Deoxycholate Citrate Agar

Intended Use
Deoxycholate Citrate Agar is a selective medium used for isolation of enteric pathogens particularly *Salmonella* and *Shigella* species.

Summary
Deoxycholate Citrate Agar is a modification of Deoxycholate Agar formulated by Leifson, which demonstrates improved recovery of intestinal pathogens from specimens containing normal intestinal flora by using citrates and sodium deoxycholate in specified amounts as inhibitors of Gram-positive bacteria. In comparison, Deoxycholate Citrate Agar has increased concentrations of sodium citrate and sodium deoxycholate for reliably isolating many *Salmonella* and *Shigella* species while inhibiting coliforms and many *Proteus* species. This medium is used for the isolation and maximum recovery of intestinal pathogens belonging to *Salmonella* and *Shigella* groups from foods. The selectivity of this medium permits the use of fairly heavy inocula without danger of overgrowth of *Shigella* and *Salmonella* by other microflora. Deoxycholate Citrate Agar is recommended by APHA for the examination of foods and in the IP for use in Microbial Limit Test.

Principle
MX nutrient 4 is a source of carbon and nitrogen and is preferred because the inhibition of coliforms produced is greater than when an extract or simple peptone is used. Proteose peptone provides carbon, nitrogen, vitamins and minerals. Lactose is the fermentable carbohydrate. Sodium citrate and sodium deoxycholate inhibit gram-positive bacteria, coliforms and *Proteus* species. Ferric ammonium citrate aids in the detection of H_2S-producing bacteria. Neutral red is a pH indicator.
Bacteria that ferment lactose produce acid and form red colonies. Bacteria that do not ferment lactose form colourless colonies. Bacteria producing H_2S 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* species do not ferment lactose but *Salmonella* may produce H_2S (colourless 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**
Sodium Citrate	20.0
Proteose Peptone	10.0
MX Nutrients 4#	9.5
Lactose	10.0
Sodium Deoxycholate	5.0
Ferric Ammonium Citrate	2.0
Neutral Red	0.02
Agar	13.5
Final pH (at 25°C)	7.5 ± 0.2

*Adjusted to suit performance parameters.
#Equivalent to intended performance of Meat Infusion from 330g

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
Clinical- faeces
Food and dairy samples
Pharmaceutical samples
Water and Waste water 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 70.02 g of (the equivalent weight of dehydrated medium per litre) the powder in 1000 mL purified / distilled water.
2. Mix thoroughly.
3. Boil with frequent agitation to dissolve the powder completely. Avoid excessive heating, as it is detrimental to the medium. DO NOT AUTOCLAVE.

Quality Control

Dehydrated Appearance: Light pink coloured, homogenous, free flowing powder.
Prepared Appearance: Reddish orange coloured, clear to very 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

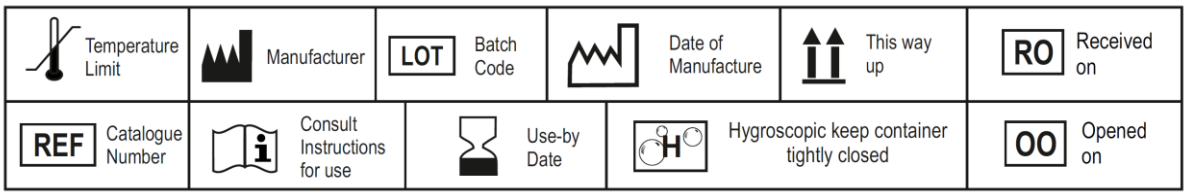
This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

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
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



Revision: 0725/VER-03

Disclaimer

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.