

## Deoxycholate agar

Deoxycholate Agar is used as a differential medium for the direct count of coliforms in dairy products. Also used for the isolation of enteric pathogens from rectal swabs, faeces and other pathological specimens.

REF: BS.1/DY01.100.0100	100 Gram	REF: BS.1/DY01.250.0250	250 Gram
REF: BS.1/DY01.500.0500	500 Grams		

### CLINICAL SIGNIFICANCE

Deoxycholate Agar is prepared as per the formulation by Leifson (4). This media is used for the isolation and maximum recovery of intestinal pathogens belonging to Salmonella and Shigella species (6). The selectivity of medium permits the use of fairly heavy inocula without danger of overgrowth of the Shigella and Salmonella by other microflora. For the routine examination of stool and urine specimens, it is recommended that other media such as MacConkey Agar (M082), Bismuth Sulphite Agar (M027) etc. be used in conjunction with this medium. It can also be used to streak specimen from Selenite Broth cultures. This is particularly recommended for the detection of Shigella and Salmonella in the examination of rectal swabs and faeces. These organisms produce colourless colonies on this medium.

### METHOD PRINCIPLE

Peptone provides carbon, nitrogen, long chain amino acids, vitamins and minerals. Coliform bacteria and gram-positive bacteria are inhibited or greatly suppressed due to sodium deoxycholate and sodium citrate. Sodium chloride maintains the osmotic balance of the medium while 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 of lactose causes acidification of the medium surrounding the relevant colonies and the pH indicator neutral red changes its colour to red. These 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 (4). 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 (4). Surface colonies of non-lactose fermenters often absorb a little colour (pinkish) from the medium and organisms may be mistaken for coliforms (4).

### MEDIA COMPOSITION

Item	Formula per liter of medium
Peptone	10.00 gm.
Lactose	10.00 gm.
Sodium deoxycholate	1.000 gm.
Sodium chloride	5.000 gm.
Dipotassium phosphate	2.000 gm
Ferric citrate	1.000 gm
Sodium citrate	1.000 gm
Neutral red	0.030 gm
Agar	15.000 gm.

Final pH 7.3 ± 0.2 at 25°C

### PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do

not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.  
**S56:** dispose of this material and its container at hazardous or special waste collection point.  
**S57:** use appropriate container to avoid environmental contamination.  
**S61:** avoid release in environment.

For further information, refer to the Deoxycholate agar material safety data sheet.

### STORAGE AND STABILITY

**BioScien** Deoxycholate Agar should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

### PREPARATION

- Suspend 45 grams in 1000 ml distilled water.
- Adjust pH to 7.3 ± 0.2 at 25°C.
- Heat to boiling to dissolve the medium completely.
- DO NOT AUTOCLAVE. Avoid excessive or prolonged heating during reconstitution.
- Cool to 45-50°C. Mix well and pour into sterile Petri plates.

### Deterioration

The color of **BioScien** Deoxycholate agar is Light yellow to pink homogeneous free flowing powder. Prepared Media is Reddish orange coloured, clear to slightly opalescent gel. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for hydrated media, discard the medium.

### SPECIMEN

Clinical: Stool and urine specimens

Food: Dairy products









## EQUIPMENT REQUIRED NOT PROVIDED

- Inoculating loops, swabs, collection containers
- Incubators
- Petri dish

## PERFORMANCE CHARACTERISTICS

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

Organism	Result	Colony color
<i>Salmonella Typhi</i> ATCC 6539	Luxuriant	colorless
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923	inhibited	-
<i>Enterococcus faecalis</i> ATCC 29212	inhibited	-
<i>Escherichia coli</i> ATCC 25922	good	pink with bile precipitate
<i>Salmonella Enteritidis</i> ATCC 13076	Good-luxuriant	colorless
<i>Salmonella Typhimurium</i> ATCC 14028	Good-luxuriant	colorless
<i>Shigella flexneri</i> ATCC 12022	good	colorless

SYMBOLS IN PRODUCT LABELLING	
 LOT	Batch Code/Lot number
 REF	Catalogue Number
	Temperature Limitation
	Expiration Date
	Manufactured by
	Caution
	Do not use if package is damaged
	Consult Instruction for use

## QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact **BioScien** technical support.

## REFERENCES

1. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
2. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. (2015). Manual of Clinical Microbiology, 11th Edition. Vol. 1. Revision : 03 / 2018
3. Lepage S., Shelton J. and Mitchell T., 1970, Methods in Microbiology', Norris J. and Ribbons D., (Eds.), Vol. 3A, Academic Press, London.
4. Leifson, 1935, J. Path. Bacteriol., 40:581.
5. MacFaddin J. F., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd Ed., Lippincott, Williams and Wilkins, Baltimore.
6. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.