MacConkey Agar with Crystal Violet, NaCl and 0.15% Bile Salts (Medium 8) IP

Intended Use
MacConkey Agar with Crystal Violet, NaCl, and 0.15% Bile Salts (Medium 8) is a selective and differential medium used for the detection of coliforms and other enteric pathogens in compliance with IP.

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 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**
Peptones (Meat and Casein)	3.0
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.
2. Mix thoroughly.
3. Boil with frequent agitation to dissolve the powder completely. AVOID OVERHEATING.
4. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
5. Cool to 45°C-50°C and pour into sterile petridishes.

Quality Control

Dehydrated Appearance: Beige to pinkish beige coloured, homogenous, free flowing powder.
Prepared Appearance: Red to reddish brown coloured with purplish tinge, slightly opalescent gel forms in petridishes.
Growth Promotion Test: Growth promotion is carried out in accordance with the method of IP and growth is observed after an incubation at 30°C-35°C for 18 to 72 hours.
Growth Promoting Properties: The test results observed are within the specified temperature and shortest period of time specified in the test, inoculating ≤100 cfu of appropriate microorganism at 30°C-35°C for 18 hours.
Indicative Properties: The test results observed are within the specified temperature and time, inoculating ≤100 cfu of appropriate microorganism.
Inhibitory Properties: No growth of the test microorganism occurs for the specified temperature and not less than the longest period of the time specified, inoculating >100 cfu of the appropriate microorganism at 30°C - 35°C for 72 hours.

Growth Promoting + Indicative **Organism (ATCC)**	**Growth**	**Colour of Colony**
Escherichia coli (8739)	Good	Pink with bile precipitate
Inhibitory *Staphylococcus aureus* subsp. *aureus* (6538)	Inhibited	-

Note: For good growth - Growth obtained on test media should not differ by a factor greater than 2 from calculated value for a standardized inoculum.
For inhibition no growth of test microorganism should occur.

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

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. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C
2. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201130140500	Dehydrated Culture Media	100 g

Disclaimer

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.