Fraser Broth Base

M1327

Intended use

Fraser Broth Base with added supplement is recommended, as a primary as well as secondary enrichment medium, for the isolation and enumeration of *Listeria monocytogenes* from food and animal feeds.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	5.000
Casein enzymic hydrolysate	5.000
Yeast extract	5.000
Meat extract	5.000
Sodium chloride	20.000
Disodium hydrogen phosphate.2H2O	12.000
Potassium dihydrogen phosphate	1.350
Esculin	1.000
Lithium chloride	3.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 54.92 grams of dehydrated medium in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add rehydrated contents of 1 vial of Fraser Selective Supplement (FD125I) and 2 vials of Fraser Supplement (FD141) to 1000 ml medium for primary enrichment or 1 vial of each to 500 ml medium for secondary enrichment. Mix well and dispense as desired.

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

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

Fraser Broth Base is based on the formulation of Fraser and Sperber (4) is used for the detection of *Listeria* species in food products. Fraser Broth Base is formulated so as to provide optimum conditions for the growth of *Listeria* .

Peptic digest of animal tissue, casein enzymic hydrolysate, yeast extract, and beef extract make the media highly nutritive by providing essential nutrients including carbonaceous and nitrogenous substances. Phosphates maintain the buffering capacity of the medium. All *Listeria* species exhibit beta-glucosidase activity which is evident by the blackening of the media.

Listeria species hydrolyze esculin (substituted glucoside) to glucose and esculetin. The latter combines with ferric ions of ferric ammonium citrate (FD141), resulting in the formation of 6-7 dihydroxycoumarin, a black brown complex. Ferric ammonium citrate also enhances the growth of *L.monocytogenes* (5). 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 (FD125I).

The test sample under study is inoculated into the primary enrichment medium. After an incubation at 30°C for 18-24 hours, 0.1 ml is inoculated into Fraser Broth Base (M1327). After an incubation at 35-37°C for 24-48 hours, it is subcultured on Listeria Oxford Medium Base (M1145) or Listeria Identification Agar Base (PALCAM) (M1064).