

CLED / ENTEROCOCCO / MAC CONKEY

Differential media for identification of urinary pathogens, enterococci and gram-negative enteric bacilli.

CLED TYPICAL FORMULA (g/l)	ENTEROCOCCO TYPICAL FORMULA (g/l)	MAC CONKEY TYPICAL FORMULA (g/l)			
Peptone	4.0	Peptone	3.0	Tryptone	17.0
Beef Extract	3.0	Tryptone	17.0	Peptone	3.0
Tryptone	4.0	Sodium Chloride	5.0	Lactose	10.0
L-Cystine	0.128	Yeast Extract	5.0	Bile Salts no.3	1.5
Lactose	10.0	Ox bile	10.0	Sodium Chloride	5.0
Bromothymol Blue	0.02	Aesculin	1.0	Neutral Red	0.03
Agar	15.0	Ferric Ammonium Citrate	0.5	Crystal Violet	0.001
Final pH 7.3 ± 0.2		Agar	15.0	Agar	15.0
		Final pH 7.1 ± 0.2		Final pH 7.1 ± 0.2	

DESCRIPTION

CLED / ENTEROCOCCO / MAC CONKEY is a ready-to-use plate consisting of three media.

CLED agar is a medium used for isolation and identification of urinary pathogens on the basis of lactose fermentation.

ENTEROCOCCO agar is a medium used for identification and differentiation of enterococci.

MAC CONKEY agar is a medium used for detection and differentiation of gram-negative enteric bacilli.

PRINCIPLE

Peptone, beef extract and tryptone act as a source of nitrogen, carbon and amino acids. Sodium chloride maintains the osmotic balance of the medium. Lactose is the fermentable carbohydrate. Agar is the solidifying agent.

In CLED agar, Bromothymol blue is the pH indicator used to differentiate lactose fermenters from lactose-nonfermenters. Organisms which ferment lactose will lower the pH and change the color of the medium from green to yellow. Bacteria which decarboxylate cystine cause an alkaline reaction and grow with blue colonies. The lack of electrolytes suppresses the swarming of *Proteus* spp.

In ENTEROCOCCO agar, enterococci hydrolyse aesculin to form aesculetin and dextrose. Aesculetin combines with ferric citrate in the medium to form a dark brown or black complex which is indicative of a positive result. Ox bile is used to inhibit gram-positive bacteria other than enterococci. Yeast extract is a source of vitamin, particularly of B-group.

In MAC CONKEY agar, during lactose fermentation a local pH drop around the colony causes a color change in the pH indicator, neutral red, and bile precipitation. Bile salts mixture and crystal violet are the selective agents, inhibiting gram-positive cocci and allowing gram-negative organisms to grow.

TECHNIQUE

Inoculate each medium by streaking the sample to test on the agar surface using a sterile loop. Incubate at 36±1 °C for 24-48 h

INTERPRETATION OF RESULTS

Examine for the colonies grown on the media surface and interpret the results as indicated below.

On CLED agar *Escherichia coli* cultivates with yellow colonies on yellow medium. *Klebsiella* and *Enterobacter* cultivate with whitish-blue colonies on yellowish medium. *Proteus* cultivates with translucent blue colonies on blue-green to blue medium. *Pseudomonas aeruginosa*. *Enterococci* and *Staphylococci* cultivate with yellow colonies on yellow medium.

On ENTEROCOCCO agar the presence of enterococci is indicated by any blackening of the medium. If no blackening occurs, the test is negative.

On MAC CONKEY agar *Escherichia coli* cultivates with pink to rose-red colonies. *Enterobacter* and *Klebsiella* cultivate with pink colonies. *Salmonella* and *Shigella* cultivate with colorless colonies. *Pseudomonas* cultivates with colorless to pink colonies.**STORAGE**

10-25°C away from light, until the expiry date on the label or until signs of deterioration or contamination are evident.

WARNING AND PRECAUTIONSThe product does not contain hazardous substances in concentrations exceeding the limits set by current legislation and therefore is not classified as dangerous. It is nevertheless recommended to consult the safety data sheet for its correct use. The product is designed for *In vitro* diagnostic use and must be used only by properly trained operators.**DISPOSAL OF WASTE**

Disposal of waste must be carried out according to the national and local regulations in force.

REFERENCES

1. Sandys G. H. (1960) J. Med. Lab. Techn. 17. 224.
2. Isenberg H. D., Goldberg D. and Sampson J. (1970). Appl. Microbiol. 20, 433-436.
3. Windle Taylor E. (1958) 'The examination of Waters and Water Supplies' 7th ed., Churchill Ltd., London.

**LIOFILCHEM® S.r.l.**

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PRODUCT SPECIFICATIONS

NAME

CLED / ENTEROCOCCO / MAC CONKEY

PRESENTATION

Ready-to-use plates (90 mm)

STORAGE

10-25°C

PACKAGING

Ref.	Content	Packaging
13614	20 plates (90 mm)	<ul style="list-style-type: none"> • 10 plates in thermally soldered film • 2 x 10 plates in cardboard box

pH OF CLED agar

7.3 ± 0.2

pH OF ENTEROCOCCO agar

7.1 ± 0.2

pH OF MAC CONKEY agar

7.1 ± 0.2

USE

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TECHNIQUE

Refer to technical sheet of the product

APPEARANCE OF CLED agar

Blu-green medium

APPEARANCE OF ENTEROCOCCO agar

Dark amber medium

APPEARANCE OF MAC CONKEY agar

Pinkish-red medium

SHELF LIFE








6 months

QUALITY CONTROL

- Control of general characteristics, label and print
- Sterility control
7 days at 22 ± 1°C, in aerobiosis
7 days at 36 ± 1°C, in aerobiosis
- Microbiological control
Inoculum for productivity: 10⁴-10⁶ UFC/ml
Inoculum for selectivity: 10⁴-10⁵ UFC/ml
Inoculum for specificity: ≤10⁴ UFC/ml
Incubation Conditions: 18-24 h at 36 ± 1°C, in aerobiosis

Microorganism		Growth on CLED agar	Growth on ENTEROCOCCO agar	Growth on MAC CONKEY agar
<i>Escherichia coli</i>	ATCC® 25922	Good, yellow colonies on yellow medium	---	Good, pink colonies
<i>Proteus mirabilis</i>	ATCC® 25933	Good, blue colonies on blue medium	---	---
<i>Enterococcus faecalis</i>	ATCC® 29212	Good, colorless to yellow colonies on yellow medium	Good, blackening around the colonies	Partial to complete inhibition
<i>Staphylococcus aureus</i>	ATCC® 25923	Good, yellow small colonies on yellow medium	---	---
<i>Streptococcus pyogenes</i>	ATCC® 19625	---	Partial to complete inhibition, no blackening of the medium	---
<i>Salmonella typhimurium</i>	ATCC® 14028	---	---	Good, colorless colonies

TABLE OF SYMBOLS

LOT	Batch code	IVD	In vitro Diagnostic Medical Device		Manufacturer		Use by		Fragile, handle with care
REF	Catalogue number		Temperature limitation		Contains sufficient for <n> tests		Caution, consult instruction for use		Do not reuse



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