ARENA BioScien

Block 5, Street 9 inside The Ismailia free zone. Ismailia- Egypt
Post Code-41511
Tel.-Fax: +202 21813500/ +202 21813600
Mob.: +2 0121550942/ +2 01119225860
E-mail: sales@arenabioscientific.com
Website: www.arenabioscien.com

C. L. E. D. with Andrade Indicator

C.L.E.D. Medium w/Andrade Indicator is recommended for isolation and differentiation of urinary pathogens on the basis of lactose fermentation.

REF: BS.1/AN01.100.0100	100 Gram	REF: BS.1/AN01.250.0250	250 Gram
REF: BS.1/AN01.500.0500	500 Gram		

CLINICAL SIGNIFICANCE

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 (1). Sandys Medium was modified by Mackey and Sandys (2), 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 (3). 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 (2, 3, 4).

METHOD PRINCIPLE

C.L.E.D. Medium was further modified by Bevis (5) by incorporation of Andrades indicator. This medium provides sharper differentiation between lactose-fermenters (LF) and lactose-non-fermenters (NLF) (5). Addition of Andrades indicator enhances 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, which is well documented by Bevis (5).

pH	Color of medium
7.4	Deep blue
7.0	Bluish grey
6.8	Pale grey
6.6	Pinkish grey
6.4	Bright red with whitish tinge
6.0	Bright red

MEDIA COMPOSITION

Item	Formula per liter of medium
- Peptone	4.000 gm.
- Beef extract	3.000 gm.
- Tryptone	4.000 gm.
- Lactose	10.00 gm.
- L-Cystine	0.128 gm.
- Bromothymol Blue	0.020 gm.
- Andarde Indicator	0.100 gm.
- Agar	15.00 gm.

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 C. L. E. D. with Andrade Indicator material safety data sheet.

STORAGE AND STABILITY

BioScien C. L. E. D. with Andrade Indicator dehydrated media are stable until expiration date stated on label when properly stored 10-30°C. The prepared medium should be stored 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.

Final pH 7.5 ± 0.2 at 25°C

MEDIA PREPARATION

- Suspend 36.25 grams in 1000 ml of distilled water. Adjust pH to *7.3 ± 0.2 at 25°C*
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.
- Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Deterioration

The color of ***BioScien*** C. L. E. D. with Andrade Indicator is Light yellow to greyish yellow homogeneous free flowing powder. If there are any physical changes, discard the medium.
The hydrated medium is Greenish blue clear to slightly opalescent gel forms in Petri plates, media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), and contaminations.

SPECIMEN COLLECTION AND PRESERVATION

Clinical: Urine sample

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile cups
- Sterile plates
- Sterile loops
- Incubator

PERFORMANCE CHARACTERISTICS

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

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

Test Organisms	Growth	Colony Color
Klebsiella aerogenes ATCC 13048	Good - Luxuriant	greyish green, mucoid
Escherichia coli ATCC 25922	Good - Luxuriant	bright pink with pink halo
Enterococcus faecalis ATCC 29212	Good - Luxuriant	orange-yellow or greenish
Proteus mirabilis ATCC 25933	Good - Luxuriant	blue-green
Staphylococcus aureus subsp. aureus ATCC 25923	Good - Luxuriant	golden-yellow
Streptococcus pyogenes ATCC 19615	Good - Luxuriant	greyish green

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact ***BioScien*** technical support.

SYMBOLS IN PRODUCT LABELLING	
IVD For in-vitro diagnostic use	Number of <n> test in the pack
LOT Batch Code/Lot number	Caution
REF Catalogue Number	Do not use if package is damaged
Temperature Limitation	Consult Instruction for use
Expiration Date	
Manufactured by	

REFERENCES

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4. Dixson J. M. S. and Clark M. A., 1968, Conc. Med. Assoc. J., 99 (15)
5. Bevis T. D., 1968, J. Med. Lab. Technol., 25:38.
6. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
7. 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.