Fraser HiVeg™ Broth Base MV1327

Fraser HiVeg Broth Base with added supplement is recommended as a primary as well as secondary enrichment medium, for the isolation and enumeration of *Listeria monocytogenes* from food and animal feeds.

Composition ** :

Ingredients	Grams/Litre
HiVeg peptone	5.0
HiVeg hydrolysate	5.0
Yeast extract	5.0
HiVeg extract No. 1	5.0
Sodium chloride	20.0
Disodium phosphate .2H_2O	12.0
Potassium dihydrogen phosphate	1.35
Esculin	1.0
Lithium chloride	3.0

Final pH (at 25°C) 7.2 ± 0.2
** Formula adjusted, standardized to suit performance parameters.

Directions :

Suspend 54.92 grams of dehydrated medium in 1000 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 Selective Supplement (FD125I) and 2 vials of Fraser Supplement (FD141) to 1000 ml medium for primary enrichment or 1 vial of each to 500 ml medium for secondary enrichment. Mix well 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 using vegetable peptones in place of animal based peptones which are BSE/TSE risk free. Fraser HiVeg Broth Base which is the modification of Fraser Broth Base is a medium suitable for the detection of *Listeria* species in food products and in samples from the environment (1). *Listeria* species grows over a pH range of 5.0 -9.6 and survive in food products with pH levels above this range (2). Optimum growth conditions are provided for *Listeria* due to the high nutrient content and the large buffer capacity of the medium. HiVeg peptone, HiVeg hydrolysate, yeast extract and HiVeg extract No.1 provides the necessary nutrients to the organisms. ß-D-glucosidase activity of *Listeria* is evident by blackening of broth. This occurs due to hydrolysis of esculin (substituted glucoside) to yield glucose and esculetin. The latter combines with ferric ions in the medium to form black coloured complex. The addition of ferric ammonium citrate (FD141) improves the growth of *Listeria monocytogenes*. Lithium chloride inhibits the growth of *Enterococci* which can hydrolyse esculin. The high salt tolerance of *Listeria* is used as a means to inhibit growth of *Enterococci*. The growth of accompanying bacteria is largely inhibited by nalidixic acid and acriflavin hydrochloride (FD125I). *Listeria monocytogenes* must be further confirmed by biochemical and serological testing, since *Listeria* species other than *Listeria monocytogenes* can also grow on this medium (3,4)

Product Profile :

Vegetable based (Code MV)◉	Animal based (Code M)
MV1327 HiVeg peptone HiVeg hydrolysate HiVeg extract No.1	**M1327** Peptic digest of animal tissue Casein enzymic hydrolysate Meat extract

Recommended for	:	Isolation and enumeration of *Listeria monocytogenes* from food and animal feeds.
Reconstitution	:	54.92 g/l
Quantity on preparation (500g)	:	9.10 L
pH (25°C)	:	7.2 ± 0.2
Supplement	:	Fraser Selective Supplement (FD125I), Fraser Spplement (FD141)
Sterilization	:	121°C / 15 minutes.

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

Quality Control :

Appearance of powder
Light 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 (FD125I and FD141) fluorescent yellow coloured solution forms with slight precipitate.

Reaction
Reaction of 5.49% 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 after addition of Fraser Selective Supplement (FD125I) and Fraser Supplement (FD141).

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)	10^3-2x10^3	good-luxuriant	+
Listeria monocytogenes (19112)	10^3-2x10^3	good-luxuriant	+
Listeria monocytogenes (19117)	10^3-2x10^3	good-luxuriant	+
Listeria monocytogenes (19118)	10^3-2x10^3	good-luxuriant	+
Staphylococcus aureus (25923)	10^2-10^3	inhibited	-

Key : + = Black colouration to the medium.

References :

1. Fraser J. A. and Sperber W. H., 1988, J. Food Prot., 51 : 762 - 765.
2. Downes FP and Ito K (Eds.), 2001, Compendium of Methods For The Microbiological Examination of Foods, 4th ed., APHA, Washington, D.C.
3. Murray PR, Baron, Pfaller, and Yolken (Eds.),2003, In Manual of Clinical Microbiology, 8th ed., ASM, Washington, D.C.
4. Standard Methods for the Examination of Dairy Products. 17th Edition, 2004 Edited by H. Michael Wehr and Joseph H.Frank.

◉ Prepared from GMO free Vegetable proteins replacing Animal based peptones. Freedom from BSE/TSE worries.