Fraser Secondary Enrichment HiVeg™ Broth Base MV1083

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

Composition ** :

Ingredients	Grams/Litre
HiVeg peptone No. 3	5.0
HiVeg hydrolysate	5.0
Yeast extract	5.0
HiVeg 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.

Directions :

Suspend 57.85 grams in 990 ml distilled water. 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 (FD065) or one vial of Fraser Selective Supplement (FD125). 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.

Principle and Interpretation :

This medium is prepared by completely replacing animal based peptone by vegetable peptones that makes the medium BSE/TSE risk free. Fraser Secondary Enrichment HiVeg 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).
HiVeg peptone No.3, HiVeg hydrolysate, HiVeg extract, yeast extract provide necessary essential growth nutrients for *Listeria* species. Lithium chloride inhibits the growth of *Enterococci*. All *Listeria* species hydrolyze esculin to esculatin which results in formation of dark-brown to black complex due to formation of 6-7 dihydroxycoumarin on reacting with the ferric ions (3). Ferric ammonium citrate enhances the growth of *Listeria monocytogenes* (3). The high salt tolerance of *Listeria* is used as means to inhibit growth of *Enterococci*. Fraser Secondary Enrichment HiVeg Broth Base is inoculated with Primary Enrichment Broth. All Fraser HiVeg Broth Enrichment cultures should be subcultured on plating medium for confirmation of presence or absence of *Listeria* species.

Product Profile :

Vegetable based (Code MV)◉	Animal based (Code M)
MV1083 HiVeg peptone No.3 HiVeg hydrolysate HiVeg extract	**M1083** Proteose peptone Casein enzymic hydrolysate Beef extract

Recommended for	:	Isolation, cultivation and enrichment of *Listeria monocytogenes* from food and environmental specimens.
Reconstitution	:	57.85 g/l
Quantity on preparation (500g)	:	8.64 L
pH (25°C)	:	7.2 ± 0.2
Supplement	:	Fraser Selective Supplement (FD125) / Fraser Enrichment Supplement (FD065)
Sterilization	:	121°C / 15 minutes.

Storage : Dry Medium - Below 30°C, Prepared Medium 2 - 8°C.

Quality Control :

Appearance of powder
Yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.
Colour and Clarity
Yellow coloured, clear solution with slight precipitate. With addition of supplement, (FD065/FD125) 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.
Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 24 - 48 hours on addition of Fraser Enrichment Supplement (FD065) or Fraser Selective Supplement (FD125).

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 10^3	luxuriant	+
Listeria monocytogenes (19112)	10^3- 2 x 10^3	luxuriant	+
Listeria monocytogenes (19117)	10^3- 2 x 10^3	luxuriant	+
Listeria monocytogenes (19118)	10^3- 2 x 10^3	luxuriant	+
Staphylococcus aureus (25923)	10^2-10^3	inhibited	-

key : + = blackening of medium
* = subcultured on Listeria Selective HiVeg Agar (MV567)

References :

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.