Agar medium J
(agar medium Desoxycholate-Citrate)

356-4414

DEFINITION
Medium used for the detection and enumeration of *Salmonella* and *Shigella* in the analysis of food products and water, and for testing non-sterile Pharmacopeia products.

Equivalent USP 30/NF 25: Medium XV

STANDARDS
• ***European Pharmacopeia 6.0*** - Biological methods - **2.6.13.**: Microbiological test of non-sterile products (Detection of specified micro-organisms)

• **USP 30/NF 25 US Pharmacopeia and National Formulary (2007)**: Microbial Limit Tests (61) - Microbiological Tests

PRINCIPLE
DCL agar makes its possible to distinguish lactose-positive/lactose-negative strains and to detect any H_2S. Sodium deoxycholate, sodium citrate and ferric citrate and ferric citrate make the medium inhibit Gram-positive bacteria.

PRESENTATION
Dehydrated
500 g **code 356-4414**

STORAGE
- Dehydrated: +15-25℃, in carefully-sealed bottles in a cool, dry place
- Expiration date and batch number are shown on the package.

TYPICAL FORMULA

Bacteriological peptone	10 g
Meat extract	10 g
Sodium citrate	20 g
Ferric citrate	1 g
Sodium deoxycholate	5 g
Lactose	10 g
Neutral red	20 mg
Agar	13.5 g
Distilled water	1,000 ml

Final pH (25℃) = 7.3 ± 0.2

NB: the formula has been adapted to attain the required performance criteria.

EQUIPMENT REQUIRED (NOT SUPPLIED)
(non-exhaustive)
- Scales
- Sterile weighing bags
- Grinder
- Hotplate
- Mixer-homogenizer
- Sterile Petri dishes (Ø = 55 or 90 mm)
- Sterile pipettes (1 ml,etc)
- Sterile spreaders
- Water-bath precise to ±1℃
- Thermostatically-controlled incubator or incubation room, precise to ±1℃
- All usual laboratory equipment

PREPARATION OF DEHYDRATED MEDIUM
Always shake before use.
Dissolve 52 g of powder in 1 liter of distilled water. Wait for 5 minutes, then mix thoroughly until a homogenous suspension is obtained. Heat gently, agitating frequently, then bring to boiling point until completely dissolved.
Do not autoclave.
Pour into Petri dishes and leave to dry.

Reconstitution ratio: 52 g/l
500 g of powder makes 9.6 liters of powder.

PROTOCOL
• **Preparation of samples**
According to the standards applicable to the product concerned.

• **Inoculation and incubation**
Inoculate 0.1 ml of test sample on a previously filled and dried Petri dish.
Spread and incubate at 37℃ ± 1℃ for 24 to 48 hours.

READING AND INTERPRETATION
The appearance of well-developed, colorless colonies indicates the probable presence of *Salmonella*.
After 36-48 hours incubation, colonies usually present the typical characteristics described in the following table:

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Color	Lactose fermentation	Species
Red	+	*Escherichia coli* (partial inhibition), *Enterobacter*, *Klebsiella* *Citrobacter freundii* lactose +
Colorless or whitish with red center	±	
Pale red or red with black center	±	*Citrobacter freundii* or certain *S. arizonae*
Very pale pink	- *or* ±	*Shigella sonnei* *Proteus morganii* *Y. enterocolitica* (colonies can be sub-cultured after 48 h at 30°C or 37°C)
Colorless or whitish	-	*Shigella* *E. coli* (Biotype Alkalescens dispar) *Salmonella* H_2S - *Proteus* H_2S - *Citrobacter freundii* lactose -
Colorless or whitish with orangey center	-	*Proteus rettgeri* *Providencia*
Colorless or whitish with black center	-	*Samonella* H_2S + *S. arizonae Citrobacter freundii* lactose *Proteus hauseri*
Greenish or brownish	-	Pigmented *Pseudomonas*

PRECAUTIONS
- The time lapse between the end of preparation of the stock solution (or the 10^{-1} dilution in the case of a solid product) and the moment when the dilutions come into contact with the culture medium must not exceed 15 minutes.
- Comply with Good Laboratory Practice.

QUALITY CONTROL
In view of the current harmonization of pharmacopeias, we recommend that you refer to the certificates of analysis for procedures relating to the quality control (performance and selectivity) of media produced by Bio-Rad.

Every product manufactured and marketed by Bio-Rad is subject to a quality-assurance procedure at all stages, from the reception of raw materials to the marketing of the end-product. Each batch of finished product undergoes quality control and is marketed only if it satisfies the acceptability criteria.

Documentation relative to the production and control of each batch is kept on file.

KEY WORDS
Deoxycholate-Citrate-Lactose/*Salmonella*/*Shigella*/Food products/Water/Detection/Enumeration/Lactose /H_2S/Medium

BIBLIOGRAPHY
HYNES M. (1942): The isolation of intestinal pathogens by selective media. Journal of Pathological Bacteriology **54**: 193-207

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