TM 2222 - MaCONKEY AGAR W/ CV W/O NaCL

INTENDED USE

Recommended for the selection and recovery of the *Enterobacteriaceae* and related enteric gram-negative bacilli.

PRODUCT SUMMARY AND EXPLANATION

The MacConkey media are well known and popular enrichment system for coliform bacteria. MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens. Original formulation of MacConkey included ox bile as inhibitor of gram-positive bacteria and litmus as the indicator of the acid production from lactose. Later litmus was substituted by phenol red indicator to make interpretation easier and more precise. The most significant modification to the original formulation is the substitution of ox bile by purified bile salts that improve the selectivity and avoid the inherent turbidity which is due to the fat material of the bile. Another modification was the inclusion of supplementary inhibitors such as crystal violet and pH indicator neutral red. MacConkey Agar has been recommended for use in microbiological examination of foodstuffs and for direct plating of water samples for coliform counts. These media are also accepted by the Standard Methods for the Examination of Milk and Dairy Products.

COMPOSITION

Ingredients	Gms / Ltr
Peptic digest of animal tissues	1.500
Agar	15.000
Casein enzymic hydrolysate	1.500
Pancreatic digest of gelatin	17.000
Lactose	10.000
Bile salts	1.500
Crystal violet	0.001
Neutral red	0.030

PRINCIPLE

Original medium contains protein, bile salts, sodium chloride and two dyes. Omission of sodium chloride from the medium prevents the spreading of Proteus colonies. 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 coloured 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 and transparent and typically do not alter appearance of the medium.

INSTRUCTION FOR USE

- Dissolve 46.53 grams in 1000 ml distilled water.
- Heat to boiling with gentle swirling to dissolve the medium 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 SPECIFICATION

Appearance of Powder **:** Light yellow to light pink homogeneous free flowing powder.

Appearance of prepared medium : Orange red coloured clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C) : 7.1 ±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Color of the Colony	Incubation Temperature	Incubation period
Escherichia coli	25922	50-100	Luxuriant	>=70%	Pink to red with bile precipitate	35-37°C	18-24 hours
Enterobacter aerogenes	13048	50-100	Luxuriant	>=70%	Pink to red	35-37°C	18-24 hours
Enterococcus faecalis	25912	50-100	Fair to good	30-40%	Colourless	35-37°C	18-24 hours
Proteus vulgaris	13315	50-100	Luxuriant	>=70%	Colourless	35-37°C	18-24 hours
Salmonella paratyphi A	9150	50-100	Luxuriant	>=70%	Colourless	35-37°C	18-24 hours
Shigella flexneri	12022	50-100	Fair to good	30-40%	Colourless	35-37°C	18-24 hours
Salmonella paratyphi B	8759	50-100	Luxuriant	>=70%	Colourless	35-37°C	18-24 hours
Salmonella Enteritidis	13076	50-100	Luxuriant	>=70%	Colourless	35-37°C	18-24 hours

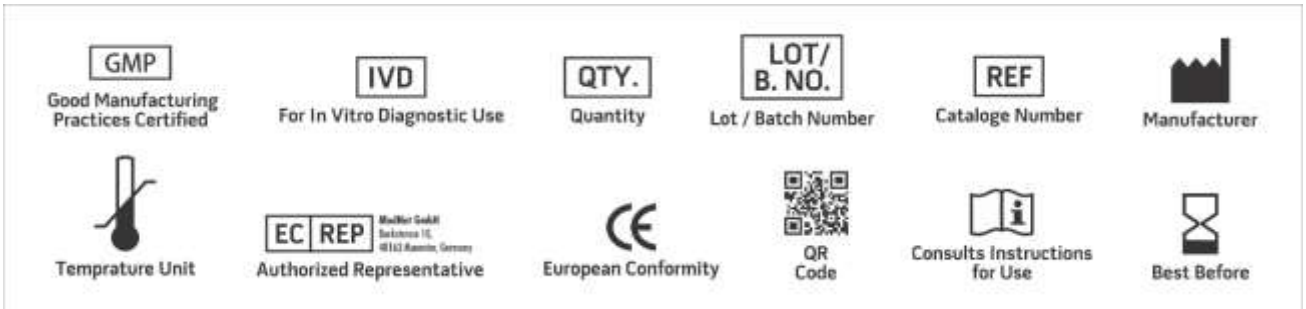
Salmonella typhi	6539	50-100	Luxuriant	>=70%	Colourless	35-37°C	18-24 hours
Staphylococcus aureus	25923	50-100	Inhibited	0%	Colourless	35-37°C	18-24 hours

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 below 25°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. MacConkey A., 1900, The Lancet, II:20.
2. MacConkey A., 1905, J. Hyg., 5:333.
3. Speck M. L., (Ed.), 1985, Compendium of Methods for the Microbiological Examination of Foods, 2nd Ed., APHA, Washington, D.C.
4. 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.
5. Marshall R., (Ed.), 1992, Standard Methods for the Examination of Dairy Products, 16th Ed., APHA, Washington, D.C. 6. Cruickshank R. Duguid J. P., Marmion B. P., Swain R. H. A., (Eds.),1975, Medical Microbiology, 12th Ed., Vol. II, Churchill Livingstone, Edinburgh, London



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.
***For Lab Use Only**
Revision: 08 Nov., 2019