



DEOXYCHOLATE CITRATE AGAR

TM 369

INTENDED USE

For isolation of enteric pathogens especially *Salmonella* and *Shigella* species

COMPOSITION

Ingredients	Gms/Ltr.
Sodium citrate	20.000
Agar	13.500
Heart Infusion solids	10.000
Proteose peptone	10.000
Lactose	10.000
Sodium deoxycholate	5.000
Ferric ammonium citrate	2.000
Neutral red	0.020

PRODUCT SUMMARY AND EXPLANATION

Deoxycholate Citrate Agar is prepared as per the modified formula of Leifson. This medium is used for the isolation and maximum recovery of intestinal pathogens belonging to *Salmonella* and *Shigella* groups from foods. 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 samples. The selectivity of this medium permits the use of fairly heavy inocula without danger of overgrowth of *Shigella* and *Salmonella* by other microflora. For the routine examination of stool and urine specimens, it is suggested that other media such as MacConkey Agar, Bismuth Sulphite Agar etc. be used in conjunction with this medium.

PRINCIPLE

Heart Infusion solids is a source of carbon and nitrogen and this ingredient is used because the inhibition of coliforms produced is greater than when an extract or simple peptone is used. Proteose peptone provides carbon, nitrogen, vitamins and minerals. Coliform bacteria and gram-positive bacteria are inhibited or greatly suppressed due to sodium deoxycholate, sodium citrate and ferric ammonium citrate. Dipotassium phosphate buffers the medium. Lactose helps in differentiating enteric bacilli, as lactose fermenters produce red colonies while lactose non-fermenters produce colourless colonies. Coliform bacteria, if present form pink colonies on this medium. The degradation



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of lactose causes acidification of the medium surrounding the relevant colonies and the pH indicator neutral red changes its colour to red.

INSTRUCTION FOR USE

1. Suspend 70.52 grams in 1000 ml of distilled water.
2. Heat to boiling to dissolve the medium completely.
3. DO NOT AUTOCLAVE.
4. Avoid excessive heating as it is detrimental to the medium.
5. Cool to 45-50°C.
6. Mix well and pour into sterile petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder: Light yellow to pinkish beige colour, homogeneous free flowing powder

Appearance of prepared medium: Reddish orange colour, clear to slightly opalescent gel

pH (at 25°C) : 7.5 ± 0.2

INTERPRETATION:

Culture characteristics observed after incubation period of 18 - 24 hours at $35 \pm 2^\circ\text{C}$.

Microorganisms	ATCC	*Inoculum (CFU)	Appearance of colony	H ₂ S production	Standard recovery (%)
<i>Salmonella enteritidis</i>	13076	50-100	Colourless	Positive, black centered colonies	$\geq 50\%$
<i>Salmonella typhimurium</i>	14028	50-100	Colourless	Positive, black centered colonies	$\geq 50\%$
<i>Shigella flexneri</i>	12022	50-100	Colourless	Negative	40 - 50%
<i>Escherichia coli</i>	25922	50-100	Pink w/ bile ppt.	Negative	20 - 30%
<i>Staphylococcus aureus</i>	25923	≥ 1000	-----	-----	0%
<i>Enterococcus faecalis</i>	29212	≥ 1000	-----	-----	0%

STORAGE & STABILITY

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct Sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space

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provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

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. Speck M. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
3. Frierker C.R., 1987, J. Appl. Bact., 63:99.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.