Technical Data

CNA Agar Plate with 5% sheep blood

MP5208

For selective isolation of pathogenic gram positive cocci from clinical and non-clinical specimens.

Composition**

Ingredients	Gms / Litre
Biopeptone	20.000
Tryptose B #	3.000
Corn starch	1.000
Sodium chloride	5.000
Colistin sulphate	0.010
Nalidixic acid	0.015
Agar	15.000
Sheep Blood	5.000

**Formula adjusted, standardized to suit performance parameters

Equivalent to Tryptic digest of beef heart

Directions

Either streak, inoculate or surface spread the test inoculum (50-100CFU) aseptically on the plate.

Principle And Interpretation

CNA Agar is a nutritionally rich formula containing 5% defibrinated blood, which provides more nutrients and capability of displaying haemolytic reactions. Columbia Blood Agar Base is utilized as a base for preparation of media containing blood and in selective media preparations where various combinations of antimicrobial agents are used as additives. Ellner et al formulated the medium (1) and found that the combination of peptones used gave more rapid and abundant growth of Streptococci, Staphylococci, *Neisseria* and *Haemophilus* with better-defined haemolytic reactions. Columbia C.N.A. Agar Base is prepared with the same formula as Columbia Agar Base with the addition of 10 mg/litre of colistin and 15 mg/litre of nalidixic acid to inhibit the growth of gram-negative bacteria and to support the growth of Staphylococci, haemolytic Streptococci and Enterococci when supplemented with 5% blood.

Biopeptone and tryptose B supports luxuriant growth of microorganisms and visualization of good haemolytic reactions. Sheep blood allows detection of haemolytic reactions and supplies X-factor necessary for the growth of many bacterial species. Horse blood supplies X-factor and V-factor, therefore is mostly preferred in most laboratories. Yeast extract and cornstarch serve as energy source and neutralizer respectively.

It should be noted that this medium has relatively high carbohydrate content and, therefore, beta-hemolytic streptococci may produce a greenish hemolytic reaction that may be mistaken for alpha haemolysis. The addition of the antimicrobial agents, colistin (or polymyxin B) and nalidixic acid, renders the medium selective for gram-positive microorganisms (2). Colistin and nalidixic acid disrupt the cell membrane of gram-negative organisms, whereas nalidixic acid blocks DNA replication in susceptible gram-negative bacteria (3).

C.N.A. Agar with addition of blood gives selective isolation of gram-positive cocci, Staphylococci and Streptococci, particularly when gram-negative bacilli are present and tend to overgrow on conventional blood agar plates.

Type of specimen

Clinical samples : Pure cultures isolated from urine , stool, blood etc.

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (1,2).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. Read the label before opening the container. Wear protective gloves/protective clothing/ eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Some strains may show poor growth due to nutritional variations.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance
Sterile Columbia C.N.A Agar w/5% sheep blood in 90 mm disposable plates.

Colour
Red coloured medium

Quantity of medium
25ml of medium in disposable plate

pH

7.10- 7.50

Sterility Test
Passes release criteria.

Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 40-48 hours .

Organism	Inoculum (CFU)	Growth	Recovery	Haemolysis
Escherichia coli ATCC 25922 (00013)*	>=10^3	inhibited	0%	
Neisseria meningitidis ATCC 13090	>=10^3	inhibited	0%	
Staphylococcus aureus subsp. aureus ATCC 25923 (00034)*	50-100	luxuriant	>=50%	beta/gamma
Staphylococcus epidermidis ATCC 12228 (00036)*	50-100	luxuriant	>=50%	gamma
Streptococcus pneumoniae ATCC 6303	50-100	luxuriant	>=50%	alpha
Streptococcus pyogenes ATCC 19615	50-100	luxuriant	>=50%	beta

Key : (*) Corresponding WDCM numbers

Storage and Shelf Life

Store between 2-8°C. Use before expiry date on the label.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (1, 2).

Reference

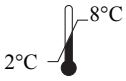
1. Ellner et al, 1966, Am. J. Clin. Path., 45:502.
2. Estevez, 1984, Lab. Med., 15:258.

2. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.

4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
5. 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.

IVD — In vitro diagnostic medical device

CE Marking



Storage temperature

Do not use if package is damaged

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