Technical Information

Dextrose Tryptone Agar

Product Code: DM 1092

Application: Dextrose Tryptone Agar 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
Agar	15.000
Final pH (at 25°C)	6.7±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Canned foods are mostly 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 as 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) is frequently isolated from flat-sour spoilage 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. Dextrose Tryptone Agar, devised by Williams is used for the detection and enumeration of thermophilic flat sour spoilage organisms [3]. 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]. Casein enzymic hydrolysate provides essential nutrients to the organisms. Dextrose serves as an energy source by being the fermentable carbohydrate while bromo cresol 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 samples.

Methodology

Suspend 30.04 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance
Light yellow to greenish yellow homogeneous free flowing powder

Gelling
Firm,comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Purple coloured, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 3% w/v aqueous solution at 25°C. pH : 6.7±0.2

pH Range 6.50-6.90

Cultural Response/Characteristics
DM1092: Cultural characteristics observed after an incubation at 54-56^{0}C for 36-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Bacillus brevis ATCC 8246	50-100	Good-luxuriant(with or without dextrose fermentation)	50-70%	yellow
Bacillus coagulans ATCC 8038	50-100	Good-luxuriant	50-70%	Yellow
Bacillus stearothermophilus ATCC 7953	50-100	Good-luxuriant	50-70%	Yellow

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. 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.
2. Hersom A. C., and Hulland E. D., 1964, Canned Foods, An Introduction to Their Microbiology, (Baumgartner) 5th Ed. Chemical Publishing Company, Inc. New York, N.Y.
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
8. American Public Health Association, 1976, Compendium of Methods for the Microbiological Examination of Foods, APHA, Washington, D.C.
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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