

MACCONKEY BROTH EUROPEAN PHARMACOPOEIA

CAT N°: 1210

For the detection of coliforms in water, milk and other materials of sanitary importance

FORMULA IN g/l

Pancreatic Digest of Gelatin	20.00	Dehydrated Ox Bile	5.00
Lactose Monohydrate	10.00	Bromocresol Purple	0.01

Final pH 7.3 ± 0.2 at 25°C

PREPARATION

Suspend 35 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. To analyze 10 ml samples, prepare a double-concentration medium. Dispense 10 ml in tubes with Durham gas collecting tubes for gas detection for samples of 1 ml or less, and sterilize in autoclave at 121°C for 15 minutes. The prepared medium should be stored at 2-8°C. The color is purple.

The dehydrated medium should be homogeneous, free-flowing and light beige in color. If there are any physical changes, discard the medium.

USES

MACCONKEY BROTH is used as a presumptive test medium for the presence of coliforms in water and other materials of sanitary importance. It is also used for cultivating Gram negative, lactose-fermenting bacilli in water and foods.

The formation of gas and acid confirms the presence of coliforms, as demonstrated by the change of the medium color from purple to yellow.

Pancreatic digest of gelatin provides nitrogen, vitamins, minerals and amino acids essential for growth. Lactose is a fermentable carbohydrate causing a drop in the pH and subsequently a color change of the pH indicator (Bromocresol purple) and bile precipitation. Ox bile is a selective agent to inhibit the growth of Gram positive organisms.

Inoculate and incubate the medium at 35°C ± 2°C for 18-24 hours.

The European Pharmacopoeia recommends in Paragraph 2.6.13 Microbiological examination of non-Sterile products: to test for specified microorganisms, transfer 1 ml of Casein soy bean digest broth, where the sample was previously diluted, to 100ml of MacConkey Broth and incubate at 42-44°C for 24-48 hours. Subculture on a plate of MacConkey agar at 30-35°C for 18-72 hours.

Interpretation

Growth of colonies indicates the possible presence of *Escherichia coli*. This is confirmed by identification tests. The product complies with the test if no colonies are present or if the identification tests are negative.

MICROBIOLOGICAL TEST

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 35 ± 2°C and observed after 18-24 hours.

Microorganisms	Growth	Acid	Gas
<i>Enterobacter aerogenes</i> ATCC 13048	Good	+	+

<i>Escherichia coli</i> ATCC 25922	Good	+	+
* <i>Escherichia coli</i> ATCC 8739	Good	+	+
<i>Salmonella choleraesuis</i> ATCC 12011	Acceptable	-	-
<i>Salmonella typhimurium</i> ATCC 14028	Acceptable	-	-
<i>Staphylococcus aureus</i> ATCC 25923	Null	-	-
* <i>Staphylococcus aureus</i> ATCC 6538	Null	-	-

* Incubate at 42-44°C for 24-48 hours.

BIBLIOGRAPHY

MacConkey, A. 1905. Lactose-fermenting bacteria in faeces. J. Hyg 5:333-379.

MacConkey, A. 1908. Bile salt media and their advantage in some bacteriological examinations. J. Hyg. 8:322-334.

Chils, E., and L. A. Allen. 1953. Improved methods for determining the most probable number of *Bacterium coli* and of *Enterococcus faecalis*. J. Hyg.Camb. 51:468-477.

European Pharmacopoeia. 7.0



STORAGE

Once opened keep powdered medium closed to avoid hydration.

