ALLIANCE BIO EXPERTISE

Reference: TUWR3039 **A.B.E. - Technical Data Sheet**

Product: **Fraser Broth**

Specification

Broth for the selective enrichment of *Listeria monocytogenes* according to standard ISO.

Presentation

	Packaging Details	Shelf Life	Storage
20 Tubes Tube 16 x 113 mm with: 10 ± 0.3 ml	16x113 mm glass tubes, ink labelled, metal-Non injectable cap. - 20 tubes per box .	12 months	2-25 ºC

Composition

Composition (g/l):

Peptone from meat	5.000
Casein Peptone	5.000
Yeast extract	5.000
Meat extract	5.000
Sodium chloride	20.00
Disodium hydrogen phosphate	12.00
Potassium hydrogen phosphate	1.350
Esculin	1.000
Lithium chloride	3.000
Ammonium ironIII citrate	0.500
Nalidixic acid	0.020
Acriflavine	0.025

Description /Technique

Description

This broth base for Listeria enrichment is according to the modifications made to the University of Vermont Medium (UVM) by Fraser and Sparber. This formulation has been adopted by the USDA-FSIS. The inclusion of lithium chloride inhibits the development of enterococci which can also hydrolyze esculin in the same way as Listeria. Any blackening of the medium produced by the reaction of esculetin due to esculin hydrolysis, with iron present in the medium, can be taken as presumptive Listeria. The ferric citrate also helps with the development of L. monocytogenes.
Fraser Broth is used according to EN ISO 11290-1 for the detection of Listeria.

Technique

For the inoculation of bottles, follow the standard laboratory method or the applicable norms, (Stab inoculation, loop inoculation, dilution banks , etc ...)
The use methodology is described in the EN ISO 11290.
Although some authors use Fraser Broth as the only enrichment medium, it has been verified than better results are obtained if it is employed as a secondary enrichment step, according to the following methodology:
- Inoculate the sample in a primary enrichment broth or Lovett Broth, and incubate for 18-24 hours.
- Take aliquots of 0,1 mL, and inoculate them in tubes with 10 mL of Fraser Broth and incubate for 24-28 hours.
- Tubes that blacken are considered presumptively positive and must be sub-cultured on isolation and confirmation solid media, such as Oxford Agar Base , Palcam Agar Base or Listeria Selective Agar according to Ottaviani & Agosti. Tubes that remain clear are considered negative and can be discarded or incubated for a further 24 hours if in doubt.
According to the standards used, or the samples to be analyzed, may be used different incubation times or temperatures.

Note:The medium can show the possible presence of precipitates not affecting its correct performance.

Quality control

Physical/Chemical control

Color : Brown-yellowish pH: 7.2 ± 0.2 at 25ºC

Microbiological control

Inoculate: Practical range 100 ± 20 CFU. min. 50 CFU (productivity)/ 10^4-10^6 (selectivity).

Microbiological control according to ISO 11133:2014/A1:2018.

Analytical methodology according to ISO 11133:2014/A1:2018; A2:2020.

Aerobiosis. Incubation at 37 ºC ± 1, reading after 24 ± 2h

Microorganism	Growth
Escherichia coli ATCC® 8739, WDCM 00012 (1)	Inhibited. Confirm in TSA at 37ºC±1 reading 24 ± 3h
Enterococcus faecalis ATCC® 19433, WDCM 00009 (2)	Partial Inhibition. Confirm in TSA at 37ºC±1 reading 24 ± 3h.
Listeria monocytogenes ATCC® 13932 + (1) + (2)	> 10 CFU. Blue-green coln. w. opaque halo (Ottaviani Agosti)
Listeria monocytogenes ATCC® 35152 + (1) + (2)	> 10 CFU. Blue-green coln. w. opaque halo (Ottaviani Agosti)

Sterility control

Incubation 48 h at 30-35 ºC and 48 h at 20-25 ºC: NO GROWTH.
Check at 7 days after incubation in same conditions.

Bibliography

· ATLAS, R.M. (1993) Handbook of Microbiological Media. CRC Press. Boca Raton. Florida.
· FRASER, J.A. & W.H. SPERBER (1988) Rapid detection of Listeria spp. In food and environmental samples by esculin hydrolysis. J. Food Prot. 51:762-765.
. ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
· ISO 11290-1:2017 Standard. Microbiology of the food chain. Horizontal method for the detection and enumeration of Listeria monocytogenes and for Listeria spp.- Part 1: Detection Method
· ISO 11290-2:2017 Standard. Microbiology of the food chain. Horizontal method for the detection and enumeration of Listeria monocytogenes and for Listeria spp.- Part 2: Enumeration Method.
· McCLAIN, D. & W.H. LEE (1988) Development of a USDA-FSIS method for isolation of Listeria monocytogenes from raw meat and poultry. J.AOAC 71:660-664.
· VANDERZANT, C & D.F. SPLITTSTOESSER (1992) Compendium of methods for the microbiological examination of foods. APHA. Washington. DC.