LISTERIA ENRICHMENT BROTH BASE FRASER ISO 11290-1

CAT Nº: 1120

Enrichment medium for the detection and enumeration of *Listeria* in food and environmental samples

FORMULA IN g/l

Sodium Chloride	20.00	Meat extract	5.00
Disodium hydrogen phosphate dihydrate	12.00	Lithium chloride	3.00
Enzymatic digest of casein	5.00	Potassium dihydrogen phosphate	1.35
Enzymatic digest of animal tissues	5.00	Aesculin	1.00
Yeast extract	5.00		

Final pH 7.2 ± 0.2 at 25ºC

PREPARATION

Suspend 28.7 grams of the medium in 500 ml. of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121ºC for 15 minutes. Cool to 45-50ºC and aseptically add one vial of Fraser Listeria Selective Supplement (Cat. 6001) for preparing Fraser or Half Fraser Listeria Selective Supplement (Cat. 6002) reconstituted in 5 ml of sterile distilled water. Homogenize gently and dispense into sterile containers. The prepared medium should be stored at 2-8°C. The color is amber.

The dehydrated medium should be homogeneous, free-flowing and beige in color. If there are any physical changes, discard the medium.

Fraser Listeria Selective Supplement (Cat. 6001)
(Composition: each vial for 500ml)
Vial A: Ammonium iron (III) citrate ....250 mg
Vial B: Acryflavine hydrochloride .....12.5 mg
Nalidixic Acid ....10 mg

Half Fraser Listeria Selective Supplement (Cat. 6002)
(Composition: each vial for 500ml)
Vial A: Ammonium iron (III) citrate..... 250 mg
Vial B: Acryflavine hydrochloride.....6.25 mg
Nalidixic Acid .....5 mg

USES

LISTERIA ENRICHMENT BROTH BASE FRASER is an appropriate medium for the selective enrichment of Listeria in the two-step method according to ISO 11290-2, for the preparation of Fraser or Half Fraser Broth by adding the respective supplements.

It is recommended for the detection of *Listeria spp.* in food products and in samples from the environment. All *Listeria* species hydrolyze the aesculin to esculetin, which reacts with iron ions producing a blackening of the medium. Another advantage of this medium is that the addition of ammonium iron (III) citrate improves the growth of *L. monocytogenes.* Lithium chloride included in the medium, along with nalidixic acid and acryflavine from the supplement, inhibit the growth of the accompanying flora, which can hydrolyze the aesculin. The high amount of sodium chloride inhibits the growth of enterococci. Enzymatic digest of casein, enzymatic digest of animal tissues and meat extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is the source of vitamins, particularly of the B-group. Phosphate salts act as a buffer system.

Primary enrichment: Weigh 25 g (or 25 ml) of the sample and add 225 ml of Half Fraser Broth. Incubate for 25±1 hours at 30°C. Secondary enrichment: transfer 0.1 ml of incubated Half Fraser medium to 10 ml Fraser Broth. Incubate at 37°C for 24 ± 2 hours. Compare each inoculated tube with a non-inoculated control tube with a white background. After incubation of the primary and secondary enrichment, inoculate the tubes in Agar Listeria according to Ottaviani and Agosti (Cat. 1345) and the other selective medium at the choice of the laboratory, to obtain well-separated colonies. Confirm the suspicious colonies.

MICROBIOLOGICAL TEST

The following results were obtained in the performance of the medium added selective supplement fraser medium (code 6002) from standard strains, after incubation at a temperature of 30 ± 1°C in aerobiosis and observed at 24 ± 3 hours.

Microorganisms	Growth
Listeria monocytogenes ATCC 19112	Good
Enterococcus faecalis ATCC 29212	Null

According ISO 11133 Half Fraser: 25±1 h/30±1 ºC (Productivity and Selectivity) // Fraser: 24±2 h/37±1 ºC (Productivity and Selectivity)

Microorganisms	Inoculum (cfu)	Selectivity Qualitative	Productivity Qualitative
Listeria monocytogenes ATCC 13932 + *Escherichia coli* ATCC 8739 + *Enterococcus faecalis* ATCC 29212	<100 >1000 >1000		>10 colonies on Agar Listeria according to Ottaviani and Agosti Blue green colonies with opaque halo
Listeria monocytogenes ATCC 35152 + *Escherichia coli* ATCC 8739 + *Enterococcus faecalis* ATCC 29212	<100 >1000 >1000		>10 colonies on Agar Listeria according to Ottaviani and Agosti Blue green colonies with opaque halo
Enterococcus faecalis ATCC 19433	10^4/ 10^6	<100 (on TSA)	
Escherichia coli ATCC 25922	10^4/ 10^6	Inhibited (on TSA)	

BIBLIOGRAPHY

ISO NORMATIVE 11290-1 Microbiology of food and animal feeding stuffs -- Horizontal method for the detection and enumeration of *Listeria monocytogenes* -- Part 1: Detection method

Fraser J.A. and Sperber W.H (1988) McClain D. and Lee W.H(1988)

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STORAGE

Once opened keep powdered medium closed to avoid hydration.