FRASER broth

For microbiological control only

Selective enrichment of *Listeria* in food samples

SUMMARY AND EXPLANATION

FRASER broth is used for the selective enrichment of *Listeria* in food samples.
The enrichment phase complies with standard NF EN ISO 11290-1/A1 (4) for the detection of *Listeria monocytogenes* in food.

PRINCIPLE

The broth contains a rich nutrient base consisting of a mixture of peptones and a buffer, which maintains the pH close to neutral to favor growth of the main species of *Listeria*.
The selectivity of the medium for other microorganisms is provided by lithium chloride, acriflavine and nalidixic acid (1). Therefore, FRASER broth is particularly efficient for products with a high concentration of microbes (3). The ammonium ferric citrate detects the presence of *Listeria* species by revealing the hydrolysis of esculin: a color change of this medium to black is sometimes considered to be a presumptive test for the presence of *Listeria*.

CONTENT OF THE KIT

Dehydrated medium	
REF AEB140422	500 g bottle

COMPOSITION

Theoretical formula after reconstitution of the medium and addition of the supplement.

This medium can be adjusted and/or supplemented according to the performance criteria required:

Animal peptones (bovine or porcine)	10.0 g
Meat extract (bovine or porcine)	5.0 g
Yeast extract	5.0 g
NaCl	20.0 g
Disodium Hydrogen Phosphate, anhydrous	9.6 (1) g
Potassium dihydrogen Phosphate	1.35 g
Esculin	1.0 g
Lithium chloride	3.0 g
Ammonium ferric citrate	0.5 g
Acriflavine	0.025 g
Nalidixic acid	0.02 g
Purified water	1 l

pH 7.2

(1) equivalent to 12g of Disodium Phosphate dibasic (Na_2HPO_4, $2H_2O$)

REAGENTS AND MATERIAL REQUIRED BUT NOT PROVIDED

Reagents:

- Fraser additive (Ref.AEB110422S)
- Half-FRASER broth (Ref. 42 048).
- PALCAM agar (Ref. AEB522050 or AEB522049).
- Oxford agar (Ref. AEB522000).
- ALOA® agar (Ref. AEB520080 or AEB520079).

Material:

- Bacteriology incubator.
- Autoclave
- Tubes
- Blender bag

WARNINGS AND PRECAUTIONS

- **For microbiological control only.**
- **For professional use only.**
- This kit contains products of animal origin. Certified knowledge of the origin and/or sanitary state of the animals does not totally guarantee the absence of transmissible pathogenic agents. It is therefore recommended that these products be treated as potentially infectious, and handled observing the usual safety precautions (do not ingest or inhale).
- All specimens, microbial cultures and inoculated All specimens, microbial cultures and inoculated products should be considered infectious and handled appropriately. Aseptic technique and usual precautions for handling the bacterial group studied should be observed throughout this procedure. Refer to "CLSI® M29-A, Protection of Laboratory Workers From occupationally Acquired Infections; Approved Guideline – Current Revision". For additional information on handling precautions, refer to "Biosafety in Microbiological and Biomedical Laboratories – CDC/NIH – Latest edition", or the current regulations in the country of use.
- Culture media should not be used as manufacturing material or components.
- Do not use reagents past the expiry date.
- Do not use media which are not homogeneous (presence of lumps).
- Avoid opening bottles in a humid atmosphere (steam, condensation, etc.).
- The medium should be used according to the procedure indicated in this package insert. Any change or modification in the procedure may affect the results

STORAGE CONDITIONS

- **Store bottles at 1-30°C until the expiry date.**
- Store in a dry place

SPECIMENS

Follow the recommendations in the current standards to perform specimen collection and preparation.

INSTRUCTIONS FOR USE

Preparation

1. Pour 55 grams of powder into 1 litre of purified water.

Note 1: If necessary, you may bring to the boil to obtain perfect dissolution.

2. Dispatch 10ml in tubes.
3. Autoclave for 15 minutes at 121°C. DO NOT OVERHEAT.
4. Before inoculation, add aseptically to each tube 0.1 ml of supplement for Fraser.

Note 2: Either liquid or dehydrated ammonium ferric citrate may be added before autoclaving, leading to a final concentration of 0,5 gram per litre of broth. A slight precipitate may appear. It is not prejudicial to the analysis.

Allow the tubes to come to room temperature.

Traditional method :

In general, dilute the sample 1/10 (e.g. 25 g of product in 225 ml of medium) in a blender bag. After mixing, incubate at 30°C for 24 ± 2 hours according to the standard EN ISO 11290-1.
After pre-enrichment, subculture 0 .1 ml in 10 ml of FRASER broth. Isolate on ALOA® selective media in parallel with a medium of choice (Oxford or PALCAM).
The FRASER broth is then incubated for 48 hours at 37°C and inoculated on the same selective media as previously.

READING AND INTERPRETATION

Refer to the indications in the corresponding reagent package inserts.

QUALITY CONTROL

FRASER broth is designed and developed to meet the strictest quality requirements.
The results obtained using strains tested during controls for bacteriological activity are shown on the quality control certificate for each batch, available from our website (www.biomerieux.com) .

LIMITATIONS OF THE METHOD

- It has been found that FRASER broth is not suitable for the enrichment of *Listeria grayi*. This non-pathogenic species is found mainly in soil and is rarely isolated in food.
- The broth may show a slightly greenish precipitate which does not alter its performance.

WASTE DISPOSAL

Unused reagents may be considered as non hazardous waste and disposed of accordingly.
Dispose of all used reagents as well as any other contaminated disposable materials following procedures for infectious or potentially
infectious products.
It is the responsibility of each laboratory to handle waste and effluents produced according to their nature and degree of hazardousness and to treat and dispose of them (or have them treated and disposed of) in accordance with any applicable regulations.

LITERATURE REFERENCES

1. FRASER J.A., SPERBER W.H. - Rapid Detection of *Listeria* spp. in Food and Environmental Samples by Esculin Hydrolysis - *J. of Food protection*, 1988,vol. 51, p.762-765.
2. HOLBROOK R., ANDERSON J.M., BRIGGS T.A. et al.- Faster detection of *Listeria* in food using rapid immunoassay following culture - 3rd World Congress foodborne infections and intoxications, (16-19 June 1992), Berlin, p.1208-1210.
3. RODRIGUEZ L, FERNANDEZ G., GARAYZABAL J. et al. - New Methodology for the Isolation of *Listeria* Microorganisms from Heavily Contaminated Environments. - *Applied and Environmental Microbiology*, 1984, vol. 47, p. 1188-1190.
4. NF EN ISO 11290-1/A1 – Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of Listeria monocytogenes - Part 1 : detection method - Amendment 1 : modification of the isolation media, of the haemolysis test and inclusion of precision data (February 2005).

INDEX OF SYMBOLS

Symbol	Meaning
	Catalogue number
	Manufacturer
	Temperature limit
	Use by date
	Batch code
	Consult Instructions for Use
	Keep dry
	Date of manufacture

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