CLED AGAR

INTENDED USE
Remel CLED Agar is a solid medium recommended for use in qualitative procedures for the cultivation of microorganisms from urine specimens.

SUMMARY AND EXPLANATION
The development of a solid culture medium that prevented the swarming of *Proteus* by restricting electrolytes was reported by Sandys in 1960.[1] Mackey and Sandys modified the medium for use with urine cultures by substituting lactose and sucrose for mannitol, and increasing the concentration of brom thymol blue and agar.[2] Further modification by addition of cystine and deletion of sucrose resulted in Cystine Lactose Electrolyte Deficient (CLED) agar which is recommended for detection of bacteriuria by quantitative culture of urine.[3]

PRINCIPLE
Casein peptone supplies amino acids, nitrogenous compounds, and peptides essential for the growth of bacteria. Beef extract supplies vitamins and carbohydrates. Lactose provides a carbohydrate source of energy. Cystine enhances the growth of cystine-dependent coliforms. Brom thymol blue is a pH indicator which differentiates lactose fermenters (yellow) from nonfermenters. Electrolytes are reduced in order to restrict the swarming of *Proteus*. Bacteria may be quantitated by inoculating the surface of the medium with appropriate dilutions of the urine sample.

REAGENTS (CLASSICAL FORMULA)*

Lactose	10.0 g	L-Cystine	0.128 g
Casein Peptone	4.0 g	Brom Thymol Blue	0.02 g
Gelatin	4.0 g	Agar	15.0 g
Beef Extract	3.0 g	Demineralized Water	1000.0 ml

pH 7.3 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 36 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve.
3. Sterilize by autoclaving at 121°C for 15 minutes or following established laboratory procedures.
4. Dispense into appropriate containers.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, testing, and interpretation.

QUALITY CONTROL
Each lot number of CLED Agar has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

CONTROL	INCUBATION	RESULTS
Escherichia coli ATCC® 25922	Aerobic, 24-48 h @ 33-37°C	Yellow colonies
Proteus vulgaris ATCC® 8427	Aerobic, 24-48 h @ 33-37°C	Blue colonies, inhibited swarming
Staphylococcus aureus ATCC® 25923	Aerobic, 24-48 h @ 33-37°C	Yellow colonies

LIMITATIONS
1. CLED Agar is nonselective, but due to the lack of electrolytes *Shigella* spp. usually do not grow.[4]

BIBLIOGRAPHY

1. Sandys, G.H. 1960. J. Med. Lab. Technol. 17:224-233.
2. Mackey, J.P. and G.H. Sandys. 1965. Br. Med. J. 2:1286-1288.
3. Mackey, J.P. and G.H. Sandys. 1966. Br. Med. J. 1:1173.
4. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, sample collection, storage and transportation, materials required, quality control, and limitations.

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