser Enrichment Supplement (MS2065) or Fraser Selective Supplement (MS2125).

Organisms (ATCC)	Inoculum (CFU)	Growth	Esculin hydrolysis*
Enterococcus faecalis (29212)	10^2-10^3	inhibited	-
Escherichia coli (25922)	10^2-10^3	inhibited	-
Listeria monocytogenes (19111)	10^3- 2 x 10	luxuriant	+
Listeria monocytogenes (19112)	10^3- 2 x 10	luxuriant	+
Listeria monocytogenes (19117)	10^3- 2 x 10	luxuriant	+
Listeria monocytogenes (19118)	10^3- 2 x 10	luxuriant	+
Staphylococcus aureus (25923)	10^2-10^3	inhibited	-

key : + = blackening of medium
* = subcultured on Listeria Selective Veg Agar (VM1567)

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: 2-8^0 in sealable plastic bags for 2-5 day.

Further Reading

1. Fraser J.A. and Sperber W.H., 1988, Food Protect., 51(10):762.
2. McClain D. and Lee W.H., 1988, J. Assoc. Off. Anal. Chem., 71(3):660.
3. Cowart R.E. and Foster B.G., 1985, J. Infect Dis., 151:721.

Disclaimer :

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