Fraser Broth Base

Intended Use
Fraser Broth Base is recommended as a primary as well as secondary enrichment medium for the isolation and enumeration of *Listeria monocytogenes* from foods, environmental specimens and animal feeds.

Summary
Listeria monocytogenes is a gram-positive, non-spore forming, aerobic to facultatively anaerobic, rod-shaped bacterium, which exhibits pathogenicity towards humans and other animals. Although not generally recognized as a food-borne pathogen, three recent outbreaks of listeriosis may indicate that this organism is becoming more prevalent as an agent of food-borne disease. Fraser Broth Base and Fraser Supplements are based on the formulation of Fraser and Sperber. Fraser supplements results in a higher detection rate of *Listeria monocytogenes*.

Principle
Casein enzyme hydrolysate, peptic digest of animal tissue, meat extract and yeast extract serves as a source of carbon, nitrogen, vitamins and minerals. Disodium phosphate and mono potassium phosphate are buffering agents. Addition of ferric ammonium citrate in the medium helps to differentiate the esculin hydrolysis, resulting in the blackening of the medium by *Listeria* species. Lithium chloride and high salt concentration makes the medium selective for *Listeria* species.

Formula*

Ingredients	**g/L**
Peptic Digest of Animal Tissue	5.0
Casein Enzymic Hydrolysate	5.0
Yeast Extract	5.0
Meat Extract	5.0
Sodium Chloride	20.0
Disodium Hydrogen Phosphate. $2H_2O$	12.0
Potassium Dihydrogen Phosphate	1.35
Lithium Chloride	3.0
Esculin	1.0
Final pH (at 25°C)	7.2 ± 0.2

*Adjusted to suit performance parameters.

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2ºC-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of Specimen
Food and Dairy samples
Water samples

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.
The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions

1. Suspend 54.92 g of the (equivalent weight of dehydrated medium per litre) powder in 1000 mL purified / distilled water.
2. Heat if necessary, to dissolve the powder completely.
3. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
4. Cool to 45°C-50°C and aseptically add 2 vials of rehydrated Fraser supplement (204060360010) and if required, add one vial of rehydrated Fraser Selective supplement (204060350005) to make the medium selective.
5. Mix well and dispense as desired.

Quality Control

Dehydrated Appearance: Cream to yellow coloured, homogeneous, free flowing powder.
Prepared Appearance: Basal medium: Yellow coloured clear solution with slight precipitate.
After addition: Fluorescent yellow coloured clear solution with slight precipitate forms in tubes.
Growth Promotion Test: Growth promotion is carried out in accordance with the harmonized method of USP/EP/JP/IP and growth was observed after an incubation at 30°C-35°C for 18-48 hours.
Growth Promoting Properties: The test results observed are within the specified temperature and shortest period of time specified in the test, inoculating ≤ 100 cfu of appropriate microorganism at 30°C-35°C for 18 hours.

Organism (ATCC)	Growth	Esculin Hydrolysis
Listeria monocytogenes strain Li 23 (19114)	Good	Positive (Blackening of medium)
Listeria monocytogenes serotype 4b (19115)	Good	Positive (Blackening of medium)
Enterococcus faecalis (29212)	Partial Inhibition	Negative
Staphylococcus aureus subsp. *aureus* (25923)	Partial Inhibition	Negative
Escherichia coli (25922)	Partial Inhibition	Negative

Interpretation of Results

Examine the agar plates for suspected colonies. For further identification and confirmation of *Listeria* species, consult appropriate references.

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Precautions/Limitations

1. Since *Listeria* spp. other than *L. monocytogenes* can grow on these media, biochemical and serological testing should be done to identify *L. monocytogenes*.
2. Poor growth and a weak esculin reaction may be seen after 40 hours incubation for some Enterococci.

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. Nieman R. E., and Lorber B., 1980, Rev. Infect. Dis. 2 : 207-227
2. Schuchat A. B., Swaminathan and C. V. Broome, Clin. Microbiol., Rev. 4 : 169-183
3. Murray P. R., Baron E. J., Jorgensen J. H., Pfaller M. A., Yolken R. H., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.
4. Fraser and Sperber, 1988, J. Food Prot., 51:762-765. 5. Cowart R. E. and Foster B. G., 1985, J. Infect. Dis.; 151:172.
5. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201060120500	Dehydrated Culture Media	500 g
201060122500	Dehydrated Culture Media	2.5 k