

MacConkey Agar plate

Recommended for selective isolation and differentiation of E.coli and other enteric bacteria from pharmaceutical products
in accordance with the microbial limit testing by harmonized methodology of USP/EP/BP/JP.

REF: BS.1/MAP01.010.0010

10 Plates

CLINICAL SIGNIFICANCE

MacConkey agar is used in the differentiation between lactose fermenting from lactose non-fermenting gram-negative bacteria, particularly members of the *Enterobacteriaceae* family. MacConkey Agar is used for the isolation of coliforms and intestinal pathogens in water, dairy products and clinical biological specimens (e.g. feces and urine).

METHOD PRINCIPLE

Peptone provides a source of nitrogen, vitamins, minerals and amino acids. Sodium chloride maintains the osmotic balance of the medium. Agar acts as a solidifying agent. Bile salts and crystal violet act as selective agents that inhibit the growth of Gram-positive bacteria, and enhance the selective growth of gram-negative bacteria. Lactose acts as a source of carbohydrate. Lactose-fermenting bacteria produce pink-red colonies, after fermenting the lactose to acids and dropping the pH of the indicator (neutral red) present in the medium. Since, non-fermenters can't utilize lactose, colonies appear colorless or transparent.

MEDIA COMPOSITION

Item	Formula per liter of medium
Peptone	20 gm
Lactose	10 gm
Bile salts	1.5 gm
Sodium chloride	5 gm
Neutral red	0.03 gm
Crystal violet	0.001 gm
Agar	15 gm

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.
S56: dispose of this material and its container at hazardous or special waste collection point.
S57: use appropriate container to avoid environmental contamination.
S61: avoid release in environment.

For further information, refer to the MacConkey Agar material safety data sheet.

STORAGE AND STABILITY

BioScien MacConkey Agar plate should be stored on receipt store between 20-30°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Final pH 7.1 ± 0.2 at 25°C

Directions

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

Deterioration

The color of **BioScien** MacConkey Agar plate Red with purplish tinge coloured medium in sterile 90 mm disposable plates. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for, discard the medium.

SPECIMEN

Pharmaceutical samples, Food and dairy samples; Water samples.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile loop
- Incubator

PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after incubation at 35-37°C for 18-72H.

Microorganism	Result	Colony Color
<i>Escherichia coli</i> (ATCC 25922)	Luxuriant growth	pink to red with bile precipitate
<i>Enterobacter aerogenes</i> (ATCC 13048)	Luxuriant growth	pink to red
<i>Enterococcus faecalis</i> (ATCC 29212)	Fair-good growth	colorless to pale pink
<i>Salmonella Typhimurium</i> (ATCC 14028)	Luxuriant growth	colorless
<i>Salmonella Enteritidis</i> (ATCC 13076)	Luxuriant growth	colorless
<i>Salmonella Paratyphi A</i> (ATCC 9150)	Luxuriant growth	colorless
<i>Salmonella Paratyphi B</i> (ATCC 8759)	Luxuriant growth	colorless
<i>Salmonella Typhi</i> (ATCC 6539)	Luxuriant growth	colorless
<i>Salmonella Abony</i> (NCTC 6017)	Luxuriant growth	colorless
<i>Proteus vulgaris</i> (ATCC 13315)	Luxuriant growth	colorless
<i>Shigella flexneri</i>	Fair-good	colorless











ATCC 12022	growth	
<i>Staphylococcus aureus</i> (ATCC 25923)	Inhibited	-
<i>Staphylococcus epidermidis</i> (ATCC 12228)	Inhibited	-
<i>Corynebacterium diphtheriae</i> type gravis	Inhibited	-

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact **BioScien** technical support.

REFERENCES

1. MacConkey, 1900, The Lancet, ii: 20.
2. MacConkey, 1905, J. Hyg., 5:333.
3. Eaton A. D., Clesceri L. S. and Greenberg A W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st ed., APHA, Washington, D.C.5.
4. Wehr H M and Frank J H., 2004, Standard Methods for the Examination of Dairy Products, 17th ed., APHA Inc., Washington, D.C.
5. European Pharmacopoeia 10th Edition (2020)
6. United States Pharmacopeia National Formulary 2018: USP 41 NF 36
7. Japanese Pharmacopeia 17th Edition (2017)
8. www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalmanualBAM/default.htm.
9. Murray, P. R., E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Tenover (Eds.). Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.

SYMBOLS IN PRODUCT LABELLING		
	For in-vitro diagnostic use	 Number of <n> test in the pack
	Batch Code/Lot number	 Caution
	Catalogue Number	 Do not use if package is damaged
	Temperature Limitation	 Consult Instruction for use
	Expiration Date	
	Manufactured by	



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