



Fraser Secondary Enrichment Broth Base

M1083

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

Composition**

Ingredients	Gms / Litre
Proteose peptone	5.000
Casein enzymic hydrolysate	5.000
Yeast extract	5.000
Beef extract	5.000
Sodium chloride	20.000
Lithium chloride	3.000
Disodium phosphate	12.000
Monopotassium phosphate	1.350
Esculin	1.000
Ferric ammonium citrate	0.500
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

Fraser Secondary Enrichment Broth is a modification of United States Department of Agriculture-Food Safety Inspection Service (USDA-FSIS) UVM Secondary Enrichment Broth. It is based on the formulation of Fraser and Sperber (1) and found to be remarkably accurate in detecting *Listeria* species in food and environmental samples (2). Fraser Secondary Enrichment Broth is recommended by APHA (3). Fraser Secondary Enrichment Broth Base is formulated so as to provide optimum conditions for the growth of *Listeria*.

Proteose peptone, casein enzymic hydrolysate, yeast extract, and beef extract make the media highly nutritive by providing essential nutrients including carbonaceous and nitrogenous substances. Phosphates maintain the buffering capacity of the medium. All *Listeria* species exhibit beta-glucosidase activity which is evident by the blackening of the media. *Listeria* species hydrolyze esculin (substituted glucoside) to glucose and esculetin. The latter combines with ferric ions of ferric ammonium citrate, resulting in the formation of 6-7 dihydroxycoumarin, a black brown complex. Ferric ammonium citrate also enhances the growth of *L. monocytogenes* (4). The high salt tolerance (of sodium chloride) of *Listeria* is used as means to inhibit the growth of Enterococci. Lithium chloride is also used to inhibit Enterococci, which also possess the ability to hydrolyze esculin. Growth of accompanying bacteria is largely inhibited by the addition of Nalidixic acid and Acriflavin hydrochloride (FD).

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Basal medium :Yellow coloured, clear solution with slight precipitate. After addition of FD065 or FD125: Fluorescent yellow coloured, clear solution with slight precipitate forms in tubes.

Reaction

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

pH

7.00-7.40

Cultural Response

M1083: Cultural characteristics observed with added Fraser enrichment supplement (FD065) or Fraser Selective Supplement (FD125) after an incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Esculin hydrolysis
<i>Escherichia coli</i> ATCC 25922	≥10 ³	inhibited	
<i>Enterococcus faecalis</i> ATCC 29212	≥10 ³	inhibited	
<i>Listeria monocytogenes</i> ATCC 19111	50-100	good-luxuriant	positive reaction, blackening of medium
<i>Listeria monocytogenes</i> ATCC 19112	50-100	good-luxuriant	positive reaction, blackening of medium
<i>Listeria monocytogenes</i> ATCC 19117	50-100	good-luxuriant	positive reaction, blackening of medium
<i>Listeria monocytogenes</i> ATCC 19118	50-100	good-luxuriant	positive reaction, blackening of medium
<i>Staphylococcus aureus</i> ATCC 25923	≥10 ³	inhibited	

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

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. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
4. Cowart R. E. and Foster B. G., 1985, J. Infect. Dis.; 151:172.

Revision : 2 / 2015

Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.