



Listeria Enrichment Broth, Modified

M888

Listeria Enrichment Broth, Modified is used for selective enrichment of *Listeria* species.

Composition**

Ingredients	Gms / Litre
Tryptose	10.000
Yeast extract	5.000
Beef extract	5.000
Sodium chloride	20.000
Disodium hydrogen phosphate	9.600
Monopotassium hydrogen phosphate	1.350
Esculin	1.000
Nalidixic acid	0.020
Acriflavin hydrochloride (Trypaflavin)	0.012
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 51.98 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Dispense in tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Only *Listeria monocytogenes* among the *Listeria* species is reported to cause infection in humans. In human adults, *L. monocytogenes* primarily causes meningitis, encephalitis or septicemia. The tropism of *L. monocytogenes* for the central nervous system leads to severe disease, often with high mortality or with neurologic disorders among survivors (1).

Listeria Enrichment Broth, Modified, a modification of the original formulation of Donnelly and Baigent, is used for the selective enrichment of *Listeria* species (2). In this medium, the nalidixic acid concentration has been reduced from 40 mg/l in the original composition, to 20 mg/l. Listeria Enrichment Broth, Modified is used for selective enrichment of *Listeria* species from milk, milk products and other foods.

This medium contains tryptose, yeast extract and beef extract which provide essential nutrients like carbon and nitrogenous compounds including vitamins, amino acids and trace ingredients. Phosphates provide buffering action to the medium while sodium chloride maintains osmotic equilibrium. Nalidixic acid and acriflavin inhibit the growth of gram-negative and gram-positive organisms respectively (3, 4, 5) except *Listeria* species.

For enrichment, 25 gram or 25 ml sample is added to 225 ml medium in a stomacher bag. Homogenize the material if required. Incubation is carried out at 30°C for upto 7 days and the sample is subcultured on Listeria Selective Agar (M567) after 1, 2 and 7 days.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Yellow coloured, clear to slightly opalescent solution having a bluish tinge

Reaction

Reaction of 5.2% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH

7.00-7.40

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth
Cultural Response		
<i>Escherichia coli</i> ATCC 25922	$\geq 10^3$	inhibited
<i>Listeria monocytogenes</i> ATCC 19111	50-100	luxuriant
<i>Listeria monocytogenes</i> ATCC 19112	50-100	luxuriant
<i>Listeria monocytogenes</i> ATCC 19117	50-100	luxuriant
<i>Listeria monocytogenes</i> ATCC 19118	50-100	luxuriant
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited

Storage and Shelf Life

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

Reference

1. Murray P. R., Baron J. H., Pfaller M. A., Tenover J. C. and Tenover F. C., (Eds.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
2. Donnelly C. W. and Baigent G. J., 1986, Appl. Environ. Microbiol., 52:689
3. Lovette J., Francis D. W. and Hunt J. M., 1987, J. Food Prot., 50:188
4. Lee W. H. and McClain D., 1986, Appl. Environ. Microbiol., 52:1215
5. McClain D. and Lee W. H., 1988, J. Assoc. Off. Anal. Chem., 71:660.

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