



Dehydrated Culture Media
Bases / Media Supplements

Technical Information

Potassium Cyanide Broth Base w/o KCN

Product Code: DM 1936

Application: - Potassium Cyanide Broth Base with KCN supplementation is recommended for the differentiation of the members of *Enterobacteriaceae* on the basis of potassium cyanide tolerance.

Composition**

Ingredients	Gms / Litre
Proteose peptone	3.000
Disodium phosphate	5.640
Monopotassium phosphate	0.225
Sodium chloride	5.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Potassium Cyanide Broth Base w/o KCN is recommended for the differentiation of members of *Enterobacteriaceae* on the basis of Potassium Cyanide tolerance. One of the many tests employed for the identification of bacteria includes the ability of an organism to grow in the presence of cyanide (1). It was originally formulated by Moeller (2) and Kauffman and Moeller (3). And later modified by Edwards and Ewing (4) and Edwards and Fife (5).

Proteose peptone supplies nitrogenous compounds, sulphur, trace elements essential for growth. Phosphates buffer the medium. Sodium chloride helps to maintain osmotic equilibrium. Potassium cyanide inhibits many bacteria including *Salmonella*, *Shigella* and *Escherichia*, while members of the *Klebsiella*, *Citrobacter*, and *Proteus* groups grow well. Potassium cyanide medium usually remains stable for upto 4 weeks at 4°C (5). An elevated temperature leads to accelerated deterioration of KCN in the medium or evaporation of cyanide (5). The KCN should be destroyed before autoclaving by the addition of a crystal of ferric sulphate and 0.1 ml of 40% potassium hydroxide per tube (6). A heavy inoculum should be avoided while utilizing KCN Broth as the inoculum itself causes turbidity and / or a sediment at the bottom of the tube, which may be interpreted as false positive result (7). Reactions observed in KCN Broth are not sufficient to speciate organism; additional biochemical and serological tests are required (8).

Methodology

Suspend 13.86 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & heat if necessary to dissolve the medium completely. Dispense in 100 ml amounts and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to room temperature and aseptically add sterile 1.5 ml of 0.5% potassium cyanide solution to each 100 ml of basal medium. Shake well before dispense in 1 ml amounts.

Caution: Being fatally toxic extreme care should be taken while handling potassium cyanide solution. Never mouth- pipette potassium cyanide solution.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity

Light amber coloured clear solution without any precipitate



Reaction

Reaction of 1.39% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH Range

7.40-7.80

Cultural Response

DM 1936: Cultural characteristics observed with added sterile 0.5% sterile Potassium Cyanide Solution after an incubation at 35-37°C for 24-48hours.

Organism	Growth without KCN	Growth with KCN
<i>Citrobacter freundii</i> ATCC 8090	good-luxuriant	good-luxuriant
<i>Escherichia coli</i> ATCC 25922	good	inhibited
<i>Klebsiella pneumoniae</i> ATCC 13883	good-luxuriant	good-luxuriant
<i>Proteus vulgaris</i> ATCC 13315	good-luxuriant	good-luxuriant
<i>Pseudomonas aeruginosa</i> ATCC 27853	good-luxuriant	good-luxuriant
<i>Salmonella Enteritidis</i> ATCC 13076	good	inhibited
<i>Shigella flexneri</i> ATCC 12022	good	inhibited
<i>Salmonella Typhi</i> ATCC 6539	good	inhibited

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and prepared media at 2-8°C. Use before expiry date on label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Collee J.G., Fraser A.G., Marmion B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone
2. Moeller V., 1954, Acta. Pathol. Microbiol. Scand., 34:115.
3. Kauffman F. and Moeller V., 1955, Acta. Pathol. Microbiol. Scand., 36:173.
4. Edwards P.R. and Ewing W.H., 1955, Minneapolis, Burgess Publishing Co.
5. Edwards P. R. and Fife M. A., 1956, Appl. Microbiol., 4:46.
6. Cowan S. T. and Steel K. J., 1966, Manual for the Identification of Medical Bacteria, Cambridge, Cambridge University Press.
7. Munson T.E., 1974, Appl. Microbiol., 27:262.
8. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore

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