

**PRODUCT CODE: 413779**

## **MacConkey Agar (Ph. Eur., ISO 21567) (Dehydrated Culture Media) for microbiology**

### **Preparation**

Suspend 50 grams of the medium in one litre of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121°C for 15 minutes. Cool to 45-50°C, mix well and dispense into plates. Allow the plates to solidify and place them upside down to avoid excessive moisture on the surface of the medium. The prepared medium should be stored at 8-15°C.

The colour is violet-red. The dehydrated medium should be homogeneous, free-flowing and beige-pink in colour. If there are any physical changes, discard the medium.

### **Uses**

MACCONKEY AGAR is used for the selective isolation and identification of *Enterobacteriaceae* from feces, urine, wastewater and foods. It is also a selective and differential medium for the isolation of enteric Gram-negative bacteria.

The specimen can be streaked directly on the medium or inoculated first into an enrichment broth such a Tetrathionate Broth, Selenite Cystine Broth, GN Enrichment Broth or MacConkey Broth. Subculture the broth tubes on MacConkey Agar and incubate at 30-35°C for 18-72 hours, as indicated by the European Pharmacopoeia. Pancreatic Digest of Gelatin and Peptones (Meat & Casein) provide nitrogen, vitamins, minerals and amino acids essential for growth. Lactose is the fermentable carbohydrate providing carbon and energy. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Bile salts and crystal violet are the selective agents and inhibit Gram positive organisms. Neutral red is the pH indicator. when lactose is fermented, the pH of the medium decreases, changing the colour of neutral red to pink. Bacteriological agar is the solidifying agent.

The European Pharmacopoeia, USP in the Paragraph 2.6.13 "Microbiological examination of non-Sterile products: test for specified microorganisms", recommends inoculating and incubate in casein soya bean digest broth TSB Broth, at 30-35°C for 18-24 h, to subculture in MacConkey Broth and incubate at 42-44 °C for 24-48 h after subculturing on a plate of MacConkey agar at 30-35 °C for 18-72 h. Interpretation. Growth of colonies indicates the possible presence of *E.coli*. This is confirmed by identification test. The products comply with the test if no colonies are present or if the identification test are negative.

Isolated colonies of *Escherichia coli* are brick red in colour and are surrounded by a zone of precipitated bile. This bile precipitate is due to a local pH drop around the colony due to lactose fermentation. It is recommended to streak samples onto other selective media such as Eosin Methylene Blue Agar, SS Agar, XLD Agar, Hektoen Enteric Agar, Bismuth Sulfite Agar, especially for *Salmonella typhi*, and/or Brilliant Green Agar, especially for *Salmonella*.

See the listings in this manual for these formulations.

### **Composition**

See in Data Sheet (TDS).

## Microbiological Test

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of  $35 \pm 2^\circ\text{C}$  and observed after 18- 24 hours.

| Microorganism                            | Growth    | Colony Colour               | Inoculum (CFU/ml) | Recovery Rate (%) |
|--|-----------|-----------------------------|-------------------|-------------------|
| <i>Enterobacter aerogenes</i> ATCC 13048 | Good      | Pink-red                    | $10^3 - 10^5$     | $\geq 30$         |
| * <i>Escherichia coli</i> ATCC 25922     | Good      | Pink-red (bile precipitate) | $10^3 - 10^5$     | $\geq 30$         |
| * <i>Escherichia coli</i> ATCC 8739      | Good      | Pink-red (bile precipitate) | $10^3 - 10^5$     | $\geq 30$         |
| <i>Proteus vulgaris</i> ATCC 13315       | Good      | Colourless                  | $10^3 - 10^5$     | $\geq 30$         |
| <i>Salmonella enteritidis</i> ATCC 13076 | Good      | Colourless                  | $10^3 - 10^5$     | $\geq 30$         |
| <i>Shigella dysenteriae</i> ATCC 13313   | Good      | Colourless                  | $10^3 - 10^5$     | $\geq 30$         |
| <i>Staphylococcus aureus</i> ATCC 6538   | Inhibited | Colourless                  | $>10^5$           | $\leq 0.01$       |

\*According to European Pharmacopeia 7.0. Incubate at  $30-35^\circ\text{C}$  and observed after 18-72 hours.

## Storage

Once opened keep powdered medium closed to avoid hydration.

JM180913