

FRASER BROTH BASE (as per ISO)
TM 1472

For enrichment of *Listeria monocytogenes* from foods and environmental samples

Composition

Ingredients	Gms/Ltr.
Sodium chloride	20.00
Disodium hydrogen phosphate	9.57
Casein enzymic hydrolysate	5.00
Peptic digest of animal tissue	5.00
Meat extract	5.00
Yeast extract	5.00
Lithium chloride	3.00
Monopotassium phosphate	1.35
Esculin	1.00

*Dehydrated powder, hygroscopic in nature, store, in a dry place in tightly- sealed containers below 25°C and protect from direct Sunlight.

Instruction for use

Dissolve 54.92 gms in 1000ml distilled water. Gently heat to boiling with gentle swirling and dissolve the medium completely. Sterilize by autoclaving at 15 psi (121°C) for 15 minutes. Cool to 45 - 50°C and aseptically add rehydrated contents of one vial of Fraser Selective Supplement (TS 035) and two vials of Fraser Supplement (TS 034) for primary enrichment and 2 vials each for secondary enrichment. Mix well and dispense as desired.

Appearance:

Basal medium: Yellow colour

After addition of supplements: Fluorescent yellow colour, clear solution with slight precipitate.

pH (at 25°C) : 7.2 ± 0.2

Principle

FRASER BROTH BASE used for enrichment of *Listeria monocytogenes* from food and environmental samples for isolation and enumeration. Medium contains Casein enzymic hydrolysate, Peptic digest of animal tissue, Meat extract and Yeast extract as sources of nitrogen, carbon, vitamins, minerals and amino acids which are essential for growth. Disodium hydrogen phosphate and Monopotassium phosphate act as buffering agents. All *Listeria* species hydrolyze esculin, which reacts with ferric ions producing blackening of the medium. The addition to ferric ammonium citrate improves the growth of *Listeria monocytogenes*. Lithium chloride is incorporated to inhibit the growth of enterococci; which also have esculin hydrolysis ability. Nalidixic acid and Acriflavine present in supplement inhibit the growth of the accompanying flora. Compare each inoculated tube with an un-inoculated tube. The tubes that conserve the original color are considered as negative. The tubes having blackening after incubation should be sub-cultured on *Listeria* Identification Agar Base (PALCAM) (TM 1226) and Chromogenic *Listeria* Agar Base (Modified) (TM 1634).

Interpretation

Cultural characteristics observed after inoculating (10³-10⁵ CFU / ml), on incubation at 35 - 37°C in aerobic conditions and observed after 24-48 hours.

Microorganisms	ATCC	Inoculum (CFU/ml)	Growth	Esculin hydrolysis
<i>Listeria monocytogenes</i>	19111	10 ³	Good	Positive
<i>Listeria monocytogenes</i>	19118	10 ³	Good	Positive
<i>Enterococcus faecalis</i>	29212	10 ⁵	Inhibited	-
<i>Staphylococcus aureus</i>	25923	10 ⁵	Inhibited	-
<i>Escherichia coli</i>	25922	10 ⁵	Inhibited	-

References

1. Fraser, J.A. and Sperber, W.H. 1988. J. Food Protect. **51**: 762-765.
2. McClain, D. and Lee, W.H. 1988. J. Assoc. Off. Anal. Chem. **71**: 660-664.
3. ISO NORMATIVE 11290-1. 1997. Horizontal method for the detection and enumeration of *Listeria monocytogenes* Part 1: Detection Method.
4. Downes, F.P. and Ito, K., (Ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.