



Dextrose Tryptone Broth

M122

Dextrose Tryptone Broth is recommended for the detection and enumeration of mesophilic and thermophilic aerobic microorganisms in foods.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Dextrose	5.000
Bromocresol purple	0.040
Final pH (at 25°C)	6.7±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 15.04 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Dispense and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Canned foods are most often prone to flat-sour spoilage due to contamination by either mesophilic or thermophilic aerobic spore-formers. Inadequate heat processing is commonly responsible for flat-sour spoilage since spores of mesophilic bacteria are moderately resistant to moist heat. Also *Bacillus stearothermophilus* is the typical species responsible for this type of spoilage (1, 2). *Bacillus coagulans* , *Bacillus thermoacidurans* , a soil organism of canned tomato and dairy products. In flat-sour spoilage, carbohydrates are fermented with the production of lower fatty acids, which sour the product. The small amount of gas produced does not affect the flat appearance of the ends of container.

Williams (3) evolved Dextrose Tryptone Agar, a suitable medium for cultivation and enumeration of the thermophilic bacteria. It is also recommended for general cultural studies by Cameron (4) and other associations (5-9). Dextrose Tryptone Agar is also useful for enumeration of mesophiles and thermophiles in cereal and cereal products, dehydrated fruits, vegetables and spices (10). Dextrose Tryptone Broth is similar in composition to Dextrose Tryptone Agar, with the exclusion of agar.

Casein enzymic hydrolysate provides nutrients to the organisms. Dextrose serves as an energy source while bromo cresol purple is a pH indicator. Acid producing organisms produce yellow coloured medium. The tubes should be incubated at 55°C for 48 hours in a humid incubator. One to two grams of test sample is inoculated into 10 ml of broth media.

Quality Control

Appearance

Light yellow to greenish yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Purple coloured, clear solution in tubes

Reaction

Reaction of 1.5% w/v aqueous solution at 25°C. pH : 6.7±0.2

pH

6.50-6.90

Cultural Response

Cultural characteristics observed after an incubation at 54-56°C for 36-48 hours .

Cultural Response

Organism	Inoculum (CFU)	Growth	Colour of medium
<i>Bacillus brevis</i> ATCC 8246	50-100	good-luxuriant(with	yellow

		or without dextrose fermentation)
<i>Bacillus coagulans</i> ATCC 8038	50-100	good-luxuriant yellow
<i>Bacillus stearotherophilus</i> ATCC 7953	50-100	good-luxuriant yellow

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

Reference

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3. Williams O. B., 1936, Food Res., 1:217.
4. Cameron E. J., 1936, J. Assoc. Official Agr. Chem., 19:433.
5. Association of Official Analytical Chemists, 1978, Bacteriological Analytical Manual, 5th Edition, AOAC, Washington, D.C.
6. American Public Health Association, 1972, Standard Methods for the Examination of Dairy Products, 13th Ed. APHA, Washington, D.C.
7. National Canners Association, 1968, Laboratory Manual for Food Caners and Processors, Vol. I
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9. National Canners Association, 1954, A Laboratory Manual for the Canning Industry, 1st Edition, National Canners Associations, Washington.
10. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.

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