



PRODUCT SPECIFICATION SHEET

MacConkey Broth (BL010H)-10ml/100ml

Intended Use

MacConkey Broth (BL010H) is recommended for the presumptive identification of coliforms from pharmaceutical products using the microbial limit testing in compliance with the harmonized methodology of USP/EP/BP/JP.

Product Summary and Explanation

MacConkey Broth is a modification of the original bile salt broth recommended by MacConkey that contained 0.5% sodium taurocholate and litmus as an indicator.⁽¹⁾ Further, MacConkey suggested variations of this formulation using neutral red indicator instead of litmus. Childs and Allen⁽²⁾ demonstrated the inhibitory effect of neutral red and therefore substituted it by the less inhibitory bromocresol purple dye. BCP is more sensitive in recording pH variation in the medium. Oxgall in the medium replaces the original sodium taurocholate to inhibit growth of gram-positive organisms. This medium is prepared in accordance with the harmonized method of USP/EP/BP/JP.^(3,4,5,6) MacConkey Broth is used for cultivating gram-negative, lactose-fermenting bacilli and as a presumptive test for coliform organisms. It has been used to analyze food,⁽⁷⁾ milk^(8,9) and water samples⁽⁹⁻¹²⁾ for coliforms.

Principles of the Procedure

MacConkey Broth contains pancreatic digest of gelatine which provides essential growth nutrients for the growth microorganisms. Lactose monohydrate is the fermentable source of carbohydrate. Dehydrated ox-bile inhibits gram-positive organisms. Bromocresol purple is the pH indicator in the medium, which turns the medium yellow under acidic condition produced by lactose fermenting organisms on lactose fermentation. The colour change of the dye is observed when the pH of the medium falls below 6.8. Lactose non-fermenting organisms like *Salmonella* and *Shigella* do not alter the appearance of the medium.

Formula / Liter

Ingredients	Gms / Liter
Pancreatic digest of gelatine	20.00
Lactose monohydrate	10.00
Dehydrated ox-bile	5.00
Bromo cresol purple	0.01
Final pH: 7.3 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

1. For Laboratory Use only.

Directions

Label the bottle. Inoculate the sample and incubated at specified temperature and time.

Quality Control Specifications

Appearance	Clear to slightly opalescent solution in bottle
Colour	Purple colored
pH	7.20- 7.60
Quantity of medium	10ml/100ml





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Sterility Check: Passes release criteria.

Cultural Response

Growth Promotion is carried out in accordance with the harmonized method of USP/EP/BP/JP. For organisms not specified in pharmacopoeia, cultural response was observed after an incubation at 30-35°C for 18-48 hours.

Growth promoting properties

Clearly visible growth of microorganism comparable to that previously obtained with previously tested and approved lot of medium occurs at the specified temperature for not more than the shortest period of time specified inoculating ≤ 100 cfu (at 42-44°C for ≤ 24 hours).

Inhibitory properties

No growth of the test microorganism occurs for the specified temperature for not less than longest period of time specified inoculating ≥ 100 cfu (at 42-44°C for ≥ 48 hours).

Expected Cultural Response: Cultural characteristics observed after an incubation at 30-35°C for 18-48 hours.

Sr. No.	Organisms	Results to be achieved				
		Inoculum (CFU)	Growth	Acid	Gas	Incubation Temperature & period
	Growth promoting					
1.	<i>Escherichia coli</i> ATCC 8739	50 -100	good-luxuriant	positive reaction, yellow colour	positive reaction	42 -44 °C ≤ 24 hrs
	Inhibitory					
2.	<i>Staphylococcus aureus</i> ATCC 6538	$\geq 10^3$	inhibited			42 -44 °C ≥ 48 hrs
	Additional Microbiological Testing					
3.	<i>Escherichia coli</i> ATCC 25922	50 -100	good-luxuriant	positive reaction, yellow colour	positive reaction	30 -35 °C 18 -24 hrs
4.	<i>Escherichia coli</i> NCTC 9002	50 -100	good-luxuriant	positive reaction, yellow colour	positive reaction	30 -35 °C 18 -24 hrs
5.	<i>Enterobacter aerogenes</i> ATCC 13048	50 -100	good-luxuriant	positive reaction, yellow colour	positive reaction	30 -35 °C 18 -24 hrs
6.	<i>Salmonella aboby</i> NCTC6017	50 -100	fair-good	negative reaction	negative reaction	30 -35 °C 18 -24 hrs
7.	<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited	--	--	30 -35 °C ≥ 48 hrs

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

1. Transfer homogenate in Soyabean Casein Digest Medium (DM277H) containing 1 gm or 1 ml of the preparation to be examined to 100 ml MacConkey Broth.
2. Incubate is carried at 43-45°C for 24-48 hours.
3. For further isolation, subculture on MacConkey Agar (DM143H).
4. Refer to appropriate references for standard test procedures.





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Results

1. Growth of red generally non-mucoid colonies, sometimes surrounded by a reddish precipitation zone, indicates presence of coliforms.
2. Refer to appropriate references and test procedures for interpretation of results.

Storage

Store the bottle containing the liquid medium at 15 - 25°C.

Expiration

Refer to the expiration date stamped on the container. Do not use if bottle found unsealed/broken condition. Expiry applies to medium in its intact container when stored as directed.

Product Disposal

After use, bottles with sample and other contaminated materials must be sterilized before discarding.

Limitations of the Procedure

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : MacConkey Broth

Product Code : BLO10H-10ml/100ml

Available Pack sizes : For 10ml-25bottles/for100ml-10bottles

References

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12. International Organization for Standardization. 1990. Water quality - Detection and enumeration of coliform organisms, thermotolerant coliform organisms and presumptive *Escherichia coli* - Part 2: Multiple tube (most probable number) method. ISO 9308-2, First ed., 1990-10-01. International Organization for Standardization, Geneva, Switzerland.

Further Information

For further information please contact your local MICROMASTER Representative.





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MICROMASTER LABORATORIES PRIVATE LIMITED
Unit 38/39, Kalpataru Industrial Estate,
Off G.B. Road, Near 'R-Mall' , Thane (W) - 400607. M.S. INDIA.
Ph: +91-9320126789/9833630009/9819991103
Email:- sales@micromasterlab.com

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