



Dehydrated Culture Media
Bases / Media Supplements

Technical Information

Buffered Listeria Enrichment Broth Base

Product Code: DM 2578

Application: - Buffered Listeria Enrichment Broth Base is used by FDA Committee for enrichment in isolation of *Listeria monocytogenes*.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	17.000
Papaic digest of soyabean meal	3.000
Sodium chloride	5.000
Dipotassium hydrogen phosphate	2.500
Dextrose	2.500
Yeast extract	6.000
Monopotassium phosphate, anhydrous	1.350
Disodium phosphate, anhydrous	9.600
Sodium pyruvate	1.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Listeria monocytogenes is the only species of the *Listeria* genus that causes Listeriosis in human, however occasionally *L. seeligeri*, *L. welshimeri* and *L. ivanovii* have been related with human diseases. Microbiological and epidemiological evidence from both sporadic and epidemic cases of listeriosis has show that the principal route of transmission is via the consumption of foodstuffs contaminated with *L. monocytogenes* (2).

L. monocytogenes is a well-documented food borne pathogen because of its high morbidity on infection to animals and humans and also due to its psychrotrophic nature exhibiting high tolerance to heat, cold and desiccation. The organism has been isolated from commercial dairy and other food processing plants, and is ubiquitous in nature, being present in a wide range of unprocessed foods and in soil, sewage, silage and river water (3). *Listeria* species grow over a pH range of 4.4-9.6, and survive in food products with pH levels outside these parameters (1). *Listeria* species are microaerophilic, gram-positive, asporogenous, non-encapsulated, non-branching, regular, short, motile rods. Motility is most pronounced at 20°C. Food samples are often contaminated with organisms other than *Listeria*, which makes its isolation difficult (5). To recover low numbers of *L. monocytogenes* from food samples, initial enrichment is required. Listeria Enrichment Broth was modified by adding buffering strength thereby making it possible for the medium to be used successfully in conjunction with DNA probe and other methods that are more sensitive than conventional culture procedure. This medium is also used by APHA for the selective enrichment of *L. monocytogenes*.

Casein enzymic hydrolysate and papaic digest of soyabean meal supply amino acids and other complex nitrogenous substances. Dextrose is acts as the energy source. Sodium pyruvate aids in resuscitation of organisms. The phosphates provide buffering capacity. Sodium chloride helps to maintain the osmotic equilibrium. Yeast extract supplies vitamin B complex. The medium is rendered selective due to the inclusion of antimicrobial agents. Cycloheximide enhance the growth of saprophytic fungi. Nalidixic acid prevents the growth of gram-negative organisms, whereas acriflavin suppresses growth of gram-positive microorganisms.





Dehydrated Culture Media
Bases / Media Supplements

According to FDAs enrichment procedure (4) for isolation of *L. monocytogenes* from dairy products, the sample to be tested is inoculated in enrichment broth and incubated at 30°C for 4 hours without the selective supplement. After 4 hours the selective supplement is added and further kept for incubation for additional 44 hours at 30°C. After 24 hours and 48 hours the enriched culture is streaked on Oxford Listeria Medium Base (DM2145) and LPM Agar (DM2228) / Listeria Identification Agar Base, PALCAM (DM2064) and incubated at 35°C for 24-48 hours. Presumptive *Listeria* colonies are selected and colonies are further purified on Tryptone Soya Yeast Extract Agar (DM2214). Purified isolates are then subjected to a variety of biochemical tests to confirm the presence of *L. monocytogenes*.

Methodology

Suspend 23.97 grams of dehydrated media in 500 ml distilled water. Mix thoroughly & heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45°C. Aseptically add the rehydrated contents of 1 vial of Listeria Selective Supplement II (MS20631). Shake well and dispense as desired.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity

Yellow coloured, clear to slightly opalescent solution with slight precipitate

Reaction

Reaction 4.8% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH Range

7.10-7.50

Cultural Response

DM2578: Cultural characteristics observed with added Listeria Selective Supplement (DM20631) after an incubation at 30°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth
Cultural Response <i>Escherichia coli</i> ATCC 25922	>=10 ³	inhibited
<i>Listeria innocua</i> ATCC 33090	50-100	good to luxuriant
<i>Listeria monocytogenes</i> ATCC 19111	50-100	good to luxuriant
<i>Listeria monocytogenes</i> ATCC 19112	50-100	good-luxuriant
<i>Listeria monocytogenes</i> ATCC 19118	50-100	good-luxuriant
<i>Staphylococcus aureus</i> ATCC 25923	50-100	none-poor
<i>Saccharomyces cerevisiae</i> ATCC 9763	50-100	none-poor

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.





Dehydrated Culture Media
Bases / Media Supplements

Further Reading

1. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
2. Bremer and Osborne, 1995, J. Food Prot., 58:604.
3. Patel, Hwang, Beuchat, Doyle and Brackett, 1995, J. Food Prot., 58:244
4. Hitchens, 1995, FDA Bacteriological Analytical Manual, 8th Ed. AOAC International, Gaithersburg, Md.
5. Murray, Webb and Swann, 1926, J. Pathol. Bacteriol., 29:407.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at CDH is true and accurate
- Central Drug House Pvt. Ltd. reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents. Do not use the products if it fails to meet specifications for identity and performances parameters.

