TM 113 – FRASER SECONDARY ENRICHMENT BROTH BASE

INTENDED USE

For isolation, cultivation & enrichment of *Listeria monocytogenes* from foods & environmental samples.

PRODUCT SUMMARY AND EXPLANATION

Fraser Secondary Enrichment Broth is a modification of United States Department of Agriculture-Food Safety Inspection Service (USDA-FSIS) UVM Secondary Enrichment Broth. It is based on the formulation of Fraser and Sperber and found to be remarkably accurate in detecting Listeria species in food and environmental samples. Fraser Secondary Enrichment Broth is recommended by APHA. Fraser Secondary Enrichment Broth Base is formulated so as to provide optimum conditions for the growth of *Listeria*.

COMPOSITION

Ingredients	Gms / Ltr
Proteose peptone	5.000
Tryptone	5.000
Yeast extract	5.000
Beef extract	5.000
Sodium chloride	20.000
Lithium chloride	3.000
Disodium hydrogen phosphate	12.000
Potassium dihydrogen phosphate	1.350
Esculin	1.000
Ferric ammonium citrate	0.500

PRINCIPLE

The medium consists of Proteose peptone, Tryptone, yeast extract, and Beef extract which make the media highly nutritive by providing essential nutrients including carbonaceous and nitrogenous substances. Phosphates maintain the buffering capacity of the medium.

Listeria species hydrolyze esculin (substituted glucoside) to glucose and esculetin. The latter combines with ferric ions of ferric ammonium citrate, resulting in the formation of 6-7 dihydroxycoumarin, a black brown complex. Ferric ammonium citrate also enhances the growth of *L. monocytogenes*. The high salt tolerance (of sodium chloride) of *Listeria* is used as means to inhibit the growth of Enterococci. Lithium chloride is also used to inhibit Enterococci, which also possess the ability to hydrolyze esculin. Growth of accompanying bacteria is largely inhibited by the addition of Nalidixic acid and Acriflavin hydrochloride.

INSTRUCTION FOR USE

- Dissolve 57.85 grams in 990 ml purified/distilled water.
- Heat if necessary to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.

- Cool to 45-50°C and aseptically add rehydrated contents of 1 vial of Fraser Enrichment Supplement and 1 vial of Fraser Selective Supplement.
- Mix well and dispense as desired.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow homogeneous free flowing powder.

Appearance of prepared medium : Basal medium: Yellow coloured, clear solution with slight precipitate. After addition of TS 033 or TS 035: Fluorescent yellow coloured, clear solution with slight precipitate forms in tubes.

pH (at 25°C) : 7.2 ± 0.2

INTERPRETATION

Cultural characteristics observed on addition of Fraser Enrichment Supplement and Fraser selective supplement after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Esculin hydrolysis	Incubation Temperature	Incubation Period
Escherichia coli	25922	>=10^4	Inhibited	-	35-37°C	24-48 Hours
Enterococcus faecalis	29212	>=10^4	Inhibited	-	35-37°C	24-48 Hours
Listeria monocytogenes subsp. serovar 1	19111	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Listeria monocytogenes	19112	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Listeria monocytogenes	19117	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Listeria monocytogenes	19118	50-100	Good-luxuriant	Positive reaction, blackening of medium	35-37°C	24-48 Hours
Staphylococcus aureus subsp. aureus	25923	>=10^4	Inhibited	-	35-37°C	24-48 Hours

PACKAGING:

In pack size of 100 gm and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

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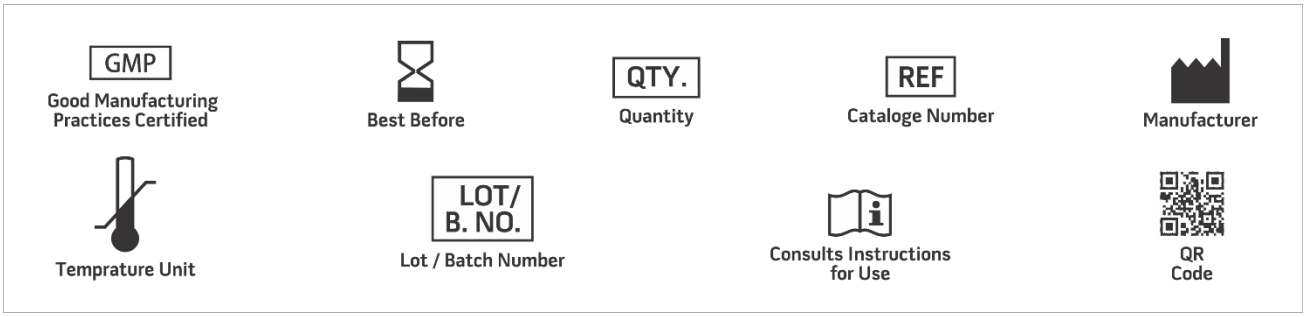
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. McClain D. and Lee W.H., 1988, J. Assoc. Off. Anal. Chem., 71(3):660.
6. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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