Technical Information

MacConkey Agar

Product Code: DM 1008S

Application: MacConkey Agar is used for isolation, identification and enumeration of *E.coli , Staphylococcus aureus* and Faecal Streptococci.

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
Agar	15.000
Final pH (at 25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens [2, 3]. Subsequently MacConkey Agar and Broth have been recommended for isolation, identification and enumeration of *Staphylococcus aureus* and Faecal Streptococci from foodstuffs [1, 4] and for direct plating / inoculation of water samples for coliform counts [5]. These media are also used by the Standard Methods for the Examination of Milk and Dairy Products [6] and pharmaceutical preparations [7].
Original medium contains protein, bile salts, sodium chloride and two dyes. The selective action of this medium is attributed 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 colony surrounded by a zone of acid precipitated bile. 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.
Nonlactose-fermenting strains, such as *Shigella* and *Salmonella* are colourless and transparent and do not alter appearance of the medium. *Yersinia enterocolitica* may appear as small, non-lactose fermenting colonies after incubation at room temperature.
Bacteria such as *Staphylococcus aureus* and Faecal Streptococci. Causing food poisoning are also isolated on MacConkey Agar.

Methodology

Suspend 55.07 grams of powder media in 1000 ml distilled water. Shake well & heat to with gentle swirling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Avoid overheating. Cool to 45-50°C and pour into sterile Petri plates. The surface of the medium should be dry when inoculated.

Quality Control

Physical Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Light red coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 5.5% w/v aqueous solution at 25°C. pH : 7.5±0.2

pH Range:-

7.30-7.70

Cultural Response/Characteristics

DM 1008S: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Escherichia coli ATCC 25922	50-100	luxuriant	>=50%	pink to red with bile precipitate
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	>=50%	pale pink to red
Enterococcus faecalis ATCC 29212	50-100	fair to good	30-40%	pale pink to red
Proteus vulgaris ATCC 13315	50-100	luxuriant	>=50%	colourless
Salmonella Paratyphi ATCC 9150	50-100	luxuriant	>=50%	colourless
Shigella flexneri A ATCC 12022	50-100	fair to good	30-40%	colourless
Salmonella Paratyphi B ATCC 8759	50-100	luxuriant	>=50%	colourless
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	>=50%	colourless
Salmonella Typhi ATCC 6539	50-100	luxuriant	>=50%	pink to red
Staphylococcus aureus ATCC 25923	>=10^3	inhibition	0%	-

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: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Bureau of Indian Standards IS :5887 (Part II)- 1976, reaffirm 1986.
2 MacConkey, 1905, J. Hyg., 5:333.
3. MacConkey, 1900, The Lancet, ii:20.
4. Speck M.(Ed), 1985, Compendium of methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington , D.C.
5. 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.
6. Marshall R. (Ed), 1992, Standard methods for the Examination of Dairy products, 16th ed., APHA, Washington, D.C.
7. The United States Pharmacopoeia XXI and the National Formulary, 16th ed., 1985, United States Pharmacopoeial Convention, Inc, Washington, D.C.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform 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
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.
- Do not use the products if it fails to meet specificatons for identity and performens parameters.

Replace date 27-July-2024