Dehydrated Culture Media
Bases / Media Supplements

Technical Information

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

Product Code: DM 1082

Application: MacConkey Agar is a differential medium recommended for the selection and recovery of the *Enterobacteriaceae* and related enteric gram-negative bacilli.

Composition**

Ingredients	Gms / Litre
Peptone	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

Principle & 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 due 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 hence replacing bile salts. Gram-negative bacteria usually grow well on the medium and are differentiated by their ability to ferment lactose. Lactose fermenting bacteria 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 bacteria 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.

Methodology

Suspend 55 grams of powder media in 1000 ml distilled water. Shake well & heat with gentle swirling to dissolve the agar 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 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 range 7.20-7.60
Cultural Response/Characteristics
DM 1082: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Salmonella Paratyphi B ATCC 8759	50-100	Luxuriant	>=50%	Colourless
Salmonella Typhi ATCC 6539	50-100	Luxuriant	>=50%	Colourless
Salmonella Enteritidis ATCC 13076	50-100	Luxuriant	>=50%	Colourless
Staphylococcus aureus ATCC 25923	50-100	Fair-good	30-40%	Pale pink-red
Salmonella Paratyphi ATCC 9150	50-100	Luxuriant	>=50%	Colourless
Escherichia coli ATCC 25922	50-100	Luxuriant	>=50%	Pink to red with bile precipitate
Enterococcus faecalis ATCC 29212	50-100	Fair to good	30-40%	Pale pink to red
Shigella flexneri ATCC 12022	50-100	Fair to good	30-40%	Colourless
#Klebsiella aerogenes ATCC 13048	50-100	Luxuriant	>=50%	Pale pink to red
Proteus vulgaris ATCC 13315	50-100	Luxuriant	>=50%	Colourless

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. 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. Greenberg A. E., Clesceri L. S. and Eaton A. D., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st 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 XXI and the National Formulary, 16th ed., 1985, United States Pharmacopoeial Convention, Inc., Washington, D.C.

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