



UNIVERSAL PRE-ENRICHMENT BROTH (7510)

Intended Use

Universal Pre-Enrichment Broth is used for the recovery of *Salmonella* spp. and *Listeria* spp.

Product Summary and Explanation

Traditional methods for recovering *Salmonella* spp. and *Listeria* spp. from food products require separate pre-enrichment media for each microorganism.^{1,2} Some broth media recommended for pre-enrichment contain antibiotic inhibitors,³ or have insufficient buffering capacity which hinder recovery of sublethally injured cells.³⁻⁵

Bailey and Cox³ formulated Universal Pre-Enrichment Broth to permit simultaneous resuscitation of sublethally injured *Salmonella* and *Listeria*. The broth medium provides sufficient buffering capacity to prevent rapid decreases in pH, and allows for repair of injured cells that might be sensitive to low pH values or inhibitory substances.

Universal Pre-Enrichment Broth is used as the pre-enrichment for *Salmonella* testing of orange & apple juice, cider, cantaloupes, tomatoes, and mamey pulp according to FDA/BAM Methods.⁶

Principles of the Procedure

Enzymatic Digest of Casein and Proteose Peptone are the nitrogen sources in Universal Pre-Enrichment Broth. Sodium and Potassium Phosphates buffer the medium. Sodium Chloride, Magnesium Sulfate and Ferric Ammonium Citrate provide essential ions. Dextrose is an energy source, and Sodium Pyruvate helps stimulate the metabolism of stressed organisms.

Formula / Liter

Enzymatic Digest of Casein	5 g
Proteose Peptone	5 g
Potassium Phosphate Monobasic	15 g
Sodium Phosphate Dibasic.....	7 g
Sodium Chloride	5 g
Dextrose.....	0.5 g
Magnesium Sulfate	0.25 g
Ferric Ammonium Citrate.....	0.1 g
Sodium Pyruvate.....	0.2 g

Final pH: 6.3 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precautions

1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Dissolve 38 g of the medium in one liter of purified water.
2. Heat with frequent agitation to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.

Quality Control Specifications

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

Prepared Appearance: Prepared medium is clear to moderately hazy and yellow to amber.

Expected Cultural Response: Cultural response in Universal Pre-Enrichment Broth incubated aerobically at 35 ± 2°C and examined for growth after 18 - 24 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results (Growth)
<i>Listeria monocytogenes</i> ATCC® 7644	10 - 100	Good
<i>Listeria monocytogenes</i> ATCC® 15313	10 - 100	Good
<i>Salmonella choleraesuis</i> ATCC® 13076	10 - 100	Good
<i>Salmonella typhimurium</i> ATCC® 14028	10 - 100	Good

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

Test Procedure

Substitute Universal Pre-Enrichment Broth for pre-enrichment media as specified for *Salmonella* and *Listeria*^{1,2} and follow recommended procedures.

Results

Salmonella and *Listeria* demonstrate good growth and recovery following pre-enrichment in this broth.

Storage

Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration

Refer to expiration date stamped on the 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.

Limitation of the Procedure

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

Packaging

Universal Pre-Enrichment Broth	Code No.	7510A	500 g
		7510B	2 kg
		7510C	10 kg

References

1. **Vanderzant, C., and D. F. Splittstoesser (eds.)**. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
2. **U.S. Food and Drug Administration**. Bacteriological analytical manual, 8th ed., AOAC International, Gaithersburg, MD.
3. **Bailey, J. S., and N. A. Cox**. 1992. Universal preenrichment broth for the simultaneous detection of *Salmonella* and *Listeria* in foods. *J. Food Protect* **55**:256-259.
4. **Bailey, J. S., D. L. Fletcher, and N. A. Cox**. 1990. Efficacy of enrichment media for recovery of heat-injured *Listeria monocytogenes*. *J. Food Prot.* **47**:299-302.
5. **Juven, B. J., N. A. Cox, J. S. Bailey, J. E. Thomson, O. W. Charles, and J. V. Shutze**. 1984. Recovery of *Salmonella* from artificially contaminated poultry feed in non-selective and selective broth media. *J. Food Prot.* **47**:299-302.
6. www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.htm

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.