

TECHNICAL DATA SHEET

Fraser Secondary Enrichment Broth Base

Principle

Fraser secondary enrichment broth base is based on the formulation of Fraser and Sperber (1988) is used for the detection of *Listeria* species in food products. It is composed of peptone, tryptone, yeast extract, meat extract, sodium chloride, sodium phosphate dibasic, potassium phosphate monobasic, esculin and lithium chloride. The media can be fortified with nalidixic acid and acriflavine to increase the selectivity of media. Peptone, tryptone, meat extract and yeast extract provide carbon, nitrogen sources and essential growth factors required for growth of *Listeria*. The high sodium chloride concentration of the medium inhibits growth of enterococci. Sodium phosphate and potassium phosphate act as buffering agents. The *Listeria* species has ability to hydrolyzed esculin to esculetin. The esculetin react with ferric ammonium citrate to form a black color complex (6-7 dihydroxy coumarin). Lithium chloride inhibits gram negative bacilli. Selectivity is provided by nalidixic acid and acriflavine (Fraser Selective supplement (RDM-FSS-02)). The nalidixic acid inhibits gram negative bacteria and acriflavine inhibits gram positive bacteria.

Use: For isolation, cultivation and enrichment of *Listeria monocytogenes* from foods and other environmental samples.

Contents*

Ingredients	Gram/Litre
Proteose Peptone	5.000
Tryptone	5.000
Yeast Extract	5.000
Meat Extract#	5.000
Sodium Chloride	20.000
Disodium Hydrogen Phosphate	12.000
Potassium Dihydrogen Phosphate	1.350
Esculin	1.000
Lithium Chloride	3.000
Ferric ammonium citrate	0.500
pH at 25°C	7.2 ±0.2

* Formula adjusted for optimum performance and parameters # Equivalent to Beef Extract

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Directions: Dissolved 57.85 grams in 1000 ml distilled water. Boil to dissolve the medium completely and distribute aseptically. Sterilize by autoclaving at 15 lbs. pressure (121°C) for 15 min, cool it to 42-45 °C and add rehydrated contents of 2 vials of Fraser Selective supplement. Mix well and distribute in sterile test tube and inoculate test sample aseptically.

Specimens' types analyzed

Pharmaceutical samples, food and dairy samples etc.

Precautions to be taken

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	Beige color free flowing, homogeneous powder
Reaction of 5.78% solution	7.2 ±0.2 at 25 °C
pH	7.00-7.40
Color and clarity of ready medium	Light yellow color, clear to slightly opalescent solution with supplements
Growth Promotion properties	Best at ≤ 100 CFU at 32-37 °C for 18-72 h
Indicative properties	Optimum at ≤ 100 CFU at 32-37 °C for 18-48 h
Negative control	Performed using sterile distilled water

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Range of
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Different Microbial Response: Cultural characteristics observed after incubation at 35±2°C for 24-48 hours. Inoculum 50-100 CFU.

Organism	ATCC	Growth	Esculin hydrolysis	Color of Medium
<i>Listeria monocytogenes</i>	13932	Luxuriant	Positive	Black
<i>Escherichia coli</i>	8739	Inhibited	Negative	--
<i>Staphylococcus aureus</i>	25923	Inhibited	Negative	--

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Reference

1. American Public Health Association, (1978) Standard Methods for the Examination of Dairy Products, 14thEd., Washington
2. D.CDifco Manual (1998). 11th Edition. Difco Laboratories., Division of Becton Dickinson and Company, Sparks, Maryland, USA.
3. Monk, J. D., R. S. Clavero, L. R. Beuchat, M. P. Doyle, and R. E. Brackett. (1994). Irradiation inactivation of *Listeria monocytogenes* and *Staphylococcus aureus* in low-and high-fat, frozen and refrigerated ground beef. *J. Food Prot.* 57:969-974.
4. Wehr H. M. and Frank J. H., (2004), Standard Methods for the Microbiological Examination of Dairy Products, 17thEd.,APHA Inc., Washington, D.C.

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