

## Technical Information

### MacConkey Agar Medium

**Product Code: DM 1008E**

**Application:** MacConkey Agar Medium is used for isolation and differentiation of lactose fermenting and lactose non-fermenting enteric bacteria and also for isolation of faecal streptococci.

### Composition\*\*

Ingredients	Gms / Litre
Bile salts	5.000
Peptic digest of animal tissue	20.000
Sodium chloride	5.000
Lactose	10.000
Neutral red	0.070
Agar	15.300
Final pH ( at 25°C)	7.4±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 variety of clinical specimens <sup>(2, 3)</sup>. Subsequently MacConkey Agar is recommended for use in microbiological examination of foodstuffs <sup>(4)</sup> and for direct plating / inoculation of water samples for coliform counts <sup>(5)</sup>. This medium is also accepted by the Standard Methods for the Examination of Milk and Dairy Products <sup>(6)</sup> and pharmaceutical preparations <sup>(1)</sup>. 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

### Methodology

Suspend 55.37 grams of powder media in 1000 ml distilled water. Shake well & heat to boiling 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 coloured homogeneous free flowing powder

#### Gelling

Firm, comparable with 1.53% Agar gel.

#### Colour and Clarity of prepared medium

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

#### Reaction

Reaction of 5.53% w/v aqueous solution at 25°C. pH : 7.4±0.2

#### pH Range:-

7.20-7.60



Dehydrated Culture Media  
Bases / Media Supplements

### Cultural Response/Characteristics

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

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

### 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<sup>o</sup> in sealable plastic bags for 2-5 days.

### Further Reading

1. The United States Pharmacopoeia, XXI and the National Formulary, 16th Ed., 1985, United States Pharmacopoeial Convention, Inc., Washington D.C.
2. MacConkey, 1900, The Lancet, ii: 20.
3. MacConkey, 1905, J. Hyg., 5:333.
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.

### Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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