MacConkey Agar w/o CV, NaCl , w/ 0.5% Sodium Taurocholate

GM082

For cultivation and differentiation of enteric bacteria, restricting the swarming of *Proteus* species from specimen such as urine which may contain large number of Proteus species as well as potentially pathogenic gram pathogenic bacteria

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	20.000
Lactose	10.000
Sodium taurocholate	5.000
Neutral red	0.040
Agar	20.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 55.04 grams of medium in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Avoid overheating. Cool to 45 - 50°C. Mix well and pour into sterile Petri plates. It is preferred to dry surface of media plate before inoculation.

Principle And Interpretation

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens (1, 2). Subsequently MacConkey Agar and Broth have been recommended for use in microbiological examination of foodstuffs (3) and for direct plating / inoculation of water samples for coliform counts (4). These media are also accepted by the Standard Methods for the Examination of Milk and Dairy Products (5) and pharmaceutical preparations (6).

Original medium contains protein, bile salts, sodium chloride and two dyes. The selective action of this medium is attributed to bile salts, which are inhibitory to most species of gram-positive bacteria. MacConkey Agar w/o CV, NaCl and W/ 0.5% Sodium taurocholate is a modification of the original formulation with the exclusion of crystal violet and inclusion of sodium taurocholate instead of bile salts. 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 and may be 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. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* are colourless and transparent and typically do not alter appearance of the medium. *Yersinia enterocolitica* may appear as small, non-lactose fermenting colonies after incubation at room temperature.

Quality Control

Appearance
Light yellow to pink coloured granular media

Gelling
Firm, comparable with 2.0% Agar gel.

Colour and Clarity of prepared medium
Orange red coloured clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 5.5% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH
7.20-7.60

Cultural Response
Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Cultural Response				
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 A *ATCC 9150*	50-100	luxuriant	>=50%	colourless
Shigella flexneri 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%	colourless
Staphylococcus aureus ATCC 25923	50-100	fair-good	30-40%	pale pink -red

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1. MacConkey, 1900, The Lancet, ii:20.
2. MacConkey, 1905, J. Hyg., 5:333.
3. Downes F. P and Ito K. (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th ed., APHA, Washington, D.C.
4. Rice E.W., Baird R.B., Eaton A. D., and Clesceri L. S. (Eds.), 2012, Standard Methods for the Examination of Water and Wastewater, 22nd Ed., APHA, Washington, D.C.
5. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
6. The United States Pharmacopoeia, 2014, The United States Pharmacopoeial Convention,Rockville, MD.

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