

CM 20732 – FRASER BROTH W/ SUPPLEMENTS

INTENDED USE

For the selective enrichment of *Listeria* species from food samples.

PRODUCT SUMMARY AND EXPLANATION

Listeria species are widely distributed and are isolated from soil, decaying vegetable matter, sewage, water, animal feed, fresh and frozen poultry, meats, raw milk, cheese and asymptomatic human and animal carriers. Only *Listeria monocytogenes* from the genus *Listeria*; causes infections in humans. *L. monocytogenes* primarily causes meningitis, encephalitis or septicemia in humans. In pregnant women, *Listeria monocytogenes* often causes an influenza like bacteremic illness that, if untreated, may lead to amnionitis and infection of the fetus, resulting in abortion, still birth or premature birth. Contaminated foods are the primary vehicles of transmission. Fraser Broth w/ supplement is based on the formulation by Fraser and Sperber. It is used for selective enrichment of *Listeria* species from foods.

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COMPOSITION

| Ingredients | Gms / Ltr |
|--------------------------------|-----------|
| Yeast extract | 5.000 |
| Sodium chloride | 20.000 |
| Disodium hydrogen phosphate | 9.600 |
| Peptone | 5.000 |
| Tryptone | 5.000 |
| Yeast extract | 5.000 |
| Beef extract | 5.000 |
| Lithium chloride | 3.000 |
| Potassium dihydrogen phosphate | 1.350 |
| Esculin | 1.000 |
| Ferric ammonium citrate | 0.500 |
| Nalidixic acid | 0.010 |
| Acriflavin | 0.0125 |

PRINCIPLE

This medium contains peptone, beef extract, yeast extract and tryptone which provide essential nutrients like carbon and nitrogenous compounds including vitamins, amino acids and trace ingredients. Phosphates buffer the medium while sodium chloride maintains osmotic equilibrium. Nalidixic acid and Acriflavin inhibits the growth of gram-negative and gram-positive organisms respectively except *Listeria* species. *Listeria* species hydrolyze esculin to glucose and esculetin. Then it combines with ferric ions of ferric ammonium citrate, resulting in the formation of 6-7 dihydroxycoumarin, Ferric



ammonium citrate also promotes the growth of *L. monocytogenes*. High salt tolerance due to 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.

INSTRUCTION FOR USE

Dissolve 55.47 grams of dehydrated medium in 1000 ml distilled water.
 Heat to boiling to dissolve the medium completely. **DO NOT AUTOCLAVE.**
 Cool to 45-50°C.
 Mix well and dispense as desired in sterile tubes or flasks.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow homogeneous free flowing powder
 Appearance of prepared medium : Fluorescent yellow colored clear solution.
 pH (at 25°C) : 7.2 ± 0.2

INTERPRETATION

Cultural characteristics observed after incubation.

| Microorganism | ATCC | Inoculum (CFU/ml) | Growth | Esculin Hydrolysis | Incubation Temperature | Incubation Period |
|---|-------|-------------------|----------------|--|------------------------|-------------------|
| <i>Enterococcus faecalis</i> | 29212 | 50-100 | None-poor | - | 35-37°C | 24-48 Hours |
| <i>Listeria monocytogenes</i> | 19112 | 50-100 | Good-luxuriant | Positive, reaction, blackening of medium | 35-37°C | 24-48 Hours |
| <i>Staphylococcus aureus</i> subsp. <i>aureus</i> | 25923 | 50-100 | None-poor | - | 35-37°C | 24-48 Hours |
| <i>Escherichia coli</i> | 25922 | ≥10 ⁴ | Inhibited | - | 35-37°C | 24-48 Hours |
| <i>Listeria monocytogenes</i> subsp. <i>serovar 1</i> | 19111 | 50-100 | Good-luxuriant | Positive reaction, blackening of medium | 35-37°C | 24-48 Hours |
| <i>Listeria monocytogenes</i> | 19118 | 50-100 | Good-luxuriant | Positive reaction, blackening of medium | 35-37°C | 24-48 Hours |



PACKAGING:

Inpacksizeof500 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.







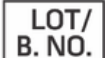


Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

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

REFERENCES

- 1.Cowart R. E. and Foster B. G., 1985, J. Infect. Dis.; 151:172.
- 2.Fraser, J., and W. Sperber. 1988. Rapid detection of Listeria in food and environmental samples by esculin hydrolysis. Journal of Food Protection 51: 762-765.
- 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

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|  GMP Good Manufacturing Practices Certified |  Best Before |  QTY. Quantity |  REF Cataloge Number |  Manufacturer |
|  Temperature Unit |  LOT/ B. NO. Lot / Batch Number |  Consults Instructions for Use |  QR Code | |

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

*For LabUse Only