

User Quality Control

Identity Specifications

Difco™ Desoxycholate Agar

Dehydrated Appearance:	Pinkish beige, free-flowing, homogeneous.
Solution:	4.5% solution, soluble in purified water upon boiling. Solution is reddish-orange, slightly opalescent.
Prepared Appearance:	Orange, slightly opalescent.
Reaction of 4.5% Solution at 25°C:	pH 7.3 ± 0.2

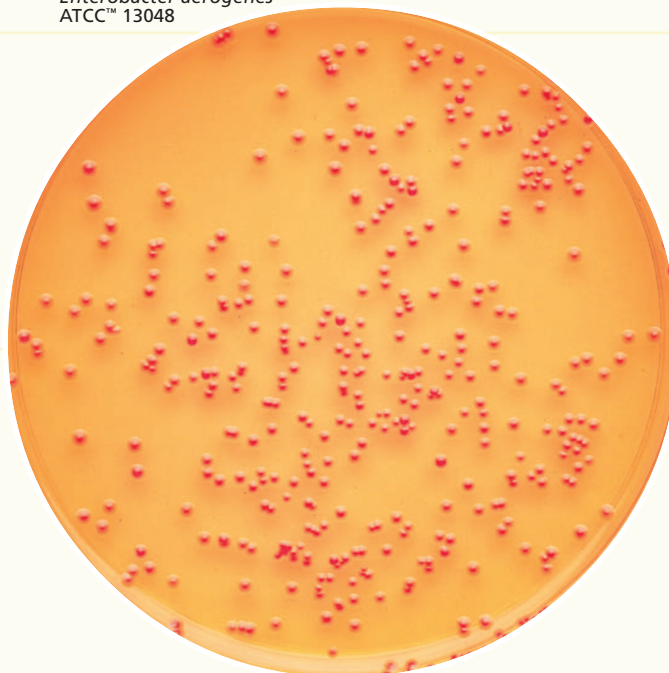
Cultural Response

Difco™ Desoxycholate Agar

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 18-24 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	COLONY COLOR
<i>Enterococcus faecalis</i>	29212	10 ³ -2 × 10 ³	Marked inhibition	–
<i>Escherichia coli</i>	25922	30-300	Good	Pink w/bile precipitate
<i>Salmonella choleraesuis</i> subsp. <i>choleraesuis</i> serotype Typhimurium	14028	30-300	Good	Colorless

Enterobacter aerogenes
ATCC™ 13048



Procedure

For a complete discussion on the isolation of enteric bacilli, refer to appropriate procedures outlined in the references.²⁻⁴

Expected Results

Refer to appropriate references and procedures for results.²⁻⁴

References

- Leifson. 1935. J. Pathol. Bacteriol. 40:581.
- Grasmick. 1992. In Isenberg (ed.), Clinical microbiology procedures handbook, vol. 1. American Society for Microbiology, Washington, D.C.
- Clesceri, Greenberg and Eaton (ed.). 1998. Standard methods for the examination of water and wastewater, 20th ed. American Public Health Association, Washington, D.C.
- Downes and Ito (ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.

Availability

Difco™ Desoxycholate Agar

COMPF **SMWW**

Cat. No. 227310 Dehydrated – 500 g

Europe

Cat. No. 254010 Prepared Plates – Pkg. of 20*

Japan

Cat. No. 251550 Prepared Plates – Pkg. of 20*

251507 Prepared **RODAC™** Plates – Pkg. of 30*

*Store at 2-8°C.

Desoxycholate Citrate Agar

Intended Use

Desoxycholate Citrate Agar is a moderately selective and differential plating medium used for isolating enteric bacilli, particularly *Salmonella* and many *Shigella* species.

Summary and Explanation

Desoxycholate Citrate Agar is a modification of Desoxycholate Agar formulated by Leifson.¹ His original medium 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.¹

Desoxycholate Citrate Agar effectively isolates intestinal pathogens (*Salmonella* and *Shigella* species) by inhibiting coliforms and many *Proteus* species.

