

## M8677 MacConkey Broth purple (MacConkey G Broth)

MacConkey Broth Purple is a differential medium used for the detection of coliforms in water samples and milk examination by MPN technique. It is a modification of the classic medium, where neutral red is replaced by a less aggressive indicator, according European Pharmacopoeia. It is also recommended by ISO Committee under the specification ISO 9308-2:1990.

### Composition:

Ingredients	Grams/Litre
Peptone	20.0
Lactose	10.0
Bile salts	5.0
Sodium chloride	5.0
Bromocresol purple	0.01
Final pH 7.4 +/- 0.2 at 25 °C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Appearance: Yellow coloured, homogeneous, free flowing powder.  
 Colour and Clarity: Purple coloured, clear solution without any precipitate.

### Directions:

Suspend 40 g in 1000 ml distilled water. Dispense in test tubes with inverted Durham tubes. Sterilize by autoclaving at 15 lbs pressure (121 °C) for 15 minutes.

### Principle and Interpretation:

The traditional formulation of MacConkey Broth was used for the presumptive detection of the coli-aerogenes group. In the original composition, litmus was the indicator to detect acid production (1), which was later on replaced by neutral red (2). Childs and Allen showed that neutral red can have an inhibitory effect on the growth of *Escherichia coli* (3). Neutral red was replaced by a less aggressive bromocresol purple indicator, according European Pharmacopoeia (4), The Bacteriological Examination of Water Supplies (5) and International Standards for Drinking Water (6). The colour change from purple to yellow is more sensitive and definite indication of acid production. Peptone provide nitrogenous and other essential compounds. Lactose is the fermentable carbohydrate source. Lactose-positive bacteria produce acid and build gas. Bromocresol purple is a pH indicator which has a yellow colour below pH 5.3 and a purple colour above pH 6.7. Bile salt inhibits most gram positive organisms and sodium chloride is for the osmotic balance.

Cultural characteristics after 18-24 hours at 35-37°C.

Organisms (ATCC)	Growth	Acid production (yellow)	Gas production
<i>Enterobacter aerogenes</i> (13048)	+++	+	+
<i>Escherichia coli</i> (25922)	+++	+	+
<i>Salmonella serotype Choleraesuis</i> (12011)	++	-	-
<i>Staphylococcus aureus</i> (25923)	-	-	-

**References:**

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3. E. Childs, L.A. Allen, J. Hyg. Camb., 51(4), 468 (1953)
4. European Pharmacopeia, Tests for specified microorganisms, Council of Europe, Strasbourg, 4<sup>th</sup> ed., Suppl. 4.2 2.6.13 (2002)
5. Departments of the Environment, Health, Social Security and Public Health Laboratory Service, The Bacteriological Examination of Drinking Water Supplies, Report No. 71, HMSO London (1982)
6. World Health Organization, International Standards for Drinking Water, 2<sup>nd</sup> ed., WHO, Geneva (1963)
7. J.G. Davis, Milk Testing, 2nd ed., Dairy Industries Ltd., London (1959)