TM 337 - MacCONKEY AGAR (W/ CV, NaCl, 0.15% BILE SALTS & 1% LACTOSE)

INTENDED USE

For isolation of coliform and lactose fermenting enteric bacteria.

PRODUCT SUMMARY AND EXPLANATION

MacConkey agars are slightly selective and differential plating media mainly used for the detection and isolation of gramnegative organisms from clinical, dairy, food, water, pharmaceutical and industrial sources. These agar media are selective since the concentration of bile salts, which inhibit gram-positive microorganisms, is low in comparison with other enteric plating media.

This medium corresponds with, that recommended by APHA can be used for the direct plating of water samples for coliform bacilli, for the examination of food samples for food poisoning organisms and for the isolation of *Salmonella* and *Shigella* species in cheese. Other than that this medium is also used for count of coli-aerogenes bacteria in cattle and sheep faeces, the count of coli-aerogenes and non-lactose fermenters in poultry carcasses, bacterial counts on irradiated canned minced chicken and the recognition of coliaerogenes bacteria during investigations on the genus *Aeromonas*.

The selective action of this medium is attributed to crystal violet and bile salts, which are inhibitory to most species of gram-positive bacteria. Gram-negative bacteria usually grow well on the medium and are differentiated by their ability to ferment lactose. Lactose fermenting strains grow as red or pink colonies 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, transparent and typically do not alter appearance of the medium.

COMPOSITION

Ingredients	Gms / Ltr
Gelatin peptone	17.000
Tryptone	1.500
Peptone	1.500
Lactose	10.000
Bile salts	1.500
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.001
Agar	15.000

PRINCIPLE

The medium consists of Peptone, Tryptone and gelatin peptone are sources of nitrogen, carbon, long chain amino acids and other nutrients. Lactose is a fermentable carbohydrate; Sodium chloride maintains the osmotic equilibrium. Bile salts and crystal violet are selective agents that inhibit growth of gram-positive organisms. Neutral red is the pH indicator dye.

INSTRUCTION FOR USE

- Dissolve 51.53 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 homogeneous free flowing powder.
Appearance of prepared medium : Red with purplish tinge coloured clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C) : 7.1±0.2

INTERPRETATION

Cultural characteristics observe after incubation. Recovery rate is considered as 100% for bacteria growth on Soybean Casein Digest Agar.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
Shigella flexneri	12022	50-100	Fair-good	20-40%	Colourless	30-35°C	18-72 Hours
Salmonella Paratyphi A	9150	50-100	Luxuriant	>=70%	Colourless	30-35°C	18-72 Hours
Proteus vulgaris	13315	50-100	Luxuriant	>=70%	Colourless	30-35°C	18-72 Hours
Salmonella Typhi	6539	50-100	Luxuriant	>=70%	Colourless	30-35°C	18-72 Hours
Staphylococcus epidermidis	12228	>=10^4	Inhibited	0%	-	30-35°C	18-72 Hours
Escherichia coli	8739	50-100	Luxuriant	>=70%	Pink-red with bile precipitate	30-35°C	18-72 Hours
Staphylococcus aureus subsp.aureus	6538	>=10^4	Inhibited	0%	-	30-35°C	18-72 Hours
Salmonella Paratyphi B	8759	50-100	Luxuriant	>=70%	Colourless	30-35°C	18-72 Hours

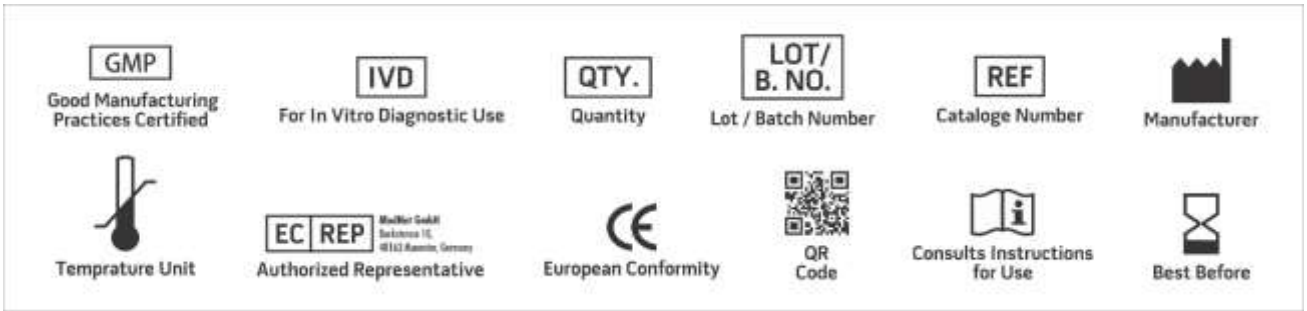
Escherichia coli	25922	50-100	Luxuriant	>=70%	Pink-red with bile precipitate	30-35°C	18-72 Hours
Klebsiella aerogenes	13048	50-100	Luxuriant	>=70%	Pink to red	30-35°C	18-72 Hours
Salmonella Typhimurium	14028	50-100	Luxuriant	>=70%	Colourless	30-35°C	18-72 Hours
Enterococcus faecalis	29212	50-100	None-poor	0-10%	Colourless to pale pink	30-35°C	18-72 Hours
Salmonella Enteritidis	13076	50-100	Luxuriant	>=70%	Colourless	30-35°C	18-72 Hours
Staphylococcus aureus subsp.aureus	25923	>=10^4	Inhibited	0%	-	30-35°C	18-72 Hours

PACKAGING:
In pack size of 100 gm and 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. Barnes Ella M. and Shrimpton D. H., 1957, J. Appl. Bacteriol., 20(2),273-285.
3. Eddy B. P., 1960, J. Appl. Bacteriol., 23(2).216-249.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2 nd Edition.
5. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
6. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
7. Williams, (Ed.), 2005, Official Methods of Analysis of the Association of Official Analytical Chemists, 19th Ed., AOAC, 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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