



Deoxycholate Citrate Agar (Agar Medium J)

ME065

Intended Use:

Recommended for selective isolation of enteric pathogens in accordance with EP.

Composition**

Ingredients	g / L
HM peptone\$	10.000
HM peptone B #	10.000
Lactose monohydrate	10.000
Sodium citrate	20.000
Neutral red	0.020
Sodium deoxycholate	5.000
Ferric citrate	1.000
Agar	13.500
pH after heating	7.3±0.2

**Formula adjusted, standardized to suit performance parameters
Equivalent to Beef extract \$ Equivalent to Meat extract B

Directions

Suspend 69.02 grams (the equivalent weight of dehydrated medium per litre) in 1000 ml of purified/distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Avoid excessive heating, as it is detrimental to the medium. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Deoxycholate Citrate Agar Medium is prepared as per the modified formula of Leifson (1). This medium is recommended by European Pharmacopoeia, 2008 and is also designated as Agar medium J (2). This medium is used for the isolation and maximum recovery of intestinal pathogens belonging to *Salmonella* and *Shigella* groups from foods and pharmaceutical products (3). However, it is recommended to use less inhibitory medium when Shigellae have to be isolated (4). *Salmonella* major causative agent of enteric disease especially food borne toxic infection and typhoid was first observed by Eberth in 1880. This medium is routinely used to check the presence of *Salmonella* contamination in food and pharmaceutical products as per EP 2008.

Sodium deoxycholate at pH 7.3 to 7.5 is inhibitory for gram-positive bacteria. *Proteus* and other Gram positive organisms are also inhibited due to higher concentration of both citrate and deoxycholate salts in this medium. The reduction of ferric citrate to iron sulphide gives the indicative appearance of colonies with black center. Citrate salt, in the concentration included in the formulation, are inhibitory to gram-positive bacteria and most other normal intestinal organisms. Combination of HM peptone and HM peptone B supplies nitrogen, mineral, vitamin factors required for enhanced growth. Lactose monohydrate supplies fermentable carbohydrate source in this medium. Neutral red acts as indicators, in presence of which lactose fermenters like coliform bacteria give pink colonies while lactose non-fermenters give colourless colonies. *Salmonella* gives well-developed colourless colonies, while *Shigella* gives colourless colonies without black center indicating absence of H₂S production. Precipitation of deoxycholate by acid produced by lactose fermenters may give a zone of precipitation around the colony. This medium provides essential growth factors for growth of several auxotrophic strains of Paratyphi and Typhi. The selectivity of this medium permits the use of fairly heavy inocula without danger of overgrowth of *Shigella* and *Salmonella* by other microflora.

Type of specimen

Pharmaceutical samples

Specimen Collection and Handling

Follow appropriate techniques for handling specimens as per established guidelines (2). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Further biochemical identification is required for confirmation of species.
2. Due to nutritional variations some organisms may show poor growth.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Light yellow to pinkish beige homogeneous free flowing powder

Gelling

Firm, comparable with 1.35% Agar gel.

Colour and Clarity of prepared medium

Reddish orange coloured clear to slightly opalescent gel forms in Petri plates

pH

7.10-7.50

Growth Promotion Test

Growth Promotion is carried out in accordance with EP.

Cultural Response

Cultural response was observed after an incubation at 35-37°C for 18-72 hours. Recovery rate is considered as 100% for bacteria growth on Soyabean Casein Digest Agar.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Test for <i>Salmonella</i>				
<i>Salmonella</i> Typhimurium ATCC 14028 (00031*)	50 -100	luxuriant	≥50 %	colourless colonies
<i>Salmonella</i> Abony NCTC 6017 (00029*)	50 -100	luxuriant	≥50 %	colourless colonies
Additional Microbiological testing				
<i>Salmonella</i> Enteritidis ATCC 13076 (00030*)	50 -100	luxuriant	≥50 %	colourless colonies
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	≥10 ³	inhibited	0%	
<i>Escherichia coli</i> ATCC 8739 (00012*)	50 -100	poor	20 -30 %	pink with bile precipitate

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in 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.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (5,6).

Please refer disclaimer Overleaf.

Reference

1. Leifson, 1935, J. Path. Bact., 40:581.
2. European Pharmacopoeia, 2022, 10 th volume, European Directorate for the quality of medicines & Healthcare.
3. 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.
4. Frieker C.R., 1987, J. Appl. Bact., 63:99.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
6. 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 : 03/2025

Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.