DEOXYCHOLATE CITRATE AGAR (7186)

Intended Use
Deoxycholate Citrate Agar is used for the isolation and differentiation of Gram-negative enteric bacilli.

Product Summary and Explanation
Deoxycholate Citrate Agar is a modification of Deoxycholate Agar formulated by Leifson.[1] His original formula, Deoxycholate Agar, was used for isolation of intestinal pathogens and enumeration of intestinal pathogens in milk and water.[1] Deoxycholate Agar was an improvement over other media because citrates and sodium deoxycholate worked well as inhibitors.

Leifson modified the original medium by increasing the concentration of Sodium Citrate and Sodium Deoxycholate for improved recovery of *Salmonella* spp. and *Shigella* spp. Deoxycholate Citrate Agar effectively isolates intestinal pathogens by inhibiting coliforms and many *Proteus* spp. This medium is used to screen *Salmonella* spp. and *Shigella* spp. from clinical specimens.[2]

Principles of the Procedure
Pork Infusion Solids and Enzymatic Digest of Animal Tissue are the nitrogen and vitamin sources in Deoxycholate Citrate Agar. Lactose is the fermentable carbohydrate. Sodium Deoxycholate and Sodium Citrate inhibit growth of Gram-positive bacteria, coliforms and *Proteus* spp. Ferric Citrate aids in the detection of H_2S producing bacteria. Neutral Red is a pH indicator. Agar is the solidifying agent.

In the presence of Neutral Red, bacteria that ferment lactose produce acid and form red colonies. Bacteria that do not ferment lactose form colorless colonies. If bacteria produce H_2S, 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* spp. 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 / Liter
Pork Infusion Solids	10 g
Enzymatic Digest of Animal Tissue	10 g
Lactose	10 g
Sodium Citrate	20 g
Ferric Citrate	1 g
Sodium Deoxycholate	5 g
Neutral Red	0.02 g
Agar	17 g

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.
2. IRRITANT. Irritating to eyes, skin, and respiratory system.

Directions
1. Suspend 73 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. AVOID OVERHEATING.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and beige to pink-beige.

Prepared Appearance: Prepared medium is trace to slightly hazy, and light to medium pinkish-orange.

Expected Cultural Response: Cultural response on Deoxycholate Citrate Agar incubated aerobically at 35 ± 2°C and examined for growth after 18 - 24 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results	
		Growth	Reaction
Enterococcus faecalis ATCC® 29212	1000	Inhibition	---
Escherichia coli ATCC® 25922	1000	Partial to complete inhibition	Pink ± bile precipitate, where recovered
Salmonella typhimurium ATCC® 14028	10 - 300	Growth	Colorless
Shigella flexneri ATCC® 12022	10 - 300	Growth	Colorless

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

Test Procedure
Inoculate specimen directly onto surface of medium. Incubate plates at 35 ± 2°C for 18 - 24 hours. Plates can be incubated for an additional 24 hours if no lactose fermentation is observed.

Results
Non-lactose fermenters produce transparent, colorless to light pink or tan colored colonies with or without black centers. Lactose fermenters produce a red colony with or without a bile precipitate.

Storage
Store dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure
1. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
2. Coliforms may grow on this medium, making it difficult to detect pathogens. Heavy inocula should be distributed over the entire surface of the medium to prevent complete masking of pathogens by coliforms.

Packaging
Deoxycholate Citrate Agar	**Code No.**	**7186A**	**500 g**
		7186B	**2 kg**
		7186C	**10 kg**

References

1. **Leifson, E.** 1935. New culture media based on sodium desoxycholate for the isolation of intestinal pathogens and for the enumeration of colon bacilli in milk and water. J. Pathol. **40**:581-599.
2. **Murray, P. R., E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Yolken (eds.).** Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.

Technical Information
Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.

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