Technical Information

Deoxycholate Citrate Agar w/ 1.5% Agar

Product Code: DM 2639

Application: - Deoxycholate Citrate Agar w/ 1.5% Agar is a selective medium used for the isolation of enteric pathogens.

Composition**

Ingredients	Gms / Litre
Beef extract	5.000
Peptic digest of anmal tissue	5.000
Lactose	10.000
Sodium deoxycholate	2.500
Sodium citrate	5.000
Sodium thiosulphate	5.000
Ferric citrate	1.000
Neutral red	0.025
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Deoxycholate Lactose Agar is a modification of Deoxycholate Agar as described by Leifson (1) and prepared according to formula specified in Standard Methods for Examination of Dairy Products (2) Water and Waste Water (3) and Food (4) for the detection of coliform bacilli. It differs from Deoxycholate Agar (DM1030) by its decreased concentration of sodium deoxycholate. Deoxycholate Citrate Agar w/ 1.5% Agar is similar to but less selective and inhibitory than Deoxycholate Lactose Agar. However, the colonial characteristics are identical on the two media. The less inhibitory media is often preferable when Shigellae are being sought as well as Salmonellae (5).

Beef extract and peptone acts as the sources of essential nutrients. Coliforms as well as gram-positive bacteria are greatly suppressed due to the presence of sodium deoxycholate, sodium citrate and ferric citrate. Lactose is the fermentable carbohydrate in the medium. Lactose fermenters utilize lactose and produce acidic conditions around the lactose fermenting colony. This acidity causes the pH indicator, neutral red, to change its colour to red. hese colonies usually are also surrounded by a turbid zone of precipitated deoxycholic acid due to acidification of the medium. Sodium deoxycholate combines with neutral red in an acidic environment, causing the dye to go out of the solution with the subsequent precipitation of deoxycholate (1). The reduction of sodium thiosulphate to sulfide is indicated by the formation of black iron sulfide. *Salmonella* and *Shigella* species do not ferment lactose but *Salmonella* may produce H_2S forming colorless colonies with or without black centers.

Citrate and iron (Fe) combination has a strong hydrolyzing effect on agar when the medium is heated, producing a soft and unelastic agar. If autoclaved the agar becomes soft and almost impossible to streak (1).

Methodology

Suspend 48.52 grams of dehydrated media in 1000 ml of distilled water. Mix thoroughly & heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Avoid excessive or prolonged heating as it is detrimental to the medium.

Quality Control

Appearance
Light yellow to pink homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity
Reddish orange coloured, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.85% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH Range
6.80-7.20

Cultural Response
DM2639: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response				
Bacillus subtilis ATCC 6633	>=10^3	inhibited	0%	-
Escherichia coli ATCC 25922	50-100	good-luxuriant	>=50%	pink w/bile precipitate
Enterobacter aerogenes ATCC 13048	50-100	good-luxuriant	>=50%	pink
Enterococcus faecalis ATCC 29212	>=10^3	inhibited	0%	-
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	>=50%	colourless

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1.,, Leifson, 1935, J. Path. Bact., 40:581.
2. Richardson, (Eds.), 1985, Standard Methods for the Examination of Dairy products, 15th Ed. APHA, Washington, D.C.
3. Greenberg A. E., Eaton A. D., Clesceri L. S., (Eds.), 1998, Standard Methods for the Examination of Water and Waste Water, 20th Ed., APHA, Washington, D.C.
4. Speck M. L., (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
5. Frieker C.R., 1987, J. Appl. Bact., 63:99.

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