Northeast Laboratory Services

P.O. Box 788
Waterville, Maine 04903-0788
RT. 137, China Road
Winslow, Maine 04901

Administrative Offices
Phone: 207-873-7711
Fax: 207-873-7022

Customer Service
Phone: 1-800-244-8378
Fax: 207-873-7022

TECHNICAL PRODUCT INFORMATION

CLED Agar
Catalog No.: P1200

INTENDED USE:
CLED Agar (Cystine, Lactose Electrolyte Deficient Agar) is designed for the cultivation, isolation, and estimation of bacteria from urine.

HISTORY/SUMMARY:
In 1960, Sandys developed a new method of preventing the swarming of *Proteus* on solid media by restricting the electrolytes in the culture medium. This medium was modified by Mackey and Sandys for use in urine culture by substituting lactose and sucrose for mannitol and increasing the concentrations of bromthymol blue indicator. The media was further improved by adding cysteine to enhance the growth of coliforms and the deletion of sucrose[4].

PRINCIPLES:
This medium is recommended for urinary bacteriology, supporting the growth of all urinary pathogens. The presence of important contaminants such as diphtheroids, lactobacilli and micrococci is clearly derived, giving an indication of the degree of contamination.

The nutrients in the CLED agar are supplied by peptones, pancreatic digests of gelatin and casein, and beef extract. Lactose is included to provide an energy source for lactose fermenting bacteria. The cysteine permits growth of dwarf colony coliforms. Bromthymol blue is used as a pH indicator to differentiate lactose fermenters from non-fermenters. Organisms that ferment will lower the pH and change the media color from green to yellow. Electrolytes are reduced to restrict the swarming of *Proteus* species.

FORMULA:

Component (per liter of purified water)	Amount
Gelatin peptone	4.0 g
Beef Extract	3.0 g
Casein peptone	4.0 g
Lactose	10.0 g
L-Cystine	128.0 mg
Brom thymol blue	20.0 mg
Agar	15.0 g

Final pH: 7.3 ± 0.2 @ 25°C.

PRECAUTIONS:
Since living organisms used with this material can be infectious to the user, proper handling and disposal methods should be established by the laboratory director. This product is for In Vitro Diagnostic Use.

STORAGE:
This media should be stored at 2-8°C. Do not use the media beyond its expiration date. Do not use media that shows signs of deterioration.

SPECIMEN COLLECTION and TEST PROCEDURES:
Information on specimen collection and discussion on processing of urine samples may be found in standard reference material such as Manual of Clinical Microbiology[2] or Diagnostic Microbiology, Scott and Bailey[3].

Specimen should be transported to the laboratory with a minimum of delay and protected from excessive heat and cold.

Incubate inoculated media at 35±2°C for 24 to 48 hours.

PERFORMANCE TESTS:
Approval for manufacture of each lot of CLED Agar is based on the demonstrated effectiveness in cultivating and/or differentiating the microorganisms listed below. The growth characteristics and reactions listed are typical of observations made on challenged samples:

PERFORMANCE CHARACTERISTICS:

Organisms	Results
ATCC# 25922 *Escherichia coli*	Yellow, opaque colonies with a slightly deeper colored center
Klebsiella species	Extremely mucoid colonies varying in color from yellow to whitish/blue
ATCC# 12453 *Proteus mirabilis*	Translucent blue colonies usually small than E. coli
Proteus species	Translucent blue colonies usually small than E. coli
Pseudomonas aeruginosa	Green colonies with rough periphery
ATCC# 25923 Staphylococcus aureus	Deep yellow colonies.
Enterococci	Small yellow colonies about 0.5mm in diameter

QUALITY CONTROL:
The performance characteristics as noted above may be confirmed by the laboratory through a judicious selection of organisms such as those recorded above.

REFERENCES:

1) Brit. Med. J. 2:1286. 1965
2) Blair, J.E. Lenette, E.J. and Trusant, J.P. Manual of Clinical Microbiology, ASM, Bethesda, MD, 1974.
3) Baron, Peterson and Finegold, Bailey and Scott's Diagnostic Microbiology, 9th Edition, 1994.
4) Difco & BBL Manual 2009