Principles of the Procedure

Infusion from meat is a source of carbon and nitrogen. This ingredient is used because the inhibition of coliforms produced is greater than when an extract or simple peptone is used.¹ Peptone provides carbon, nitrogen, vitamins and minerals. Lactose is the fermentable carbohydrate. Sodium citrate and sodium desoxycholate inhibit gram-positive bacteria, coliforms and *Proteus* species. Ferric ammonium citrate aids in the detection of H₂S-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

User Quality Control

Identity Specifications

Difco™ Desoxycholate Citrate Agar

Dehydrated Appearance:	Pinkish-beige, free-flowing, homogeneous.
Solution:	7.0% solution, soluble in purified water upon boiling. Solution is orange-red, very slightly to slightly opalescent.
Prepared Appearance:	Orange-red, slightly opalescent.
Reaction of 7.0% Solution at 25°C:	pH 7.5 ± 0.2

Cultural Response

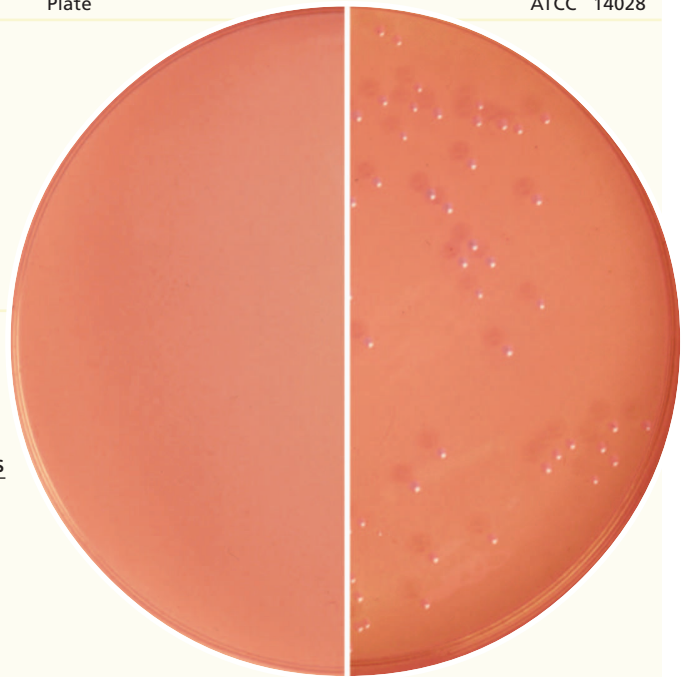
Difco™ Desoxycholate Citrate Agar

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 18-24 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	COLONY COLOR	H ₂ S
<i>Enterococcus faecalis</i>	29212	10 ³ -2 × 10 ³	Marked to complete inhibition	–	–
<i>Escherichia coli</i>	25922	10 ² -10 ³	Partial to complete inhibition	Pink with bile precipitate	–
<i>Salmonella choleraesuis</i> subsp. <i>choleraesuis</i> serotype Typhimurium	14028	10 ² -10 ³	Fair to good	Colorless	+
<i>Shigella flexneri</i>	12022	10 ² -10 ³	Fair	Colorless	–

Uninoculated Plate

Salmonella typhimurium ATCC™ 14028



ferment lactose form colorless colonies. If the bacteria produce H₂S, the colonies will have black centers. The majority of normal intestinal bacteria ferment lactose and do not produce H₂S (red colonies without black centers). *Salmonella* and *Shigella* spp. do not ferment lactose but *Salmonella* may produce H₂S (colorless colonies with or without black centers). Lactose-fermenting colonies may have a zone of precipitation around them caused by the precipitation of desoxycholate in the presence of acid.

Formula

Difco™ Desoxycholate Citrate Agar

Approximate Formula* Per Liter	
Meat, Infusion from 330 g	9.5 g
Proteose Peptone No. 3	10.0 g
Lactose	10.0 g
Sodium Citrate	20.0 g
Ferric Ammonium Citrate	2.0 g
Sodium Desoxycholate	5.0 g
Agar	13.5 g
Neutral Red	0.02 g

*Adjusted and/or supplemented as required to meet performance criteria.

Directions for Preparation from Dehydrated Product

- Suspend 70 g of the powder in 1 L of purified water. Mix thoroughly.
- Heat with frequent agitation and boil for 1 minute to completely dissolve the powder. Avoid overheating. DO NOT AUTOCLAVE.
- Test samples of the finished product for performance using stable, typical control cultures.

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 fermenters are observed.

Expected Results

Lactose nonfermenters 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.

Limitations of the Procedure

- Coliform strains may be encountered that will 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 coliform organisms.

Reference

- Leifson. 1935. J. Pathol. Bacteriol. 40:581.

Availability

Difco™ Desoxycholate Citrate Agar

EP

Cat. No. 227410 Dehydrated – 500 g