



PRODUCT SPECIFICATION SHEET

Deoxycholate Citrate Agar Medium (DM577BS)

Intended Use

Deoxycholate Citrate Agar Medium (DM577BS) is recommended for isolation of *Shigella* species from food sample.

Product Summary and Explanation

Deoxycholate Citrate Agar Medium is a modification of Desoxycholate Agar formulated by Leifson.⁽¹⁾ The original medium of Leifson demonstrated improved recovery of intestinal pathogens from specimens containing normal intestinal flora by using citrates and sodium desoxycholate in specified amounts as inhibitors to gram-positive bacteria. Leifson modified his original medium by increasing the concentration of sodium citrate and sodium desoxycholate and found Desoxycholate Citrate Agar reliable for isolating many *Salmonella* and *Shigella* species. This selective medium in accordance with IS 5887 (1999) Part 7⁽²⁾ and is recommended for plating the growth obtained from Selenite F broth of Tetrathionate broth. Desoxycholate Citrate Agar effectively isolates intestinal pathogens *Salmonella* and *Shigella* species from foods and pharmaceutical products by inhibiting coliforms and many *Proteus* species.⁽³⁾ However, it is recommended to use less inhibitory medium when *Shigellae* have to be isolated.⁽⁴⁾

Principles of the Procedure

Deoxycholate Citrate Agar Medium contains meat extract and proteose peptone which provides nitrogen, mineral, vitamin factors required for enhanced growth of organisms. Lactose is a fermentable carbohydrate source. Neutral red acts as indicators, in presence of which lactose fermenters like coliform bacteria give pink colonies while lactose non-fermenters give colourless colonies. Sodium desoxycholate is inhibitory for gram-positive bacteria at pH 7.3 to 7.5. The reduction of ferric citrate to iron sulphide gives the indicative appearance of colonies with black center. Citrate salt, in the concentration included in the formulation, are inhibitory to gram-positive bacteria and most other normal intestinal organisms.

Formula / Liter

Ingredients	Gms / Liter
Meat extract	4.55
Proteose peptone	4.55
Lactose	9.09
Neutral Red	0.023
Sodium citrate	7.72
Sodium thiosulphate	7.72
Ferric Ammonium citrate	0.90
Sodium Desoxycholate	0.45
Agar	20.45
Final pH: 7.3 ± 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.
3. DO NOT REMELT. This medium is heat sensitive. Avoid excessive or prolonged heating during reconstitution.

Directions

1. Suspend 55.45 grams of medium in one litre of distilled water.
2. Heat to boiling to dissolve the medium completely.
3. DO NOT AUTOCLAVE.
4. Avoid excessive heating as it is detrimental to the medium.
5. Dry the surface medium before incubation.



PRODUCT SPECIFICATION SHEET

Quality Control Specifications

Dehydrated Appearance	Light yellow to pinkish beige coloured homogeneous free flowing powder
Prepared Medium	Reddish orange coloured, clear to slightly opalescent gel forms in Petri plates
Reaction of 5.55% solution	pH 7.3 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 2.045% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Sr. No.	Organisms	Results to be achieved				
		Inoculum (CFU)	Growth	Recovery	Color of colony	H ₂ S
1.	<i>Enterococcus faecalis</i> ATCC 29212	≥10 ³	inhibited	0%	--	--
2.	<i>Escherichia coli</i> ATCC 25922	50-100	poor	20-30%	pink with bile precipitate	negative reaction
3.	<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good-luxuriant	≥50%	colourless	positive reaction, black centered colonies
4.	<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	≥50%	colourless	positive reaction, black centered colonies
5.	<i>Shigella flexneri</i> ATCC 12022	50-100	good	40-50%	colourless	--
6.	<i>Shigella sonnei</i> ATCC 29930	50-100	good	40-50%	colourless	negative reaction
7.	<i>Escherichia coli</i> ATCC 8739	50-100	poor	20-30%	pink with bile precipitate	negative reaction
8.	<i>Escherichia coli</i> NCTC 9002	50-100	poor	20-30%	pink with bile precipitate	negative reaction

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

Test Procedure

1. Usually all foods which have received dry heat treatment, namely desiccation, dehydration or powdering shall be enriched in a non-inhibitory medium such as nutrient broth.
2. Raw foods and finished products which are suspected to be grossly contaminated after processing does not require pre-enrichment.
3. In sterile blender jar, blend approximately 200 ml Selenite F broth per approximately 25 grams of one portion of sample and 200 ml of tetrathionate broth per approximately 5 grams of another portion of the sample for 2 minutes or macerate with sterile sand in a sterile mortar.
4. Incubation is carried out at 37°C for 24 hours. Raw meat samples should be incubated at 43°C, rather than 37°C. Further, it can be plated on Deoxycholate Agar (DM577S)

Results



PRODUCT SPECIFICATION SHEET

1. Lactose fermenters produce a red colony with or without a bile precipitate.
2. Lactose non-fermenters produce transparent, colourless to light pink or tan coloured colonies with or without black centres.
3. *Salmonella* gives well-developed colourless colonies, while *Shigella* gives colourless colonies without black center indicating absence of H₂S production.
4. Precipitation of deoxycholate by acid produced by lactose fermenters may give a zone of precipitation around the colony.

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 : Deoxycholate Citrate Agar Medium

Product Code : DM577BS

Available Pack sizes : 100gm / 500gm

References

1. Leifson, 1935, J. Path. Bact., 40:581.
2. Bureau of Indian standard, IS 5887 (Part7) 1999. Methods for detection of bacteria responsible for food poisoning.
3. Speck M. (Eds.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
4. Frieker C.R., 1987, J. Appl. Bact., 63:99.

Further Information

For further information please contact your local MICROMASTER Representative.



MICROMASTER LABORATORIES PRIVATE LIMITED

Unit 38/39, Kalpataru Industrial Estate,

Off G.B. Road, Near 'R-Mall', Thane (W) - 400607. M.S. INDIA.

Ph: +91-9320126789/9833630009/9819991103

Email: sales@micromasterlab.com

DM577BSPSS, QAD/FR/024,Rev.00

Disclaimer :

All Products conform exclusively to the information contained in this and other related Micromaster Publications. Users must ensure that the product(s) is appropriate for their application, prior to use. The information published in this publication is based on research and development work carried out in our laboratory and is to the best of our knowledge true and accurate. Micromaster Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are intended for laboratory, diagnostic, research or further manufacturing use only and not for human or animal or therapeutic use, unless otherwise specified. Statements included herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

