Listeria Enrichment Broth

Intended Use
Listeria Enrichment Broth is used for selective enrichment of *Listeria* spp. from food.

Summary
Listeria monocytogenes, first described in 1926 by Murray, Webb, and Swann, is an extensive problem in public health and food industries. This organism has the ability to cause human illness and death. Particularly in immunocompromised individuals and pregnant women. Epidemiological evidence from outbreaks of listeriosis has indicated that the principle route of transmission is via consumption of foodstuffs contaminated with *Listeria monocytogenes*. Implicated vehicles of transmission include turkey, frankfurters, coleslaw, pasteurized milk, Mexican style cheese, and paté. *Listeria* spp. are ubiquitous in nature, being present in a wide range of unprocessed foods as well as in soil, sewage, and river water.
Listeria Enrichment Broth is based on the formula developed by Lovett *et al.,* in which Tryptic Soy Broth is supplemented with Yeast Extract for optimum growth. *Listeria* spp. grow over a pH range of 5.0 - 9.6, and survive in food products with pH levels outside these parameters. *Listeria* spp. are microaerophilic, Gram-positive, asporogenous, non-encapsulated, non-branching, short, motile rods. Motility is pronounced at 20°C. Identification of *Listeria* is based on successful isolation of the organism, biochemical characterization, and serological confirmation.

Principle
Enzymatic digest of casein, enzymatic digest of soybean meal, and yeast extract provides nitrogen, vitamins, and minerals in Listeria Enrichment Broth. Dextrose is a carbohydrate source. Sodium chloride maintains osmotic balance of the medium. Dipotassium phosphate is a buffering agent. Nalidixic acid inhibits growth of Gram-negative organisms. Acriflavin inhibits Gram-positive bacteria. Cycloheximide is used to inhibit growth of saprophytic fungi.

Formula*

Ingredients	g/L
Peptic Digest of Casein	17.0
Soya Peptone	3.0
Dextrose	2.5
Sodium Chloride	5.0
Dipotassium Phosphate	2.5
Yeast Extract	6.0
Cycloheximide	0.05
Acriflavin HCl	0.015
Nalidixic Acid	0.04
Final pH (at 25°C)	7.3 ± 0.2

*Adjusted to suit performance parameters.

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of Specimen
Food and Dairy samples; Sewage and Water samples

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.
The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions

1. Suspend 36.10 g of the powder in 1000 mL purified / distilled water.
2. Mix thoroughly.
3. Heat with frequent agitation and boil for 1 minute to dissolve the powder completely.
4. Fill desired quantity of medium into tubes.
5. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.

Quality Control

Dehydrated Appearance: Yellow coloured, homogenous, free flowing powder.
Prepared Appearance: Light yellowish amber coloured, slightly opalescent solution having bluish tinge without any precipitate.
Cultural Response: Cultural characteristics observed after an incubation at 30°C -35°C for 24-48 hours and subsequent recovery on Listeria Identification Agar Base (PALCAM).

Organism (ATCC)	**Growth**
Listeria monocytogenes (19111)	Good
Listeria monocytogenes (19112)	Good
Listeria monocytogenes (19117)	Good
Enterococcus faecalis (29212)	Partial Inhibition
Saccharomyces cerevisiae NRRL Y-567 (9763)	Partial Inhibition
Escherichia coli (25922)	Complete Inhibition

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. Murray, E. G. D., R. A. Webb, and M. B. R. Swann. 1926. A disease of rabbits characterized by large mononuclear leucocytosis caused by ahitherto undescribed bacillus Bacterium monocytogenes. J. Path. Bact. 29:407-439.
2. Monk, J. D., R. S. Clavero, L. R. Beuchat, M. P. Doyle, and R. E. Brackett. 1994. Irradiation inactivation of Listeria monocytogenes and Staphylococcus aureus in low and high fat, frozen refrigerated ground beef. J. Food Prot. 57:969-974.
3. Bremer, P. J., and C. M. Osborne. 1995. Thermal-death times of Listeria monocytogenes in green shell mussels prepared for hot smoking. J. Food Prot. 58:604-608.
4. Grau, F. H., and P. B. Vanderlinde. 1992. Occurrence, numbers, and growth of Listeria monocytogenes on some vacuum-packaged processed meats. J. Food Prot. 55:4-7.
5. Patel, J. R., C. A. Hwang, L. R. Beuchat, M. P. Doyle, and R. E. Brackett. 1995. Comparison of oxygen scavengers for their ability to enhance resuscitation of heat-injured Listeria monocytogenes. J. Food Prot. 58:244-250.
6. Lovette, J., D. W. Frances, and J. M. Hunt. 1987. Listeria monocytogenes In raw milk: detection, incidence and pathogenicity. J. Food Prot. 50:188-192.
7. Vanderzant, C., and D. F. Splittstoesser (eds.). 1992. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
8. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201120210100	Dehydrated Culture Media	100 g
201120210500	Dehydrated Culture Media	500 g