



Buffered Peptone Water w/Casein

M1919

Recommended as pre-enrichment medium for increasing the recovery of injured Salmonella species from foods (cocoa, chocolate and confectionary) prior to selective enrichment and isolation.

Composition**

Ingredients	Gms / Litre
Enzymatic digest of casein	10.000
Sodium chloride	5.000
Disodium hydrogen phosphate.12H ₂ O	9.000
Potassium dihydrogen phosphate	1.500
Casein	50.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 70.07 grams (equivalent weight of dehydrated medium per litre) in 1000ml distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Dispense into tubes or flasks or as desired.

Principle And Interpretation

Microorganisms that are subjected to environmental stresses may become structurally or metabolically damaged or injured.

These microorganisms are unable to replicate in selective environments. Therefore these injured organisms must be resuscitated or permitted to repair the damage by incubation in an appropriate, non-selective environment (1). Edel and Kampelmacher (2) noted that sublethal injury to Salmonellae may occur in many food preservation processes. Enriching injured cells in Lactose Broth (pH 6.9) may be further detrimental to their recovery (3). Pre-enrichment in Buffered Peptone Water (M1494I) at 35°C for 18-24 hours results in repair of injured cells (4). The buffering system prevents bacterial damage due to change in the pH of the medium. Recently ISO committee has also recommended this pre-enrichment medium for the detection of *Enterobacteriaceae* from food stuffs and other materials (5). Addition of 50g/l casein or skimmed milk is recommended for testing cocoa and cocoa containing products (more than 20%) as recommended by ISO (5). The addition of casein is necessary to inhibit bactericidal substances present in cocoa or cocoa containing products.

The sample is enriched in Buffered peptone water w/casein (M1919), further enriched in selective enrichment media and then subcultured on XLD Agar (M031I).

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Cream coloured opaque solution

Reaction

Reaction of 7.0% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH

6.80-7.20

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.(Recovery is observed on XLD Agar, M031I)

Cultural Response

Organism	Growth	Inoculum (CFU)	Recovery
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Cultural Response

<i>Salmonella Enteritidis</i> ATCC 13076	luxuriant	50-100	>=50%
<i>Salmonella Typhi</i> ATCC 6539	luxuriant	50-100	>=50%
<i>Salmonella Typhimurium</i> ATCC 14028	luxuriant	50-100	>=50%
<i>Salmonella Choleraesuis</i> ATCC 12011	luxuriant	50-100	>=50%
<i>Salmonella paratyphi A</i> ATCC 9150	luxuriant	50-100	>=50%
<i>Salmonella paratyphi B</i> ATCC 8759	luxuriant	50-100	>=50%

Storage and Shelf Life

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

Reference

1. Vanderzant C. and Splittstoesser D. F., (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.
2. Edel W. and Kampelmacher E. H., 1973, Bull. Wld. Hlth. Org., 48: 167.
3. Angelotti R., 1963, "Microbiological Quality of Foods", Academic Press, New York.
4. Sadowski A. Y., 1977, J. Food Technol., 12:85.
5. International Organization for Standardization (ISO), 2002, Draft ISO/DIS, 6579.

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