

Dextrose Tryptone Agar

Designed for detection and enumeration of mesophilic and thermophilic aerobic organisms in food.

REF: BS.1/DTA01.100.0100
REF: BS.1/DTA01.500.0500

100 Gram
500 Gram

REF: BS.1/DTA01.250.0250

250 Gram

CLINICAL SIGNIFICANCE

Flat-sour spoilage in canned foods is primarily caused by contamination with either mesophilic or thermophilic aerobic spore-forming bacteria. This type of spoilage is frequently associated with insufficient heat processing, as the spores of mesophilic bacteria exhibit moderate resistance to moist heat. Among the thermophilic spore-formers, *Bacillus stearothermophilus* is recognized as the principal organism responsible for flat-sour spoilage (5, 6). Other species, including *Bacillus coagulans* and *Bacillus thermoacidurans*, commonly found in soil and associated with canned tomato products and dairy products, may also contribute to this form of deterioration. During flat-sour spoilage, carbohydrates are fermented to produce lower fatty acids, resulting in a sour taste, while the limited amount of gas generated is insufficient to distort the ends of the can, thereby preserving its flat appearance. Williams (12) developed Dextrose Tryptone Agar as a suitable medium for the cultivation and enumeration of thermophilic bacteria. The medium has also been recommended for general cultural studies by Cameron (4) and several other organizations (1, 2, 3, 9, 10). Furthermore, Dextrose Tryptone Agar is widely used for the enumeration of both mesophilic and thermophilic microorganisms in cereals and cereal products, dehydrated fruits, vegetables, and spices (11). Dextrose Tryptone Broth has the same formulation as Dextrose Tryptone Agar, except that it does not contain agar.

METHOD PRINCIPLE

Tryptone provides essential nutrients to the organisms. Dextrose serves as an energy source by being the fermentable carbohydrate while bromocresol purple is a pH indicator. Acid producing organisms produce yellow colonies. The plates should be incubated at 55°C for 48 hours in a humid incubator. While using the agar media, serially diluted test sample are mixed with the media in sterile Petri dishes. Standard procedures issued by various associations should be followed for testing of sample.

MEDIA COMPOSITION

Item	Formula per liter of medium
- Tryptone	10.00 gm
- Dextrose	5.000 gm
- Bromocresol purple	0.040 gm
- Agar	15.000

Final pH at 6.7 ± 0.2 at 25 °C

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).

- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.

S57: use appropriate container to avoid environmental contamination.

S61: avoid release in environment.

For further information, refer to the Dextrose Tryptone agar material safety datasheet.

STORAGE AND STABILITY

BioScien Dextrose Tryptone agar should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

PREPARATION

- Suspend 30.04 grams in 1000 ml purified / distilled water.
- Adjust pH to 6.7 ± 0.2 at 25 °C
- Heat to boiling the medium completely.
- Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.
- Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Deterioration

The color of **BioScien** Dextrose tryptone agar is Light yellow to greenish yellow homogeneous free flowing powder. Prepared medium is purple coloured, clear to slightly opalescent gel. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for hydrated media, discard the medium.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile cups
- Sterile petri-dishes
- Incubator

SPECIMEN

Food and dairy samples

PERFORMANCE CHARACTERISTICS

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

Oranism	Growth	Colony Characteristic
<i>Bacillus brevis</i> ATCC 8246	Good-luxuriant (with or without dextrose fermentation)	Yellow
<i>Bacillus coagulans</i> ATCC 8038	Good-luxuriant	Yellow
<i>Bacillus stearothermophilus</i> ATCC 7953	Good-luxuriant	Yellow

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact **BioScien** technical support.

REFERENCES

1. American Public Health Association, 1972, Standard Methods for the Examination of Dairy Products, 13th Ed. APHA, Washington, D.C.
2. American Public Health Association, 1976, Compendium of Methods for the Microbiological Examination of Foods, APHA, Washington, D.C.
3. Association of Official Analytical Chemists, 1978, Bacteriological Analytical Manual, 5th Edition, AOAC, Washington, D.C.
4. Cameron E. J., 1936, J. Assoc. Official Agr. Chem., 19:433.
5. Gordon R. E., Haynes and Pang C. H. N., 1973, The Genus *Bacillus*, Agriculture Handbook No. 407, U.S. Department of Agriculture, Washington, D.C.
6. Hersom A. C., and Hulland E. D., 1964, Canned Foods, And Introduction to Their Microbiology, (Baumgartner) 5th Ed. Chemical Publishing Company, Inc. New York, N.Y.
7. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
8. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition
9. National Canners Association, 1954, A Laboratory Manual for the Canning Industry, 1st Edition, National Canners Associations, Washington.
10. National Canners Association, 1968, Laboratory Manual for Food Caners and Processors, Vol. I
11. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
12. Williams O. B., 1936, Food Res., 1:217.

SYMBOLS IN PRODUCT LABELLING			
	Batch Code/Lot number		Caution
	Catalogue Number		Do not use if package is damaged
	Temperature Limitation		Consult Instruction for use
	Expiration Date		
	Manufactured by		