Carbohydrate Consumption Broth Base

M1264

Intended Use:

Recommended for cultivation and differentiation of *Listeria* species.

Composition**

Ingredients	Gms / Litre
Proteose peptone	10.000
Sodium chloride	5.000
HM peptone B #	1.000
Bromocresol purple	0.100
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

- Equivalent to Beef extract

Directions

Suspend 16.1 grams in 990 ml purified / distilled water. Heat if necessary to dissolve the medium completely. Dispense into tubes containing inverted Durhams tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Aseptically add 10 ml separately sterilized carbohydrate solution to give a final concentration of 0.5%. Mix well.

Principle And Interpretation

Carbohydrate Consumption Broth is used for the cultivation and differentiation of *Listeria* species and formulated as per Atlas (2). It is also recommended by FDA (3) and ISO (4) with a slight difference in the concentration of bromocresol purple. Differentiation is based on fermentation of glucose, xylose, rhamnose, ribose, a-methyl-D-mannoside and mannitol. Proteose peptone and HM peptone B in the medium provide carbon and nitrogen compounds including essential amino acids, vitamins and trace ingredients for bacterial metabolism. Bromocresol purple is the pH indicator, which indicates acid production by turning yellow in colour.

Carbohydrate utilization test: Inoculate each kind of carbohydrate fermentation broth with one loopful of inoculum. Incubate for 7 days at 37°C. Observe daily for acid induced colour change and gas formation. Sometimes weak positive reactions may occur after 48 hours of incubation (3).

Type of specimen

Isolated Microorganism from food samples.

Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,7,8). After use, contaminated materials must be sterilized by autoclaving before discarding.

Limitations :

NA

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

Light yellow to beige homogeneous free flowing powder

Colour and Clarity of prepared medium

Purple coloured, clear solution without any precipitate

Reaction

Reaction of 1.61% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH

6.60-7.00

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	w/o carbohydrate acid	w/o carbohydrate gas	w/ rhamnose (acid)	w/ rhamnose (gas)
Escherichia coli ATCC 25922 (00013*)	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	positive reaction
Listeria monocytogenes subsp. serovar 1 ATCC 19111 (00020*)	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	negative reaction
Listeria monocytogenes ATCC 19112	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	negative reaction
Listeria monocytogenes ATCC 19117	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	negative reaction
Staphylococcus aureus ATCC 25923 (00034*)	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	negative reaction, no colour change	negative reaction
Listeria monocytogenes ATCC 19118	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	negative reaction

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (5,6).

Reference

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
2. Atlas R. M., 2004, Handbook of Microbiological Media, 3rd Edition, CRC Press, Washington D. C.
3. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, D.C.
4. International Organization for Standardization (ISO), 1993, Draft ISO/DIS 10560.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
6. 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.
7. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
8. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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