

Fraser Medium

Catalog : HB4193-5

Fraser Medium is used for selective enrichment culture of *Listeria monocytogenes*.

Approximate Formula:

Ingredients	gm/liter	Ingredients	gm/liter
Pancreatic Digest of Casein	5.0	Disodium Hydrogen Phosphate	12.0
Peptic Digest of Animal Tissue	5.0	Potassium Dihydrogen Phosphate	1.35
Beef Extract	5.0	Esculin	1.0
Yeast Extract	5.0	Lithium Chloride	3.0
Sodium Chloride	20.0		
Final pH7.2±0.2 at 25°C			

*Adjusted and/or supplemented as required to meet performance criteria.

Directions:

Suspend 55.0g of the medium in one liter of distilled water. Mix with frequent agitation to completely dissolve the powder. Sterilize in an autoclave at 121°C (15 lbs.) for 15 minutes. Cool to room temperature. To prepare Half-Fraser broth, dispense into 225ml, add 1 piece of FB1 supplement A and 1 piece of FB1 supplement B; To prepare Fraser Broth, dispense into 100ml, add 1 piece of FB2 supplement A and 1 piece of FB2 supplement B.

Note: Do not heat to dissolve the powder.

Principle and Interpretation:

Pancreatic Digest of Casein, Peptic digest of animal tissue, Beef extract, Yeast extract provide nitrogen sources, vitamins, amino acids and growth factors; Sodium chloride can maintain the equilibrium osmotic pressure; Disodium hydrogen phosphate and potassium dihydrogen phosphate are buffering reagents; Esculin is a fermentable sugar; *Listeria* hydrolyzed esculin by b-D-glucosidase into esculetin and glucose. The esculetin then reacted with ammonium ferric citrate to produce a black substance that makes the medium black. Most non-target bacteria are inhibited and grow poorly in this medium, or do not cleave esculin after growth, so there is no black substance or disappearance of fluorescence. Nalidixic acid, acriflavine hydrochloride and lithium chloride are selective bacteriostatic agents, which can inhibit the growth of most Gram-negative bacteria and some Gram-positive bacteria.

Appearance:

Dehydrated medium is a free-flowing yellowish powder. The prepared medium is a kind of yellowish transparent liquid.

Precautions:

This medium is for laboratory use only. Dried medium which is past shelf life, caking or color variation cannot be used.

Storage conditions and Shelf life:

Fraser Medium must be stored tightly capped in the original container at 5-30°C. The dehydrated medium has a shelf life of 5 years from date of manufacturing. Prepared medium may be stored, out of direct light at 2-8°C.

Quality control:

Cultural characteristics observed after aerobic incubation at 36 ± 1°C for 48 ± 2 hours.

Microorganism	Strains Number	Inoculum (CFU)	Recovery
<i>Listeria Monocytogenes</i>	ATCC19114	20-200	Good/blackening of the medium
<i>Escherichia coli</i>	ATCC25922	1000-5000	Partial to complete inhibition
<i>Enterococcus faecalis</i>	ATCC29212	1000-5000	Partial to complete inhibition
<i>Listeria innocua</i>	ATCC33090	20-200	Good/blackening of the medium

References:

1. Fraser and Sperber. 1988. J. Food Prot. 51:762.
2. L'association française de normalisation (AFNOR). 1993. Food microbiology- Detection of *Listeria monocytogenes*-Routine method, V 08-055. AFNOR, Paris, France.