Deoxycholate Citrate Agar BIS

Intended Use
Deoxycholate Citrate Agar is recommended for isolation of *Shigella* species from food samples in accordance with IS:5887 (Part 7):1999.

Summary
Deoxycholate Citrate Agar is a moderately selective and differential plating medium used for isolating enteric bacilli, particularly Salmonella and many Shigella species. This medium utilizes sodium deoxycholate and sodium citrate to selectively isolate target pathogens. The organisms are differentiated in this medium on the basis lactose fermentation and on their ability to reduce ferric ammonium citrate to iron sulphide. The medium is in accordance with IS 5887(Part VII), 1999.

Principle
The media contains meat extract and protease peptone which serves as a source of carbon and nitrogen. Lactose is the fermentable carbohydrate and neutral red as pH indicator helping in differentiation of enteric bacilli as lactose ferments produce red colonies while non lactose produces colorless colonies. Gram positive bacteria, coliforms and proteus species is inhibited due to sodium citrate and sodium deoxycholate. Ferric ammonium citrate aids in the detection of H_2S producing bacteria. If the bacteria produce H_2S, the colonies will have black centers. The majority of normal intestinal bacteria ferment lactose and do not produce H_2S (red colonies without black centers). Salmonella and Shigella spp. do not ferment lactose but Salmonella may produce H_2S (Colorless colonies with or without black centers). Lactose fermenting colonies may have a zone of precipitation around them caused by the precipitation of deoxycholate in the presence of acid.

Formula*

Ingredients	**g/L**
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 Deoxycholate	0.45
Agar	20.45
Final pH (at 25°C)	7.3±0.2

*Adjusted to suit performance parameters.

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2ºC-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of specimen
Food samples

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.
The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions

1. Suspend 55.45 g of the powder in 1000 mL purified / distilled water.
2. Heat to boiling to dissolve the powder completely. DO NOT AUTOCLAVE.
3. Avoid excessive heating as it is detrimental to the medium.
4. Cool to 45-50°C and pour into sterile petridishes.
5. Dry the surface medium before incubation.

Quality Control

Dehydrated Appearance: Light yellow to pinkish beige coloured granular medium
Prepared Appearance: Reddish orange coloured, clear to slightly opalescent gel forms in petridishes.
Growth Promotion Test: Growth promotion is carried out in accordance with the harmonized method of USP/EP/JP/IP and growth is observed after an incubation at 30°C-35°C for 18 to 24 hours.
Growth Promoting Properties: The test results observed are within the specified temperature and shortest period of time specified in the test, inoculating ≤ 100 cfu of appropriate microorganism at 30°C-35°C for 18 hours.
Indicative Properties: The test results observed are within the specified temperature and time, inoculating ≤ 100 cfu of appropriate microorganism.
Inhibitory Properties: No growth of the test microorganism occurs for the specified temperature and not less than the longest period of the time specified, inoculating >100 cfu of the appropriate microorganism at 30°C-35°C for ≥ 24 hours.

Growth Promoting + Indicative Organism (ATCC)	**Growth**	**Colour of Colonies/H_2S**
Salmonella enterica subsp. *enterica* serovar *Typhimurium* (14028)	Good	Colourless/+
Shigella flexneri serotype 2b (12022)	Good	Colourless/-
Inhibitory		
Enterococcus faecalis (29212)	Inhibited	-
Escherichia coli (25922)	Partial Inhibition	-

Key: H_2S: + Blackening of the central portion of the colony.
- No blackening.

Interpretation of results

1. Saccharolytic organisms usually produce acid and gas.
2. Proteolytic organisms generally cause blackening and dissolution of the meat particles.

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Precautions/Limitations

1. Observe the precautions about overheating shown under Directions.
2. The medium is best used freshly prepared.
3. Stock cultures of *Shigella* species may become predominantly in the R-phase when subcultured away from DCA media. Such cultures are difficult to use for control purposes without first heavily streaking the cultures on DCA plates and picking off the few S-phase colonies i.e. the macro-colonies on the agar surface, for further subculture.
4. When making biochemical tests on colonies picked from the surface of DCA plates, purity subcultures should be carried out because the colony may be contaminated with *Escherichia coli* present as micro-colonies.
5. Further Biochemical identification is required for confirmation of species.
6. Due to nutritional variations some organisms may show poor growth.

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. Leifson, 1935, J. Path. Bact., 40:581.
2. Speck M. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
3. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201040520100	Dehydrated Culture Media	100 g
201040040100	Dehydrated Culture Media	100 g
201040040500	Dehydrated Culture Media	500 g
201040070100	Dehydrated Culture Media (BP)	100 g
201040070500	Dehydrated Culture Media (BP)	500 g
203040170100	Bottle Media	100 mL