

Listeria Enrichment Broth (NCM0055)

Intended Use

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.

Description

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 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.

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.

Typical Formulation

Enzymatic Digest of Casein	17.0 g/L
Peptone Mix	3.0 g/L
Yeast Extract	6.0 g/L
Dextrose	2.5 g/L
Sodium Chloride	5.0 g/L
Dipotassium Phosphate	2.5 g/L
Cycloheximide	0.05 g/L
Acriflavin	0.015 g/L
Nalidixic Acid	0.04 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 36.1 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.

Prepared Appearance: Prepared medium is clear to slightly hazy, gold to orange-amber with green opalescent top, and may have light precipitate.



Technical Specification Sheet



Expected Cultural Response: Cultural response in Listeria Enrichment Broth incubated aerobically at 30± 1°C and examined for growth after 18 - 48 hours.

Microorganism	Approx. Inoculum (CFU)	Response
<i>Escherichia coli</i> ATCC® 25922	>10 ⁴	Complete Inhibition
<i>Listeria monocytogenes</i> ATCC® 13932	10-100	Good growth
<i>Listeria monocytogenes</i> ATCC® 15313	10-100	Good growth
<i>Listeria monocytogenes</i> ATCC® 19111	10-100	Good growth
<i>Listeria ivanovii</i> ATCC® 19119	10-100	Growth
<i>Listeria innocua</i> ATCC® 33090	10-100	Growth
<i>Listeria seeligeri</i> ATCC® 35967	10-100	Growth
<i>Staphylococcus aureus</i> ATCC® 25923	>10 ⁴	Suppressed at 24 hours; none to fair growth at 48 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 the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
2. *Listeria* spp., other than *Listeria monocytogenes*, can grow on isolation media. An identification of *Listeria monocytogenes* must be confirmed through biochemical and serological testing.

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

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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.
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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.



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Technical Specification Sheet



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8. Murray, P. R., E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Tenover (eds.). 1995. Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.

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