DCLS AGAR

- For in vitro use only - Catalogue No. PD27

Our Desoxycholate Citrate Lactose Sucrose (DCLS) Agar is a selective, differential medium used for the isolation of gram-negative enteric bacilli and more specifically *Shigella* and *Salmonella* species.

DCLS Agar was devised by Leifson in 1935 and is an improvement on his earlier desoxycholate agar. The difference between the two mediums is the inclusion of the inhibitor, sodium citrate, and the addition of the carbohydrate, sucrose (saccharose). Sodium citrate makes the medium more selective and sucrose improves the differential properties of the medium; uninhibited, sucrose-fermenting organisms produce red colonies while *Shigella* and *Salmonella* species grow as colorless to pink colonies. The red colonies are easily recognized thereby reducing the number of false-positive reactions.

Oxoid™ Special peptone is the main nutritional component in the medium as it provides all the essential amino acids, vitamins, and minerals required by bacteria for sustained growth. Two fermentable carbohydrates are also present in the medium, lactose and sucrose. Sodium citrate and sodium desoxycholate are the inhibitors contained in the medium; the high concentration of these two inhibitors suppresses both gram-positive organisms and coliform bacteria. Neutral red is the pH indicator that detects acid production from carbohydrate fermentation.

Formula per Litre of Medium

Oxoid™ Special Peptone	10.0 g
Sodium Citrate	10.5 g
Sodium Thiosulfate	5.0 g
Lactose	5.0 g
Sucrose	5.0 g
Sodium Desoxycholate	2.5 g
Neutral Red	0.03 g
Agar	15.0 g

pH 7.2 ± 0.2

Recommended Procedure

1. Allow medium to reach room temperature.
2. Using a direct inoculum from the specimen, perform a four-quadrant streak to obtain well-isolated colonies.
3. Incubate aerobically at 35°C.
4. Examine after 24 hours. If negative, reincubate plates for an additional 24 hours.

Interpretation of Results

Lactose and sucrose non-fermenters, such as *Shigella* and *Salmonella* species, will produce translucent, colorless to pink colonies on DCLS Agar.

Lactose and sucrose fermenters, such as *Proteus* and *Enterobacter* species, if uninhibited, will grow as distinct red colonies on DCLS Agar.

Gram-positive organisms are completely inhibited on DCLS Agar, but *Vibrio* species can also grow well on this medium.

Additional biochemical or serological tests should be performed on isolated colonies from pure culture in order to complete identification.

Quality Control

After checking for correct pH, color, depth, and sterility, the following organisms are used to determine the growth performance of the completed medium.

Organism	Expected Result
Salmonella typhimurium ATCC 14028	Growth, colorless or pink colonies
Escherichia coli ATCC 25922	Partial inhibition
Staphylococcus aureus ATCC 25923	Partial to complete inhibition

Storage and Shelf Life

Our DCLS Agar should be protected from light and stored at 4°C to 8°C. The medium side should be uppermost to prevent excessive accumulation of moisture on the agar surface. Under these conditions the medium has an 8 week shelf life from the date of manufacture.

References

1. Leifson, E. 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 1935; 40:581.
2. Hajna AA, Damon SR. New enrichment and plating medium for the isolation of *Salmonella* and *Shigella* organisms. Appl Microbiol 4:341.
3. MacFaddin JF. Media for isolation-cultivation-maintenance of medical bacteria, Vol I. Baltimore: Williams & Wilkins, 1985.
4. Isenberg HD, Ed. Clinical microbiology procedures handbook. Washington, DC: ASM, 1992.

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