Buffered Listeria Enrichment Broth (NCM0051)

Intended Use

Buffered Listeria Enrichment Broth is used for selective enrichment of *Listeria* spp and is not intended for use in the diagnosis of disease or other conditions in humans.

Product Summary and Explanation

Listeria monocytogenes, described first in 1926 by Murray, Webb, and Swann, is an extensive problem in public health and food industries. 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 pate. *Listeria* spp. are ubiquitous in nature, being present in a wide range of unprocessed foods as well as in soil, sewage, and river water.

Buffered Listeria Enrichment Broth, a modification of the formula by Lovett et al., was developed after subsequent work concluded that enrichment properties can be improved by increasing the buffering capacity of the medium with the addition of Disodium Phosphate. *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.

Typical Formulation

Enzymatic Digest of Casein	17.0 g/L
Enzymatic Digest of Soybean Meal	3.0 g/L
Yeast Extract	6.0 g/L
Dextrose	2.5 g/L
Sodium Chloride	5.0 g/L
Monpotassium Phosphate	1.35 g/L
Dipotassium Phosphate	2.5 g/L
Disodium Phosphate	9.6 g/L
Cycloheximide	0.05 g/L
Nalidixic Acid	0.04 g/L
Acriflavin	0.01 g/L

Final pH: 7.3 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precaution

Refer to SDS

Preparation

1. Dissolve 47 g of the medium in one liter of purified water.
2. Mix thoroughly.
3. Autoclave at 121°C for 15 minutes.

Test Procedure

Use recommended laboratory procedures for isolating *Listeria* in food samples.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free-flowing, and light beige to beige.

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Prepared Appearance: Prepared medium is gold to amber, clear to slightly hazy and none to light precipitate.

Expected Cultural Response: Cultural response in Buffered Listeria Enrichment Broth at 30 ± 2°C and examined for growth after 18 - 48 hours incubation.

Microorganism	Approx. Inoculum (CFU)	Expected Growth
Escherichia coli ATCC® 25922	>1000	Complete Inhibition
Listeria monocytogenes ATCC® 7644	10 – 100	Growth
Staphylococcus aureus ATCC® 25923	>1000	Suppressed at 18-24 hours

The organisms listed are the minimum that should be used for quality control testing.

Results
Refer to appropriate references and procedures for results.

Expiration
Refer to expiration date stamped on container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from original color. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure
Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Storage
Store dehydrated culture media at 2 – 30°C away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References
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.). 2015. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.

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