TM 369 – DEOXYCHOLATE CITRATE AGAR

INTENDED USE

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

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. However, it is recommended to use less inhibitory medium when *Shigella* have to be isolated. The selectivity of this medium permits the use of fairly heavy innocula 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. This medium is similar to deoxycholate agar in comparison but is moderately more selective for enteric pathogens owing to increased concentrations of both citrate and deoxycholate salts. Sodium deoxycholate at pH 7.3 to 7.5 is inhibitory for gram positive bacteria. Citrate salts, in the concentration included in the formulation, are inhibitory to gram-positive bacteria and most other normal intestinal organisms.

COMPOSITION

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

PRINCIPLE

The medium consists of Heart infusion solids which 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. 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. The reduction of ferric ammonium citrate to iron sulfide is indicated by the formation of black iron sulfide.

INSTRUCTION FOR USE

- Dissolve 70.52 grams in 1000 ml purified/distilled water.
- 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.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Light yellow to pinkish beige homogeneous free flowing powder.
Appearance of prepared medium : Reddish orange coloured, clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C) : 7.5 ± 0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	H_2S	Incubation Temperature	Incubation Period
Enterococcus faecalis	29212	>=10^3	Inhibited	0%	-	-	35-37°C	18-24 Hours
Escherichia coli	25922	50-100	Poor	20-30%	Pink with bile precipitate	Negative reaction	35-37°C	18-24 Hours
Salmonella Enteritidis	13076	50-100	Good-luxuriant	>=50%	-	Positive reaction, black centered colonies	35-37°C	18-24 Hours
Salmonella Typhimurium	14028	50-100	Good-luxuriant	>=50%	Colourless	Positive reaction, black centered colonies	35-37°C	18-24 Hours
Shigella flexneri	12022	50-100	Good	40-50%	Colourless	-	35-37°C	18-24 Hours
Escherichia coli	8739	50-100	Poor	20-30%	Pink with bile precipitate	Negative reaction	35-37°C	18-24 Hours
Staphylococcus aureus subsp. aureus	25923	>=10^4	Inhibited	0%	-	-	35-37°C	18-24 Hours

PACKAGING:

In pack size of 100 gm and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°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 provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

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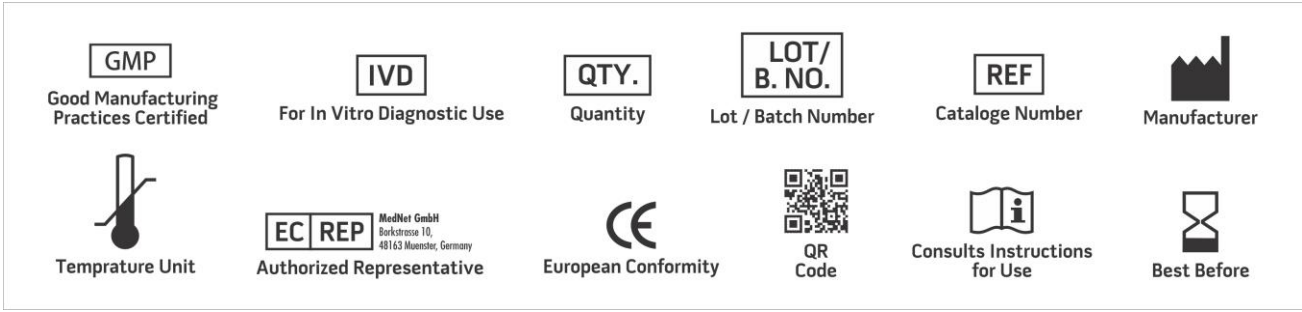
4. Leifson, 1935, J. Path. Bact., 40:581.
5. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.



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

***For Lab Use Only**

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