Fraser Broth w/ Supplements

M2002

Intended Use:

Recommended for the selective enrichment of *Listeria* species from food samples.

Composition**

Ingredients	Gms / Litre
Peptone	5.000
Tryptone	5.000
Yeast extract	5.000
HM peptone B #	5.000
Sodium chloride	20.000
Lithium chloride	3.000
Disodium hydrogen phosphate	9.600
Potassium dihydrogen phosphate	1.350
Esculin	1.000
Nalidixic acid	0.010
Acriflavin	0.0125
Ferric ammonium citrate	0.500
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Equivalent to Beef extract

Directions

Suspend 55.47 grams of dehydrated medium in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Mix well and dispense as desired in sterile tubes or flasks.

Warning: Lithium chloride is harmful. Avoid bodily contact and inhalation of vapours. On contact with skin wash with plenty of water immediately.

Principle And Interpretation

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 (1). Only *Listeria monocytogenes* from the genus *Listeria*; causes infections in humans. *L. monocytogenes* primarily causes meningitis, encephalitis or septicemia in humans (2, 3). In pregnant women, *Listeria monocytogenes* often causes an influenza like bacteremic illness that, if untreated, may lead to ammionitis and infection of the fetus, resulting in abortion, still birth or premature birth. Contaminated foods are the primary vehicles of transmission (4).

Fraser Broth w/ supplement is based on the formulation by Fraser and Sperber (9). It is recommended for selective enrichment of *Listeria* species from foods.

This medium contains peptone, HM peptone B, 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 (5,6,7) except *Listeria* species (5,6,7). *Listeria* species hydrolyze esculin 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* (8). 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.

Storage and Shelf Life

Store dehydrated medium in tightly closed container and prepared medium at 2-8°C. Use before expiry date on the label.

Reference

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