Dehydrated Culture Media
Bases / Media Supplements

Technical Information

MacConkey Agar w/o CV w/1.2% Agar

Product Code: DM 1008B

Application: - MacConkey Agar w/o CV w/1 .2% Agar is used for selective isolation and differentiation of lactose non-fermenting from lactose fermenting enteric bacteria.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	17.000
Proteose peptone	3.000
Lactose	10.00
Bile salts	1.500
Sodium chloride	5.000
Neutral red	0.030
Agar	12.000
Final pH (25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

MacConkey Agar Medium is one of the earliest selective and differential medium for cultivation of enteric microorganisms from a large number of clinical specimens [1, 2]. MacConkey agars are slightly selective and differential plating media mainly used for the detection and isolation of gram-negative organisms from clinical, dairy, food, water, pharmaceutical and industrial sources [3-10]. It is also recommended for the selection and recovery of the *Enterobacteriaceae* and related enteric gram-negative bacilli.

This medium has peptic digest of animal tissue and proteose peptone which provides necessary nitrogen sources for growth of organisms. The selective action is due to bile salts in the medium. Lactose fermenting strains grow as pink to red colonies and may be surrounded by a zone of acid precipitated bile. The pink to red colour is due to production of acid from lactose, absorption of neutral red and a subsequent colour change of the dye due to pH drop of medium. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* are colourless and transparent and typically do not alter appearance of the medium. Sodium chloride in the medium helps to maintain osmotic balance of the cells.

Methodology

Suspend 48.50 grams of powder media in 1000 ml distilled water. Shake well & heat to boiling 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 dispense approximately 20 ml amounts in sterile Petri plates. Dry the surface of the medium for 1-2 hours by keeping lids of Petri plates slightly ajar. 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 1.2% Agar gel.
Colour and Clarity of prepared medium
Orange red coloured clear to slightly opalescent gel forms in Petri plates
Reaction
Reaction of 4.85% w/v aqueous solution at 25°C. pH : 7.1±0.2
pH range: 6.9-7.3

Cultural Response/characteristics

DM1008B: 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%	pink to red
Enterococcus faecalis ATCC 29212	50-100	luxuriant	0-40%	pink to red
Proteus vulgaris ATCC 13315	50-100	luxuriant	>=50%	colourless
Salmonella Paratyphi A ATCC 9150	50-100	luxuriant	>=50%	colourless
Shigella flexneri ATCC 12022	50-100	luxuriant	>=50%	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%	colourless
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	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^{o} in sealable plastic bags for 2-5 days.

Further Reading

1. MacConkey, 1900, The Lancet, ii:20.
2. MacConkey, 1905, J. Hyg., 5:333.
3. Murray P. R,, Baron E, J., Jorgensen J. H., Pfaller M. A., Yolken R. H., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.
4. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
5. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C
6. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, D.C.
7. Eaton A. D., Clesceri L. S. and Greenberg A. W.,(Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
8. The United States Pharmacopoeia, 2006, USP29/NF24, The United States Pharmacopeial Convention, Rockville, M.D.
9. British Pharmacopoeia, 2007, The Stationery office British Pharmacopoeia.
10. Williams, (Ed.), 2005, Official Methods of Analysis of the Association of Official Analytical Chemists, 19th Ed., AOAC, Washington, D.C.

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