LAURYL TRYPTOSE BROTH (7324)

Intended Use

Lauryl Tryptose Broth is used for the detection of coliform bacteria in water and wastewater in a laboratory setting. Lauryl Tryptose Broth is not intended for use in the diagnosis of disease or other conditions in humans.

Product Summary and Explanation

The coliform group of bacteria includes aerobic and facultative anaerobic, Gram-negative, non-sporeforming bacilli that ferment lactose and form acid and gas at 35°C within 48 hours.[1] Members of the *Enterobacteriacae* comprise the majority of this group, but organisms such as *Aeromonas* spp. may also be included. Procedures to detect and confirm coliforms are used in testing water, foods, dairy products, and other materials.[1-4]

Lauryl Tryptose Broth, also referred to as Lauryl Sulfate Broth, is prepared according to the formula of Mallmann and Darby.[5] Their investigation found that buffered tryptose lactose broth permitted "slow lactose fermenters" to increase gas production faster. Sodium Lauryl Sulfate produced the best results for inhibition of organisms other than coliforms.[5] Lauryl Tryptose Broth, abbreviated as LTB, is used in the presumptive phase of the Standard Total Coliform Fermentation Technique in the examination of water,[2] and coliform detection of foods.[3,4,6]

Principles of the Procedure

Tryptose provides nitrogen, vitamins, minerals, and amino acids in Lauryl Tryptose Broth. Lactose is the fermentable carbohydrate for coliforms. Phosphates are the buffering agents, and Sodium Chloride is used to maintain the osmotic balance of the medium. Sodium Lauryl Sulfate is the selective agent used to inhibit non-coliform organisms.

Formula / Liter

Tryptose	20 g
Lactose	5 g
Sodium Chloride	5 g
Monopotassium Phosphate	2.75 g
Disodium Phosphate	2.75 g
Sodium Lauryl Sulfate	0.1 g

Final pH: 6.8 ± 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 35.6 g of the medium in one liter of purified water.
2. Prepare double strength broth for evaluating 10 mL samples.
3. Distribute into tubes containing inverted fermentation Durham tubes.
4. Autoclave at 121°C for 15 minutes.

Quality Control Specifications

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

Prepared Appearance: Prepared medium is yellow to gold and clear to trace hazy.

Expected Cultural Response: Cultural response in Lauryl Tryptose Broth incubated at 35 ± 2°C and examined for growth after 18 - 48 hours.

Microorganism	Approx Inoculum (CFU)	Growth	Reaction (Gas)
Escherichia coli ATCC® 25922	10 - 300	Good to excellent	Positive
Salmonella typhimurium ATCC® 14028	10 - 300	Good to excellent	Negative
Staphylococcus aureus ATCC® 25923	10^3	Partial to complete inhibition	Negative

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

Test Procedure

Follow the methods and procedures for the detection of coliform organisms as described in standard methods. [1-4,6]

Results

After incubation of the tubes at 35°C for 24 hours, examine for turbidity and gas production. If no gas has formed in the inverted tube, reincubate and reexamine after 48 hours.[2,3] A positive presumptive test for coliform organisms is a turbid broth, accompanied by gas production (bubbles) in the Durham tube. A negative test is no growth and/or no gas production after 48 hours.

Storage

Store sealed bottle containing the 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 the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. Due to varying nutritional requirements, some strains may be encountered that grow poorly or fail to grow on this medium.
2. Turbidity alone is not indicative of a positive test.
3. Lauryl Tryptose Broth may form a precipitate when stored at refrigerated temperatures. This precipitate dissipates upon warming to room temperature.

Packaging

Lauryl Tryptose Broth	**Code No.**	**7324A**	**500 g**
		7324B	**2 kg**
		7324C	**10 kg**

References

1. **Marshall, R. T. (ed.).** 1992. Standard methods for the examination of dairy products, 16th ed., American Public Health Association, Washington, D.C.
2. **Eaton, A. D., L. S. Clesceri, and A. E. Greenberg (eds.).** 1995. Standard methods for the examination of water and wastewater, 19th ed. American Public Health Association, Washington, D.C.
3. **Vanderzant, C., and D. F. Splittstoesser (eds.).** 1992. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
4. **U. S. Food and Drug Administration.** 1995. Bacteriological analytical manual, 8th ed., AOAC International, Gaithersburg, MD.
5. **Mallmann, W. L., and C. W. Darby.** 1941. Uses of a lauryl sulphate tryptose broth for the detection of coliform organisms. Am J. Public Health. **31:**127.
6. **Cunnif, P. (ed.).** 1995. Official Methods of Analysis AOAC International, 16th ed. AOAC International, Gaithersburg, MD.

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.

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