



MacConkey Agar w/ Bromo Thymol Blue

M061

MacConkey Agar w/ Bromo Thymol Blue is recommended for detection of lactose fermenting enteric bacteria.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	17.000
Proteose peptone	3.000
Lactose	10.000
Bile salts	1.500
Sodium chloride	5.000
Bromothymol blue	0.030
Agar	15.000
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 51.53 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure for 15 minutes. Mix well and pour into sterile Petri plates.

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). The original medium contains protein, bile salts, sodium chloride and two dyes. MacConkey Agar w/ Bromo thymol blue is a modification of the original medium by the replacement of the two dyes with a single dye i.e. bromo thymol blue.

Peptic digest of animal tissue and proteose peptone serve as the sources of essential nutrients. Lactose is the fermentable carbohydrate source. Lactose fermenting enteric bacteria ferment lactose and produce acidic byproducts. This acidic condition formed causes the pH indicator dye i.e. bromo thymol blue to change colour from blue to yellow. Lactose non-fermenters fail to cause a colour change in the medium. Sodium chloride maintains the osmotic equilibrium of the medium. Bile salts serves to make the medium selective by inhibiting the accompanying gram-positive bacteria.

Quality Control

Appearance

Cream to greenish yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Green coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 5.15% w/v aqueous solution at 25°C. pH : 7.1±0.2

pH

6.90-7.30

Cultural Response

M061: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response <i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	>=50%	yellow

<i>Enterococcus faecalis</i> ATCC 29212	$\geq 10^3$	inhibited	0%	
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	$\geq 50\%$	yellow
<i>Proteus vulgaris</i> ATCC 13315	50-100	luxuriant	$\geq 50\%$	colourless-light blue
<i>Salmonella Typhi</i> ATCC 6539	50-100	luxuriant	$\geq 50\%$	colourless-light blue
<i>Shigella flexneri</i> ATCC 12022	50-100	luxuriant	$\geq 50\%$	colourless-light blue
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited	0%	

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.

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