



Universal Pre-enrichment Broth

M1372

Universal Pre-enrichment Broth is used for recovering sublethally injured *Salmonella* and *Listeria* from food products.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	5.000
Proteose peptone	5.000
Monopotassium phosphate	15.000
Disodium phosphate	7.000
Sodium chloride	5.000
Dextrose	0.500
Magnesium sulphate	0.250
Ferric ammonium citrate	0.100
Sodium pyruvate	0.200
Final pH (at 25°C)	6.3±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 38.05 grams in 1000 ml distilled water. Heat if necessary, to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Principle And Interpretation

Environmental stress induces sublethal injury or metabolic damage to microbial cells. Recovery of such damaged microbial cells is achieved by growth in a non-selective media prior to isolation on selective media (1). Injury may result from many food processing and handling methods, including thermal treatment, refrigeration, freezing, drying and irradiation or from exposure to preservatives, acidity or low water activity. Universal Pre-enrichment Broth, formulated by Bailey and Cox (2), is different from the other enrichment broths that either contains antibiotics or are not sufficiently buffered to support injured bacteria (3, 4). This medium is sufficiently buffered to support growth of injured bacteria. Casein enzymic hydrolysate and proteose peptone serve as sources of carbon, nitrogen, vitamins and minerals. Dextrose serves as the source of energy. Phosphates buffer the medium. Magnesium sulphate, sodium chloride and ferric ammonium citrate provide essential ions required for metabolism. Sodium pyruvate stimulates the metabolism of injured organisms.

Quality Control

Appearance

Light yellow to beige homogeneous free flowing powder

Colour and Clarity of prepared medium

Light amber coloured clear to slightly opalescent solution that may have a slight precipitate

Reaction

Reaction of 3.8% w/v aqueous solution at 25°C. pH : 6.3±0.2

pH

6.10-6.50

Cultural Response

M1372: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth
Cultural Response		
<i>Listeria monocytogenes</i> ATCC 19118	50-100	good
<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good

Salmonella Typhimurium 50-100 good
ATCC 14028

Storage and Shelf Life

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

Reference

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. Bailey J. S., and Cox N. A., 1992, J. Food Prot. 55:256-259.
3. Bailey J. S., Fletcher D. L. and Cox N. A., 1990, J. Food Prot., 53:473-477.
4. Juven B. J., Cox N. A., Bailey J. S., Thomson J. E., Charles O. W., and Shutze J. V., 1984, J. Food Prot., 47: 299-302.

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