HiCrome™ ESBL Agar Base

Recommended for selective isolation of Extended-Spectrum β-lactamase-producing *Enterobacteriaceae*.

M1829

Composition **

Ingredients	Grams/Litre
Peptone mix	12.000
Chromogenic mixture	4.000
Sodium chloride	5.000
Buffer mix	4.000
Agar	15.000

Final pH (at 25°C) 6.8 ± 0.2

** Formula adjusted, standardized to suit performance parameters

Directions

Suspend 40 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and add rehydrated contents of two vials of HiCrome™ ESBL Agar Supplement (FD278). Mix well and pour into sterile Petri plates.

Principle and Interpretation

Extended-spectrum β-lactamase (ESBL)-producing organisms are an increasing challenge for healthcare practitioners fighting healthcare-associated infections (HAIs). *Escherichia coli*, *Klebsiella pneumoniae* and *Klebsiella* oxytoca are the most common ESBL- producing pathogens (1). ESBL-producing organisms are generally resistant to many classes of antibiotics, including aminoglycosides and fluoroquinolones; ESBL-producing organisms are able to attack newer cephems and monobactams as well as narrow-spectrum cephalosporins and anti gram-negative penicillins (1). They are associated with increased mortality and are difficult to detect and treat. The widespread use of extended-spectrum, third-generation cephalosporins, introduced in the 1980s to treat antibiotic-resistant bacteria, is believed to be a major contributor to the emergence of ESBL-producing organisms.

HiCrome™ ESBL Agar Base is chromogenic screening medium for the selective isolation of ESBL producing organisms. It contains peptone mix which serves as the carbon and nitrogen sources, long chain amino acids, vitamins and other growth nutrients. Chromogenic mixture is used to differentiate the ESBL producing organisms on the basis of colour. HiCrome™ ESBL Agar Supplement (FD278) helps in inhibition of other contaminating organisms. ESBL producing *E.coli* grow as pink to purple colonies. ESBL producing members of the KESC group produce bluish green colonies; *Proteus*, *Morganella* and *Providencia* do not utilize any chromogen resulting in colourless to light brown colonies. This medium can be inoculated with liquid suspension equivalent to 0.5 McFarland turbidity, prepared from rectal screening swabs, faecal samples or from isolated colony. Isolated colonies should not be directly plated on to this medium, because the high level inoculum may cause false positive results. Further confirmation using biochemical identification tests is recommended.

Type of specimen

Clinical samples

Specimen Collection and Handling

For clinical samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (2, 3).

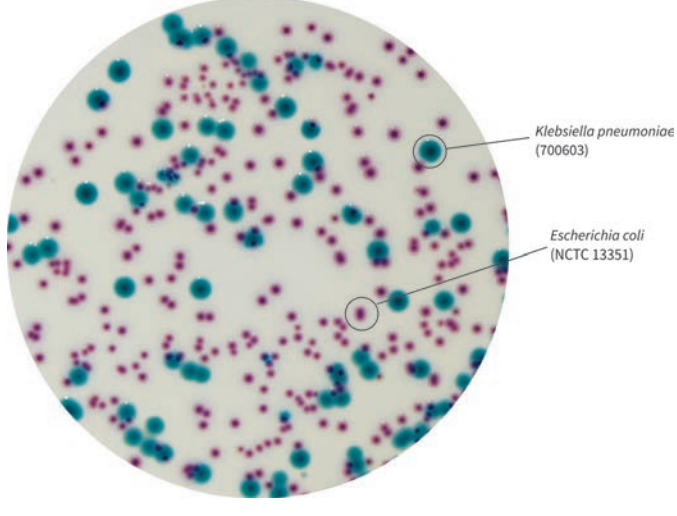
After use, contaminated materials must be sterilized by autoclaving before discarding.

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 species may show poor growth due to nutritional variations.
2. Slight colour variation may be observed depending upon strains.
3. Isolated colonies should not be directly plated on to this medium, because the high level inoculum may cause false positive results. Further confirmation using biochemical identification tests is recommended.



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Performance and Evaluation

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

Quality Control

Appearance of Powder : Cream to yellow homogeneous free flowing powder

Gelling : Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium : Yellow coloured opalescent gel forms in Petri plates.

Reaction : Reaction of 4.0% w/v aqueous solution at 25°C. pH : 6.8 ± 0.2.

Cultural Response : Cultural characteristics observed with added HiCrome™ ESBL Agar Supplement (FD278) after an incubation at 35-37°C for 18-24 hours.

Organism (ATCC)	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Escherichia coli (NCTC 13351)	50-100	luxuriant	≥50%	pink to purple
Klebsiella pneumoniae (700603)	50-100	luxuriant	≥50%	bluish green
Enterobacter cloacae (23355) (00082*)	$\geq 10^3$	inhibited	0%	—
Citrobacter freundii (8090)	$\geq 10^3$	inhibited	0%	—
Candida albicans (10231) (00054*)	$\geq 10^3$	inhibited	0%	—

Key : * = corresponding WDCM Numbers

Storage and Shelf-life

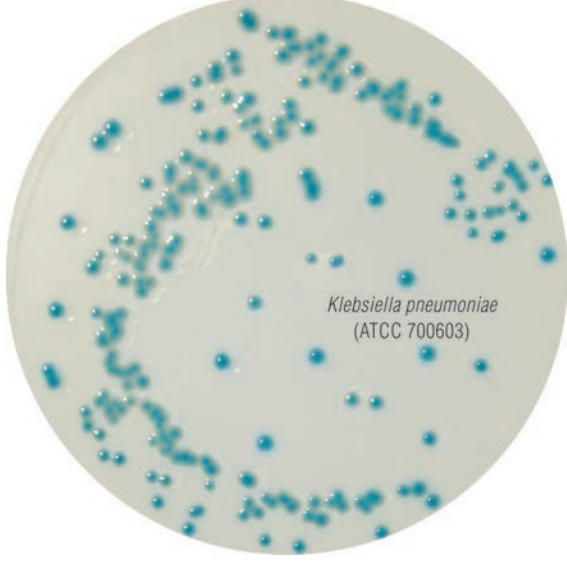
Store between 2-8°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle inorder to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Use before expiry date on the label. Product performance is best if used within stated expiry period.

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 (2, 3).

References

1. Journal of Clinical Microbiology, February 2007, Page 501-505, Vol. 45, No. 2 pp 1430 -1432, Philadelphia, W. B. Saunders, 1982.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
3. 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.



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