Buffered HiCynth™ Peptone Water

MCD1494I

Intended use

Recommended is used 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 6579-2017.

Composition**

Ingredients	Gms / Litre
HiCynth™ Peptone No.1*	10.000
Sodium chloride	5.000
Disodium hydrogen phosphate.12H2O	9.000
Potassium dihydrogen phosphate	1.500
pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

*Chemically Defined peptone

Directions

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

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 (7). Edel and Kampelmacher (2) noted that sub-lethal injury to *Salmonella* may occur in many food preservation processes. Enriching injured cells in Lactose Broth (pH 6.9) may be further detrimental to their recovery (1). Pre-enrichment in Buffered Peptone No.1 Water (M1494I) at 35°C for 18-24 hours results in repair of injured cells (6). 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 (3).

Buffered HiCynth™ Peptone Water is prepared by completely replacing animal or vegetable based peptones with chemically defined peptone to avoid BSE/TSE/GMO risks associated with animal peptones. HiCynth™ Peptone No. 1 supplies nitrogen and carbon compounds, long chain amino acids, vitamins and other essential nutrients. Phosphates buffers the medium. Sodium chloride maintains osmotic balance.

Inoculate 10 grams specimen in 50 ml of Buffered HiCynth™ Peptone Water (MCD1494I) and incubate at 35°C for 18 hours. Transfer 10 ml from this medium to 100 ml of Mueller Kauffman Tetrathionate Novobiocin Broth Base (M1496I) and Rappaport Vassiliadis Soya Broth (RVS Broth) (M1491) and incubate at 43°C for 24-48 hours and then subculture on selective media like XLD Agar, Modified (M031I). Examine the plates for colonies of *Salmonella* species.

Type of specimen

Food and dairy samples

Specimen Collection and Handling

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (3).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Due to nutritional variations some strains may show poor growth.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium
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
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)

Organism	Inoculum (CFU)	Growth	Recovery
S*almonella* Enteritidis ATCC 13076 (00030*)	50-100	luxuriant	>=50%
Salmonella Typhi *ATCC 6539*	50-100	luxuriant	>=50%
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	luxuriant	>=50%
Escherichia coli ATCC 25922 (00013*)	50-100	fair-good	30-40%
Pseudomonas aeruginosa ATCC 27853 (00025*)	50-100	luxuriant	>=50%

Key :* Corresponding WDCM numbers

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

Reference

1. Angelotti R., 1963, “Microbiological Quality of Foods”, Academic Press, New York.
2. Edel W. and Kampelmacher E. H., 1973, Bull. Wld. Hlth. Org., 48: 167.
3. International Organization for Standardization (ISO), 2017, Draft ISO/DIS, 6579.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
5. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
6. Sadovski A. Y., 1977, J. Food Technol., 12.85.
7. Vanderzant C. and Splittstoesser D. F., (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.

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