MacConkey Agar with Crystal Violet, NaCl and 0.15% Bile Salts

Intended Use
MacConkey Agar with Crystal Violet, NaCl, and 0.15% Bile Salts is a selective and differential medium used for the detection of coliforms and other enteric pathogens.

Summary
MacConkey agars are slightly selective and differential plating media mainly used for the detection and isolation of Gram-negative organisms from clinical, dairy, food, water, pharmaceutical and industrial sources. It is also recommended for the selection and recovery of the *Enterobacteriaceae* and related enteric Gram-negative bacilli. USP recommends this medium for use in the performance of Microbial Limit Tests.
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. The medium, 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. Besides 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 coli-aerogenes bacteria during investigations on the genus *Aeromonas*.

Principle
The original medium contains protein, bile salts, sodium chloride and two dyes. 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.
Peptone, tryptone and pancreatic digest of gelatin 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.

Formula*

Ingredients	**g/L**
Peptone	1.5
Tryptone	1.5
Pancreatic Digest of Gelatin	17.0
Lactose	10.0
Bile Salts Mixture	1.5
Sodium Chloride	5.0
Crystal Violet	0.001
Neutral Red	0.03
Agar	13.5
Final pH (at 25°C)	7.1 ± 0.2

*Adjusted to suit performance parameters.

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of Specimen
Clinical samples - Faeces, Urine and Other Pathological Material;
Food and Dairy samples; Water samples; Pharmaceutical samples.

Specimen Collection and Handling
Ensure that all samples are properly labelled. Follow appropriate techniques for handling samples as per established guidelines. Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure. The samples must be stored and tested within the permissible time duration. After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions
1. Suspend 50.03 g of the powder in 1000 mL purified / distilled water and mix thoroughly.
2. Boil with frequent agitation to dissolve the powder completely. AVOID OVERHEATING.
3. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.

Quality Control
Dehydrated Appearance: Beige to pinkish beige coloured, homogenous, free flowing powder.
Prepared Appearance: Red with purplish tinge, slightly opalescent gel forms in petridishes.
Cultural Response: Cultural characteristics observed after an incubation of 18-72 hours at 30°C-35°C.
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Organism (ATCC)	**Growth**	**Colour of Colony**
*Escherichia coli (*25922)	Good	Pink with bile precipitate
Klebsiella aerogenes (13048)	Good	Pink
Salmonella enterica subsp. *enterica* serovar *Typhimurium* (14028)	Good	Colourless
Proteus mirabilis (25933)	Good	Colourless
Inhibitory		
Staphylococcus aureus subsp. *aureus* (25923)	Inhibited	-

Performance and Evaluation
Performance of the product is dependent on following parameters as per product label claim:
1. Directions
2. Storage
3. Expiry

Precautions / Limitations
1. Though the medium is recommended for selective isolation, further biochemical and serological testing must be carried out for further confirmation.
2. The surface of the medium should be dry when inoculated.

Warranty
This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. Murray P. R, Baron E, J., Jorgensen J. H., Pfaller M. A., Yolken R. H., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.
2. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C
3. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201130130100	Dehydrated Culture Media	100 g
201130130500	Dehydrated Culture Media	500 g
203130760250	Bottle Media	6 x 250 mL
203130760100	Bottle Media	100 mL