



PRODUCT SPECIFICATION SHEET

Dextrose Tryptone Broth, Modified (DM087)

Intended Use

Dextrose Tryptone Broth, Modified (DM087) is recommended for isolation and cultivation of aciduric and thermophilic sporeformers.

Product Summary and Explanation

Canned foods are most often prone to flat-sour spoilage due to contamination by either mesophilic or thermophilic aerobic spore-formers. In the 1930's, the National Canners Association specified use of Dextrose Tryptone Agar for isolating "flat sour" organisms from food products.⁽¹⁾ "Flat sour" spoilage of canned foods is caused by *Bacillus coagulans* (*Bacillus thermoacidurans*). Bacterial growth results in a 0.3-0.5 drop in pH, while ends of the can remain flat. *B.coagulans* is a soil microorganism, and found in canned tomato products and dairy products. Conditions favorable for multiplication of the bacterium can result in spoilage of the food product. Williams⁽²⁾ 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⁽³⁾ and other associations.⁽⁴⁻⁸⁾ Dextrose Tryptone Broth, Modified is similar in composition to Dextrose Tryptone Agar, Modified, except agar. Dextrose Tryptone Broth, Modified is more nutritious and well buffered than Dextrose Tryptone Broth due to inclusion of yeast extract and dipotassium phosphate. This medium is useful for enumeration of mesophilic organisms, thermophiles in cereals and cereal products, dehydrated fruits and vegetables and spices.⁽⁹⁾

Principles of the Procedure

Dextrose Tryptone Broth Modified contains casein enzymic hydrolysate which provides carbon, nitrogen and other essential growth nutrients. Yeast extract supply essential vitamins. Dextrose serves as an energy source while bromocresol purple is a pH indicator. Dipotassium phosphate buffers the medium. Acid producing organisms produce yellow coloured medium. The tubes should be incubated at 55°C for 48 hours in a humid incubator.

Formula / Liter

Ingredients	Gms / Liter
Casein enzymic hydrolysate	10.00
Dextrose	5.00
Dipotassium phosphate	1.25
Yeast extract	1.00
Bromocresol purple	0.04
Final pH: 6.7 ± 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. Suspend 17.29 grams of the medium in one liter of distilled water.
2. Heat if necessary to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.





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Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Purple coloured, clear solution in tubes
Reaction of 1.73% Solution	pH : 6.7 ± 0.2 at 25°C
Gel Strength	Not Applicable

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

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Colour of the medium
1.	<i>Bacillus brevis</i> ATCC 8246	50-100	good-luxuriant (with or without dextrose fermentation)	yellow
2.	<i>Bacillus coagulans</i> ATCC 8038	50-100	good-luxuriant	yellow
3.	<i>Bacillus stearothermophilus</i> ATCC 7953	50-100	good-luxuriant	yellow

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

Test Procedure

Refer appropriate references for standard test procedures.

Results

Refer appropriate references and procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the 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. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Dextrose Tryptone Broth, Modified

Product Code : DM087

Available Pack sizes : 500gm

References

1. National Canners Association, 1933, Bacterial standards for sugar.
2. Williams O.B., 1936, Food Res., 1:217.
3. Cameron E.J., 1936, J.Assoc. Official Agr. Chem., 19:433.
4. Association of Official Analytical Chemists, 1978, Bacteriological Analytical Manual, 5th Edition, AOAC, Washington, D.C.





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5. American Public Health Association, 1972, Standard Methods for the Examination of Dairy Products, 13th Ed. APHA, Washington, D.C.
6. National Canners Association, 1968, Laboratory Manual for Food Caners and Processors, Vol. I.
7. American Public Health Association, 1976, Compendium of Methods for the Microbiological Examination of Foods, APHA, Washington, D.C.
8. National Canners Association, 1954, A Laboratory Manual for the Canning Industry, 1st Edition, National Canners Associations, Washington.
9. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.

Further Information

For further information please contact your local MICROMASTER Representative.



MICROMASTER LABORATORIES PRIVATE LIMITED

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Unit 38/39, Kalpataru Industrial Estate,
Off G.B. Road, Near 'R-Mall', Thane (W) - 400607. M.S. INDIA.
Ph: +91-22-25895505, 4760, 4681. Cell: 9320126789.

Email: micromaster@micromasterlab.com
sales@micromasterlab.com

	Checked By	Approved By
 01.01.2018	 01.01.2018	 01.01.2018
Microbiologist	Head Quality Control	Head Quality Assurance

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