

Technical Information

MacConkey Broth w/ Neutral Red

Product Code: DM1007

Application: - MacConkey Broth w/ Neutral Red is recommended for the selective enrichment and enumeration of coliforms.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	20.000
Lactose	10.000
Bile salts	5.000
Sodium chloride	5.000
Neutral red	0.075
Final pH (25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

MacConkey Broth is widely used as a differential medium for detection and enumeration of coliforms from different type of clinical, food and water samples. Identification is based on colour change of the medium due to the indicator neutral red used ^(1, 2). Peptic digest of animal tissue provides necessary nitrogen source. Lactose serves as the fermentable carbohydrate source. Sodium chloride maintains the osmotic balance of the cells. The selective action of these media is due to the presence of bile salts, which are inhibitory to most species of gram-positive bacteria. Gram-negative bacteria usually grow well on these media and are differentiated by their ability to ferment lactose. The colour change of the medium shown by lactose-fermenters is due to production of acid from lactose and a subsequent colour change of the indicator dye when the pH of the media falls below 6.8. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* do not alter the appearance of the medium. Due to neutral red the medium turns pink in case of lactose fermenters and yellow in case of non- lactose-fermenters.. MacConkey Broth, which contains neutral red as an indicator is considered as a standard medium for the primary isolation as well as presumptive identification of coliform-aerogenes group of organisms in food and water.

Methodology

Suspend 40.07 grams of powder media in 1000 ml distilled water. Shake well & heat if necessary to dissolve the medium completely. Distribute into tubes with inverted Durhams tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubes before inoculation.

Quality Control

Physical Appearance

Pale yellow to pink homogeneous free flowing powder

Colour and Clarity of prepared medium

Red coloured clear solution without any precipitate

Reaction

Reaction of 4.01% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH Range 7.20-7.60

Cultural Response/ characteristics

DM 1007: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours

Organism	Inoculum (CFU)	Growth	Acid	Gas
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	positive reaction	positive reaction
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	positive reaction	positive reaction
<i>Klebsiella pneumoniae</i> ATCC 13883	50-100	luxuriant	positive reaction	positive reaction
<i>Proteus mirabilis</i> ATCC 25933	50-100	luxuriant	reaction negative	reaction negative
<i>Salmonella Choleraesuis</i> ATCC 12011	50-100	fair to good	reaction negative	reaction negative
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited		
<i>Enterococcus faecalis</i> ATCC 29212	50-100	none-poor	positive reaction	reaction negative

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° in sealable plastic bags for 2-5 days.

Further Reading

1. MacConkey A. T., 1900, The Lancet, ii: 20.
2. MacConkey A. T., 1905, J. Hyg. 5: 333.

Disclaimer :

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