

## **CM 20356 – C.L.E.D. AGAR W/ ANDRADE INDICATOR (CYSTINE LACTOSE ELECTROLYTE DEFICIENT AGAR)**

### INTENDED USE

For isolation and differentiation of microorganisms based on lactose fermentation.

### PRODUCT SUMMARY AND EXPLANATION

Sandys reported a new technique where the swarming of Proteus on an agar medium could be prevented by restricting the electrolyte content in the culture medium. Sandys Medium was modified by Mackey and Sandys, by replacing mannitol with lactose and sucrose and elevating the concentration of agar and bromothymol blue. The same authors further modified this medium by retaining the lactose (deleting sucrose) and by including L-cystine for promoting the growth of cystine-dependent dwarf coliform colony. This later modified medium was designated as C.L.E.D. (Cystine-Lactose Electrolyte-Deficient) Medium. This medium is recommended for use in urinary bacteriology, promoting the growth of all urinary pathogens. C.L.E.D. Medium is also recommended for dip stick procedures and as dip inoculum transport medium for urine specimens. C.L.E.D. Medium was further modified by Bevis by incorporation of Andrade's indicator. This medium provides sharper differentiation between lactose-fermenters (LF) and lactose-non-fermenters (NLF). Addition of Andrade's indicator enhances the appearance of colony and aids in the identification of microorganisms.

### COMPOSITION

Ingredients	Gms / Ltr
Peptone	4.000
Beef extract	3.000
Tryptone	4.000
Lactose	10.000
L-Cystine	0.128
Bromothymol blue	0.020
Andrade indicator	0.100
Agar	15.000

### PRINCIPLE

The essential nutrients are supplied by peptone, tryptone and beef extract. Lactose is the carbohydrate source. L-cystine permits the growth of "dwarf colony" coliforms. Addition of Andrade indicator the appearance of colony and aids in the identification of microorganisms. At different pH values, the colour of the medium varies from the standard medium.

### INSTRUCTION FOR USE

- Dissolve 36.25 grams in 1000 ml of purified/distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes. Cool to 45-50°C.
- Mix well and pour into sterile Petri plates.

### QUALITY CONTROL SPECIFICATIONS



Appearance of Powder : Light yellow to greyish yellow homogeneous free flowing powder.  
 Appearance of prepared medium : Greenish blue 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	Incubation Temperature	Incubation Period
Klebsiella aerogenes	13048	50-100	Good-luxuriant	≥50%	Greyish green, mucoid	35-37°C	18-24 Hours
Escherichia coli	25922	50-100	Good-luxuriant	≥50%	Bright pink with pink halo	35-37°C	18-24 Hours
Enterococcus faecalis	29212	50-100	Good-luxuriant	≥50%	Orange-yellow or greenish	35-37°C	18-24 Hours
Proteus mirabilis	25933	50-100	Good-luxuriant	≥50%	Blue-green	35-37°C	18-24 Hours
Staphylococcus aureus subsp. aureus	25923	50-100	Good-luxuriant	≥50%	Golden-yellow	35-37°C	18-24 Hours
Streptococcus pyogenes	19615	50-100	Good-luxuriant	≥50%	Greyish-green	35-37°C	18-24 Hours

### PACKAGING:

In packs 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

1. Bevis T. D., 1968, J. Med. Lab. Technol., 25:38.
2. Dixon J. M. S. and Clark M. A., 1968, Conc. Med. Assoc. J., 99 (15)
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
4. 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



5. Mackey and Sandys, 1965, Br. Med. J., 2:1286.
6. Mackey and Sandys, 1966, Br. Med. J., 1:1173.
7. Sandys, 1960, J. Med. Lab. Technol., 17:224.

 GMP Good Manufacturing Practices Certified	 IVD For In Vitro Diagnostic Use	 QTY. Quantity	 LOT/ B. NO. Lot / Batch Number	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 EC REP Authorized Representative <small>MediMet GmbH Buckstrasse 10 48143 Muenster, Germany</small>	 European Conformity	 QR Code	 Consults Instructions for Use	 Best Before

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

\*For LabUse Only

