Technical Information

Buffered Peptone Water

Product Code: DM 2494I

Application: - Buffered Peptone Water is recommended as pre-enrichment medium for increasing the recovery of injured *Salmonella* species from foods prior to selective enrichment and isolation. The composition and performance criteria of this medium are as per the applications laid down in ISO 6579-2002.

Composition**

Ingredients	Gms / Litre
Enzymatic digest of casein	10.000
Sodium chloride	5.000
Disodium hydrogen phosphate.12H_2O	9.000
Potassium dihydrogen phosphate	1.500
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & 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 (DM 2494I) 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).

Inoculate 10 grams specimen in 50 ml of Buffered Peptone Water (DM 2494I) and incubate at 35°C for 18 hours. Transfer 10 ml from this medium to 100 ml of Mueller Kauffman Tetrathionate Novobiocin Broth Base (DM 2496I) and Rappaport Vassiliadis Soya Broth (RVS Broth) (DM 2491) and incubate at 43°C for 24-48 hours and then subculture on selective media like XLD Agar, Modified (DM 1031I). Examine the plates for colonies of *Salmonella* species.

Methodology

Suspend 20.07 grams of dehydrated media (equivalent weight of dehydrated medium) in 1000 ml distilled water. Mix thoroughly & heat if necessary to dissolve the medium completely. Dispense as desired and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Colour and Clarity
Light yellow coloured clear solution without any precipitate

Reaction
Reaction of 2.0% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH Range
6.80-7.20

Cultural Response

DM 2494I: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.(Recovery is observed on XLD Agar, DM 1031I)

Organism	Inoculum (CFU)	Growth	Recovery
Cultural Response			
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	>=50%
Salmonella Typhi ATCC 6539	50-100	luxuriant	>=50%
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=50%
Escherichia coli ATCC 25922	50-100	fair-good	30-40%
Pseudomonas aeruginosa ATCC 27853	50-100	luxuriant	>=50%

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium between 2-8°C. Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

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. Sadovski A. Y., 1977, J. Food Technol., 12.85.
5. International Organization for Standardization (ISO), 2002, Draft ISO/DIS, 6579.

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