

Technical Information

MacConkey Broth w/ Neutral Red

Product Code : DM 1007S

Application: MacConkey Broth w/ Neutral Red is used for selective enrichment and enumeration of coliforms.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	20.000
Lactose	10.000
Bile salts	5.000
Sodium chloride	5.000
Neutral red	0.070
Final pH (at 25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

MacConkey Broth is one of the earliest selective and differential medium for cultivation of enteric microorganisms from different type of clinical specimens ^(4, 5). Later MacConkey Broth was recommended for use in microbiological examination of foodstuffs ⁽⁶⁾ and for direct inoculation of water samples for coliform counts ⁽⁷⁾. This medium is also accepted by the Standard Methods for the Examination of Milk and Dairy Products ⁽⁸⁾ and pharmaceutical preparations ⁽⁹⁾.

MacConkey Broth w/ Neutral Red is recommended by BIS under the specification IS: 5887 (Part I) 1976 for Isolation, Identification and Enumeration of *Escherichia coli* responsible for food poisoning. This culture media is considered as a standard medium for the primary isolation as well as presumptive identification of coliaerogenes group in food and water which contains neutral red as an indicator ⁽¹⁻³⁾.

Bile salt inhibits 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. 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 typically do not alter appearance of the medium.

Methodology

Suspend 40.07 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.

Quality Control

Physical Appearance

Cream to yellow coloured homogeneous free flowing powder

Colour and Clarity of prepared medium

Red clear solution without any precipitate

Reaction

Reaction of 4.0% w/v aqueous solution at 25°C. pH : 7.5±0.2

pH Range:- 7.30-7.70

Cultural Response/Characteristics

DM 1007S:-Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Acid	Gas
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	positive reaction	positive reaction
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	positive reaction	positive reaction
<i>Salmonella Choleraesuis</i> ATCC 12011	50-100	fair to good	Negative reaction	Negative reaction
<i>Staphylococcus aureus</i> ATCC 25923	50-100	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.
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