

## TM 2224 - MacCONKEY AGAR MEDIUM

### INTENDED USE

For isolation and differentiation of lactose fermenting and lactose non-fermenting enteric bacteria and also for isolation of faecal streptococci.

### PRODUCT SUMMARY AND EXPLANATION

MacConkey Agar Medium is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens. Subsequently MacConkey Agar is recommended for use in microbiological examination of foodstuffs and for direct plating / inoculation of water samples for coliform counts. This medium is also accepted by the Standard Methods for the Examination of Milk and Dairy Products.

### COMPOSITION

Ingredients	Gms / Ltr
Peptone	20.000
Bile salts	5.000
Sodium chloride	5.000
Lactose	10.000
Neutral red	0.070
Agar	15.300

### PRINCIPLE

In this medium Peptones provide the essential nutrients, vitamins and nitrogenous factors required for growth of microorganisms. Lactose monohydrate is the fermentable source of carbohydrate. The selective action of this medium is attributed to crystal violet and bile salts, which are inhibitory to most species of gram-positive bacteria. Sodium chloride maintains the osmotic balance in the medium. Neutral red is a pH indicator that turns red at a pH below 6.8. Agar is the solidifying agent.

### INSTRUCTION FOR USE

- Dissolve 55.37 grams in 1000 ml purified/distilled water.
- Heat to boiling with gentle swirling to dissolve the agar completely.
- Sterilize by autoclaving at 15 psi 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 SPECIFICATIONS

Appearance of Powder	: Light yellow to pink coloured homogeneous free flowing powder.
Appearance of prepared medium	: Light red coloured clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C)	: 7.4±0.2

### INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of Colony	Incubation Temperature	Incubation Period
<i>Enterobacter aerogenes</i>	13048	50-100	Luxuriant	>=70 %	Pink to red	35-37°C	18-24 Hours
<i>Escherichia coli</i>	25922	50-100	Luxuriant	>=70 %	Pink to red w/ bile ppt	35-37°C	18-24 Hours
<i>Proteus vulgaris</i>	13315	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Salmonella Typhi</i>	6539	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Salmonella Enteritidis</i>	13076	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Shigella flexneri</i>	12022	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Staphylococcus aureus subsp. aureus</i>	25923	>=10 <sup>4</sup>	Inhibition	0%	-	35-37°C	18-24 Hours
<i>Enterococcus faecalis</i>	29212	50-100	Fair to good	20 -40 %	Pale pink to red	35-37°C	18-24 Hours
<i>Salmonella Paratyphi A</i>	9150	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Salmonella Paratyphi B</i>	8759	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours

**PACKAGING:**

In pack size of 500 gm bottles.

**STORAGE**


Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

## DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

## REFERENCES

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2<sup>nd</sup> Edition.
3. Jorgensen, J.H, Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
4. MacConkey, 1900, The Lancet, ii:20.
5. MacConkey, 1905, J. Hyg., 5:333.
6. Marshall R. (Ed.), 1992, Standard Methods for the Examination of Dairy Products 16th ed., APHA, Washington, D.C.
7. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
8. Speck M. (Ed.), 1985, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
9. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.



**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
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