

COLUMBIA C.N.A. / MAC CONKEY

Selective media for streptococci, staphylococci, pneumococci and gram-negative isolation.

COLUMBIA C.N.A. TYPICAL FORMULA (g/l)		MAC CONKEY TYPICAL FORMULA (g/l)	
Casein Peptone Plus	8.0	Tryptone	17.0
Soy Peptone A3	4.0	Peptone	3.0
Meat Peptone	8.0	Lactose	10.0
Corn Starch	1.0	Bile Salts n°3	1.5
Sodium Chloride	5.0	Sodium Chloride	5.0
Colistin Sulfate	0.1	Neutral Red	0.03
Nalidixic Acid	0.015	Crystal Violet	0.001
Agar	15.0	Agar	15.0
Sheep Defibrinated Blood	60.0 ml	Final pH 7.1 ± 0.2	
Final pH 7.3 ± 0.2			

DESCRIPTION

COLUMBIA C.N.A. is a selective medium for staphylococci, streptococci and pneumococci.

MAC CONKEY AGAR is a selective medium for gram-negative bacteria isolation and differentiation from water, dairy products and clinical specimens according to European Pharmacopoeia. The medium allows a good growth of *Salmonella* and *Shigella* spp.

PRINCIPLE

Casein Peptone Plus, Soy Peptone A3, Meat Peptone, Tryptone, Peptone, yield the medium highly nutritive providing nitrogen, carbon, sulphur and other essential growth factors. Sodium chloride maintains the osmotic balance of the medium. Corn Starch is a source of carbon. Agar is the solidifying agent.

In COLUMBIA C.N.A. Colistin and Nalidixic Acid constitute selective agents: particularly Colistin destroys cell membrane of gram-negative bacteria, whilst Nalidixic Acid inhibits DNA replication in gram-negative bacteria. Defibrinated blood supplies further growth factors for fastidious microorganisms and allows to enhance haemolytic reactions

In MAC CONKEY AGAR lactose is a source of energy whose fermentation makes pH of the medium decrease with consequent precipitation of Bile Salts and absorption of Neutral Red. Bile Salts and Crystal Violet inhibit the growth of gram-positive bacteria: the staining mainly inhibits the growth of enterococci and staphylococci.

TECHNIQUE

Inoculate plates streaking the sample to test on the agar surface using a sterile loop. Incubate at 36±1°C for 24-48 hours, according to incubation conditions that each microorganism needs.

INTERPRETATION OF RESULTS

On COLUMBIA C.N.A. observe for growth and for haemolytic reactions. Four different kinds of haemolysis can be distinguished:

1. α-haemolysis: haemoglobin is reduced to metahaemoglobin in the medium surrounding the colony and this causes a greenish decolouring of the medium;
2. β-haemolysis: it is the lysis of erythrocytes which is evident in the bright zone around the colony;
3. γ-haemolysis: any destruction of erythrocytes or any change in the medium does not occur;
4. α'-haemolysis: a little zone of complete haemolysis surrounded by a partial lysis area is evident.

On MAC CONKEY AGAR coliforms cultivate with red-pink colonies surrounded by a halo of precipitation; lactose non-fermenting bacteria cultivate with colorless colonies.

STORAGE AND TRANSPORT CONDITIONS

6-12°C away from light, until the expiry date on the label. However, our stability studies have shown that the transport at 18-25°C for 4 days, or at 35-39°C for 48 hours, does not alter in any way the performance of the product. Eliminate if signs of deterioration or contamination are evident.

WARNING AND PRECAUTIONS

The 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

- Ellner, P.D., C.J. Stoessel., E. Drakeford, and F. Vasi (1966). A new culture medium for medical bacteriology. Am. J.Clin. Path. 45, 502-504.
- Isenberg, H.D. (ed.) (1992). Clinical microbiology procedures handbook, vol. 1 American Society for Microbiology, Washington, DC.
- FDA (1995) Bacteriological Analytical Manual, 8th ed. Revision A, 1998. United States Pharmacopoeia 24,2000. Microbial Limit Tests, 1814:1818.
- NCCLS, december 1996 –Quality Assurance for Commercially Prepared Microbiological Culture Media-Second Edition; Approved Standard-M22-A2, Vol.16, N°16 European Pharmacopoeia 4th ed. 2002



LIOFILCHEM® S.r.l.

Via Scozia, Zona Ind.le - 64026, Roseto degli Abruzzi (TE) - ITALY

Tel +39 0858930745 Fax +39 0858930330 Website: www.liofilchem.net E-mail: liofilchem@liofilchem.net



PRODUCT SPECIFICATION

NAME

COLUMBIA C.N.A. / MAC CONKEY

PRESENTATION

Ready plates (90 mm) with two sectors

STORAGE

6-12°C

PACKAGING

Ref.	Content	Packaging
18327	20 plates	<ul style="list-style-type: none"> 10 plates in thermally soldered film 2 x 10 plates in cardboard box
18327*	100 plates	<ul style="list-style-type: none"> 10 plates in thermally soldered film 10 piles (10 x 10 plates) in cardboard box

USE

COLUMBIA C.N.A. is a selective medium for staphylococci, streptococci and pneumococci

MAC CONKEY AGAR is a selective medium for Gram- negative bacteria isolation and differentiation from water, dairy products and clinical specimens according to European Pharmacopoeia. The medium allows a good growth of *Salmonella* and *Shigella* spp

TECHNIQUE

Refer to technical sheet of the product

APPEARANCE OF THE MEDIUM

COLUMBIA C.N.A. is a cherry-red, opaque medium.

MAC CONKEY AGAR is a pinkish-red medium, clear without precipitates

SHELF LIFE

2 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: 10-100 UFC/ml
Inoculum for selectivity: 10⁴-10⁵ UFC/ml
Inoculum for specificity: ≤10⁴ UFC/ml
Incubation Conditions: 24-48 h at 42 ± 1°C, in aerobiosis

Microorganisms		Growth on COLUMBIA C.N.A.	Growth on MAC CONKEY
<i>Escherichia coli</i>	ATCC 25922	Inhibited	Good
<i>Streptococcus faecalis</i>	ATCC 19433		Inhibited
<i>Proteus mirabilis</i>	ATCC 25933	Inhibited	Good
<i>Staphylococcus aureus</i>	ATCC 25923	Good / β-haemolysis	Inhibited
<i>Streptococcus pyogenes</i>	ATCC 19615	Good / β-haemolysis	

TABLE OF SYMBOLS

 Batch code	 <i>In vitro</i> Diagnostic Medical Device	 Manufacturer	 Use by	 Fragile, handle with care
 Catalogue number	 Temperature limitation	 Contains sufficient for <n> tests	 Caution, consult accompanying documents	 Do not reuse



LIOFILCHEM® S.r.l.

Via Scozia, Zona Ind.le - 64026, Roseto degli Abruzzi (TE) - ITALY

Tel +39 0858930745 Fax +39 0858930330 Website: www.liofilchem.net E-mail: liofilchem@liofilchem.net

