Product :

***Listeria* ENRICHMENT BROTH FRASER (BASE)**

Specification

Liquid culture medium used for the enrichment and detection of *Listeria spp.*, from food samples according to ISO standards

Formula * in g/L

Meat peptone..... 5.00	Monopotassium phosphate..... 1.35
Tryptone..... 5.00	Lithium chloride..... 3.00
Meat extract..... 5.00	
Yeast extract..... 5.00	Final pH 7,2 ±0,2 at 25 ºC
Sodium chloride..... 20.00	
Esculin.....1.00	(*1) Equivalent to 12.0 g of disodium hydrogen phosphate dihydrate.
di-Sodium phosphate (Anhy.) ..... 9.6(*1)	

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

Directions

Dissolve 54.95 g of powder in 1 L of distilled water. Distribute 500 mL per flask and sterilize in the autoclave at 121ºC for 15 minutes. Cool to 50ºC. Aseptically add one vial of Ferric Ammonium Citrate Supplement (Art. No. 06-112LYO1) and one vial of Listeria Supplement for Secondary Enrichment UVM II/Fraser (Art. No. 06-111LYO1) to each flask; or only 1 vial LISTERIA Selective Supplement for Secondary ENRICHMENT (UVM II / Fraser) (Art. No. 06-790LYO1). Homogenize well.

To obtain the Half Fraser Broth, add one vial of 06-145LYO1 to 500 mL of Broth Base. Only acriflavine and nalidixic acid are reduced to half concentration.

Note: Prepared medium (broth + supplement) must be kept away from light, since it promotes the production of acriflavine oxidised photocomplexes that repress Listeria growth.

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*.

Supplements available:
LISTERIA Selective Supplement for Secondary ENRICHMENT (UVM II / Fraser) (Art. No. 06-111LYO1)
Vial contents:
Necessary amount for 500 mL of complete medium.
Nalidixic acid, sodium salt 10,00 mg
Acriflavine 12,50 mg
Distilled water (Solvent)

FERRIC AMMONIUM CITRATE Supplement (Art. No. 06-112LYO1)
Vial contents:
Necessary amount for 500 mL of complete medium.
Ferric ammonium citrate 250,00 mg
Distilled water (Solvent)

LISTERIA Selective Supplement for Secondary ENRICHMENT (UVM II / Fraser) (Art. No. 06-790LYO1)
Vial contents:
Necessary amount for 500 mL of complete medium.
Nalidixic acid, sodium salt 10,00 mg
Acriflavine 12,50 mg
Ferric ammonium citrate 250,00 mg
Distilled water (Solvent)

Listeria Selective Supplement for Primary Enrichment (Half Fraser) (Art. No. 06-145LYO1)
Vial contents:
Necessary amount for 500 mL of complete medium.
Nalidixic acid, sodium salt 5,00 mg
Acriflavine 6,20 mg
Ferric ammonium citrate 250,00 mg
Distilled water (Solvent)

Listeria Selective Supplement for Primary Enrichment (Half Fraser) (Art. No. 06-136LYO1)
Vial contents:
Necessary amount for 225 mL of complete medium.
Nalidixic acid, sodium salt 2,25 mg
Acriflavine 2,80 mg
Ferric ammonium citrate 112,50 mg
Distilled water (Solvent)

Technique

Proceed according to ISO 11290 standards applicable to control food samples.

Quality control

Incubation temperature: 37°C ±1,0 **Incubation time:** 24 ± 2 h

Inoculum: Practical range 100 ± 20 CFU. Min. 50 CFU (Productivity) / 10^4-10^6 CFU (Selectivity) according to ISO 11133:2014/Amd 1:2018

Microorganism	Growth	Remarks
Escherichia coli ATCC® 8739 (1)	Inhibition	w. antibiotic / recovery in TSA
Enterococcus faecalis ATCC® 19433 (2)	Partial inhibition	w. antibiotic / <100 CFU in TSA
Listeria monocytogenes ATCC® 13932	Good	> 10 UFC *Listeria* in A. Listeria Ottaviani Agostini
Listeria monocytogenes ATCC® 35152	Good	> 10 UFC *Listeria* in A. Listeria Ottaviani Agostini
Listeria monocytogenes ATCC® 13932	Good	>10 Exp.7 ufc/ml (100 ufc/ml)

Left: Uninoculated Tube(Control)
Center: *Listeria monocytogenes* ATCC
Right: *Listeria monocytogenes* ATCC

References

· 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.

Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 ºC to 30 ºC).