

**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.

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| REF: V/AN01.100 100 Gram REF: V/AN01.500 500 Gram | REF: V/AN01.250 250 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).

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| 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**

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

**Lab.Vie**. 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 **Lab.Vie**. 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

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| --- | --- | --- |
| **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 |

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| **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 |  |

**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 **Lab.Vie**. technical support.

**REFERENCES**

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2. Mackey and Sandys, 1965, Br. Med. J., 2:1286.

3. MacKey and Sandys, 1966, Br. Med. J., 1:1173.

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.

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