MacCONKEY BROTH (7185)

Intended Use

MacConkey Broth is used for the detection of coliform bacteria in milk and water in a laboratory setting. MacConkey Broth is not intended for use in the diagnosis of disease or other conditions in humans. Conforms to Harmonized USP/EP/JP Requirements.[1,2,3]

Product Summary and Explanation

MacConkey Broth is a modification of the original bile salt broth recommended by MacConkey, containing 0.5% sodium taurocholate and litmus as an indicator.[4] MacConkey suggested further variations of this formula using neutral red indicator instead of litmus.[5,6] Childs and Allen demonstrated the inhibitory effect of neutral red and substituted the less inhibitory Bromcresol purple.[7] MacConkey Broth conforms to Harmonized United States Pharmacopoeia (USP), European Pharmacopoeia (EP), and Japanese Pharmacopoeia (JP).[1,2,3]

Principles of the Procedure

Enzymatic Digest of Gelatin provides the nitrogen and vitamin sources in MacConkey Broth. Lactose is the carbohydrate for Gram-negative lactose-fermenting bacilli. Oxbile inhibits the growth of Gram-positive organisms. Bromcresol Purple is the indicator.

Formula / Liter

Enzymatic Digest of Gelatin ..... 20 g
Lactose ..... 10 g
Oxbile ..... 5 g
Bromcresol Purple ..... 0.01 g
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.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Dissolve 35 g of the medium in one liter of purified water.
2. Mix thoroughly.
3. Dispense into tubes containing Durham tubes.
4. Autoclave at 121°C for 15 minutes.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free-flowing, and light beige.

Prepared Appearance: Prepared medium is dark purple and clear to slightly hazy.

Expected Cultural Response and USP/EP/JP Growth Promotion Testing: Cultural response in MacConkey Broth tested at Harmonized USP/EP/JP specified temperatures and incubation times.[1,2,3]

Incubation at 30 - 35°C:

Microorganism	Approx. Inoculum (CFU/mL)	Expected Reactions		
		Growth	Acid	Gas
Enterobacter aerogenes ATCC® 13048	10 - 100	Growth	Positive	Positive
Escherichia coli ATCC® 8739	10 - 100	Growth	Positive	Positive
Escherichia coli ATCC® 11775	10 - 100	Growth	Positive	Positive
Escherichia coli ATCC® 25922	10 - 100	Growth	Positive	Positive
Salmonella typhimurium ATCC® 14028	10 - 100	Growth	Negative	Negative
Staphylococcus aureus ATCC® 6538	~ 1000	Inhibited	---	---

Staphylococcus aureus ATCC® 25923	~ 1000	Inhibited	---	---

Incubation at 42 - 44°C:

Microorganism	Approx. Inoculum (CFU/mL)	Expected Reactions		
		Growth	Acid	Gas
Escherichia coli ATCC® 8739	10 - 100	Growth	Positive	Positive
Escherichia coli ATCC® 11775	10 - 100	Growth	Positive	Positive
Escherichia coli ATCC® 25922	10 - 100	Growth	Positive	Positive

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

Test Procedure
Refer to the appropriate references using MacConkey Broth.

Results
Lactose-fermenting organisms grow well in MacConkey Broth and produce acid, causing the medium to turn yellow. Gas is also produced, collecting in the Durham tubes. Non-fermenting organisms produce good growth, but will not produce acid or gas.

Storage
Store dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure
Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Packaging
MacConkey Broth	**Code No.**	**7185A**	**500 g**
		7185B	**2 kg**
		7185C	**10 kg**

References

1. **United States Pharmacopeial Convention.** 2007. The United States pharmacopeia, 31st ed., Amended Chapters 61, 62, 111. The United States Pharmacopeial Convention, Rockville, MD.
2. **Directorate for the Quality of Medicines of the Council of Europe (EDQM).** 2007. The European Pharmacopoeia, Amended Chapters 2.6.12, 2.6.13, 5.1.4, Council of Europe, 67075 Strasbourg Cedex, France.
3. **Japanese Pharmacopoeia.** 2007. Society of Japanese Pharmacopoeia. Amended Chapters 35.1, 35.2, 7. The Minister of Health, Labor, and Welfare.
4. **MacConkey, A.** 1901. Centr. Bakt. **29**:740.
5. **MacConkey, A.** 1905. Lactose-fermenting bacteria in faeces. J. Hyg**. 5**:333-379.
6. **MacConkey, A**. 1908. Bile salt media and their advantage in some bacteriological examinations. J. Hyg. **8**:322. *Streptococcus faecalis*. J. Hyg. Camb. **51**:468-477.
7. **Childs, E., and L. A. Allen.** 1953. Improved methods for determining the most probable number of *Bacterium coli* and of *Streptococcus faecalis*. J. Hyg. Camb. **51:**468-477.

Technical Information
Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.