Deoxycholate Citrate Agar

Cat. 1067

Moderately selective and differential medium for the isolation of enteric pathogens, especially Salmonella and many Shigella species.

Practical information

Aplications	Categories
Selective isolation	Salmonella
Detection	Salmonella
Detection	Shigella

Industry: Pharmaceutical/Veterinary / Clinical / Food

CE IVD

Principles and uses

Deoxycholate Citrate Agar is a modification of Desoxycholate Agar Leifson's formula and is ideal for the investigation of pathogenic Enterobacteria in highly contaminated foods. It is particularly useful in isolating Salmonella and many Shigella spp.

The Gram-positive organisms, coliforms and many Proteus spp. are highly inhibited by the increased concentration of sodium citrate and sodium deoxycholate. Ferric citrate aids in the detection of H2S production. Meat peptone and beef extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Lactose is the fermentable carbohydrate. Neutral red is a pH indicator. Bacteriological agar is the solidifying agent.

It is used in conjunction with Brilliant Green Tetrathionate Bile Broth (Cat. 1253) as a confirmation of Salmonella spp.

Lactose-fermenting bacteria form red colonies in the presence of Neutral red. Lactose-fermenting colonies may have a deoxycholate precipitation zone around them. Lactose non-fermenters will appear as colorless colonies. H2S producers will have black centers. Salmonella typhi, S. paratyphi and Shigella types yield well-developed colorless colonies while lactose-positive organisms like Escherichia coli are pink to red. A previous enrichment in Selenite Cystine Broth (Cat. 1220) or Sodium Selenite Broth (Cat. 1222) can also be used.

Formula in g/L

Bacteriological agar	13,5	Beef extract	10
Meat peptone	10	Neutral red	0,02
Sodium citrate	20	Sodium deoxycholate	5
Ferric citrate	1	Lactose monohydrate	10

Preparation

Suspend 69,5 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. AVOID OVERHEATING. DO NOT AUTOCLAVE. Cool to 45-50 ºC, mix well and dispense into plates.

Instructions for use

» For clinical diagnosis, the type of samples are feces:

- Streak in parallel the surface of the plate with a loop or swab.
- Incubate at 35±2 °C for 18-24 hours.
- Reading and interpreting the results.

» For other uses not covered by the CE marking:

Detection of Salmonella in pharmaceutical products:
- Pre-enrich the sample in Trypticasein Soy Broth (Cat. 1224) homogenize and incubate at 35-37ºC for 18-24 hours.
- Transfer 1 ml of the enriched culture to 10 ml of Brilliant Green Tetrathionate Bile Broth (Cat. 1253) and incubate at 41-43ºC for 18-24 hours.
- Subculture and incubate at 35-37 ºC for 18-72 hours to at least 2 of the following media for confirmation of Salmonella spp.: Desoxycholate Citrate Agar (Cat. 1067); XLD Agar (Cat. 1080) or Brilliant Green Agar (Cat. 1078).

- The probable presence of salmonellae in Desoxycholate Citrate Agar is indicated by the growth of cultures having the following appearance in this medium: well-developed and colourless colonies.
- Confirmation may be carried out by appropriate biochemical and serological test.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Pinkish-beige	Red-orange	7,5 ± 0,2

Microbiological test

Incubation conditions:: (35±2ºC / 18-24 h).

Microrganisms	Specification	Characteristic reaction
Shigella flexneri ATCC 12022	Crecimiento moderado	Colorless colonies, H2S (-)
Salmonella enteritidis ATCC 13076	Good growth	Colorless colonies, H2S (+)
Salmonella typhimurium ATCC 14028	Good growth	Colorless colonies, H2S (+)
Enterococcus faecalis ATCC 19433	Inhibition	
Escherichia coli ATCC 25922	Partial inhibition	Pink with bile precipitate, H2S (-)

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

European Pharmacopoeia, 6th Ed. 2007
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. Bacteriol. 40: 581-599.
Farmer III, J.J. and MT. Kelly. 1991 Enterobacteriaceae. P. 360-383. In A. Balows, W. J. Hausler, Jr., K.L. Hermann, H.D. Isenberg and H.J. Shadomy (ed.), Manual of clinical microbiology, 5th ed. American Society for Microbiology..