

Technical Information

MacConkey Broth (Double strength) w/Neutral Red

Product Code: DM 1539S

Application: - MacConkey Broth (Double strength) w/Neutral Red is used for primary isolation of coliforms from large samples such as water or waste water.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	40.000
Lactose	20.000
Bile salts	10.000
Sodium chloride	10.000
Neutral red	0.140
Final pH (at 25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

MacConkey Broth (Double strength) is recommended by BIS under the specification IS: 5887 (Part I) 1976 for detection of bacteria responsible for food poisoning and for Isolation, Identification and Enumeration of *Escherichia coli* ⁽¹⁾. This medium is recommended for the primary isolation of coliforms from large samples such as water and wastewater.

MacConkey Broth is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens ^(4,5). Subsequently MacConkey Agar and Broth have been recommended for microbiological examination of foodstuffs ⁽⁶⁾ and for direct plating / inoculation of water samples for coliform counts ⁽⁷⁾. This media is also accepted by the Standard Methods for the Examination of Milk and Dairy Products ⁽⁸⁾ including pharmaceutical preparations ⁽⁹⁾. The selective action of this medium is due to crystal violet and bile salts, which are inhibitory to most species of gram-positive bacteria. Gram-negative bacteria usually grow well on the medium and are differentiated by their ability to ferment lactose. Lactose fermenting strains grow as red or pink. The red colour is due to production of acid from lactose, absorption of neutral red and a subsequent colour change of the dye when the pH of medium falls below ^{6,8}. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* are colourless and transparent and do not alter the appearance of the medium.

Methodology

Suspend 80.14 grams of powder media in 1000 ml distilled water. Shake well & heat if necessary to dissolve the medium completely. Distribute into test tubes with inverted Durham tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubes before inoculation.

Note: Where the number of organisms is expected to be low, larger quantities of the sample may be directly added to equal amount of double strength medium in dilution bottles or flasks.

Quality Control

Physical Appearance

Yellow coloured homogeneous free flowing powder

Colour and Clarity of prepared medium

Red coloured clear solution without any precipitate.

Reaction

Reaction of 8.0% w/v aqueous solution at 25°C. pH:-7.5±0.2

pH range 7.30-7.70

Cultural Response/ characteristics

DM 1539S: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Acid	Gas
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	positive reaction	positive reaction
Escherichia coli ATCC 25922	50-100	luxuriant	positive reaction	positive reaction
Salmonella choleraesuis ATCC 12011	50-100	fair to good	negative reaction	negative reaction
Staphylococcus aureus ATCC 25923	≥10 ³	inhibited		

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Bureau of Indian Standards IS : 5401 1969.
2. Bureau of Indian Standards IS : 5887 (Part I) - 1976, reaffirm 1986.
3. Bureau of Indian Standards IS : 5887 (Part II) 1976, - reaffirm 1986.
4. MacConkey, 1900, The Lancet, ii:20.
5. MacConkey, 1905, J. Hyg., 5:333.
6. Speck M. (Ed.), 1985, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
7. Greenberg A. E., Clesceri L. S. and Eaton A. D., (Eds.), 1992, Standard Methods for the Examination of Water and Wastewater, 18th ed., APHA, Washington, D.C.
8. Marshall R. (Ed.), 1992, Standard Methods For the Examination of Dairy Products, 16th ed., APHA, Washington, D.C.
9. The United States Pharmacopoeia XXI and the National Formulary, 16th ed., 1985, United States Pharmacopeial Convention, Inc., Washington, D.C.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate.
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