

Lactose Broth

Inhibitor-free culture medium used as a preliminary test for coliform bacteria, especially *E. coli*.

The composition of this medium complies with the recommendations of the American Public Health Association for the examination of water (1998) and foodstuffs (1992), and with the recommendations of the United States Pharmacopeia XXVI (2003) and the European Pharmacopeia II for the examination of pharmaceutical products and raw materials.

Mode of Action

Lactose utilization is indicated by gas production. The gas liberated is collected in DURHAM tubes.

Typical Composition (g/litre)

Peptone 5.0; meat (beef) extract 3.0; lactose 5.0.

Preparation

Suspend 13 g or more/litre (see Table), dispense into test tubes fitted with DURHAM tubes, autoclave (15 min at 121 °C).

pH: 6.9 ± 0.2 at 25 °C.

The prepared broth is clear and yellowish.

Experimental Procedure and Evaluation

Mix 1, 10 or 100 ml samples with the specified volumes of lactose broth. The initial concentration of the lactose broth must be increased so that the final concentration of the components is maintained at a constant level (13 g/l). See table.

Inoculum (ml)	Amount of Medium in Tube ml	Volume of Medium + Inoculum ml	Dehydrated Lactose Broth Required g/L	Broth concentration
1	10 or more	11 or more	13	1-fold
10	10	20	26	2-fold
10	20	30	19.5	1.5-fold
100	20	120	78	6-fold
100	50	150	39	3-fold

Incubation: 24-48 hours at 35 °C aerobically.

Check the DURHAM tubes for gas production.

Literature

American Public Health Association: Compendium of methods for the microbiological examination of foods. - 3rd ed., 1992.

American Public Health Association: American Water Works Association and Water Pollution Control Federation: Standard Methods for the Examination of Water and Wastewater 20th ed., Washington, 1998.

European Pharmacopeia II, Chapter VIII, 10.

United States Pharmacopeia XXIII, Chaptre "Microbiol. Limit Test", 1995.

Ordering Information

Product	Merck Cat. No.	Pack size
Lactose Broth	1.07661.0500	500 g

Quality control

Test strains	Growth	Gas formation
<i>Escherichia coli</i> ATCC 8739	good / very good	+
<i>Klebsiella pneumoniae</i> ATCC 13883	good / very good	+
<i>Salmonella typhimurium</i> ATCC 14028	good / very good	-
<i>Proteus vulgaris</i> ATCC 13315	poor / fair	-