Potassium Cyanide Broth Base w/o KCN

M936

Potassium Cyanide Broth Base with KCN supplementation is used 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

Directions

Suspend 13.86 grams in 1000 ml distilled water. 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. Mix thoroughly and 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.

Principle And Interpretation

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). Potassium Cyanide Broth Base is used for the differentiation of members of *Enterobacteriaceae* on the basis of Potassium Cyanide tolerance. Potassium Cyanide Broth Base was originally formulated by Moeller (2) and Kauffman and Moeller (3). This medium was later modified by Edwards and Ewing (4) and Edwards and Fife (5).

Proteose peptone provides nitrogenous compounds, sulphur, trace elements essential for growth. Phosphates buffer the medium. Sodium chloride maintains 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).

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium
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
7.40-7.80

Cultural Response
M936: 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
Citrobacter freundii ATCC 8090	good-luxuriant	good-luxuriant
Escherichia coli ATCC 25922	good	inhibited
Klebsiella pneumoniae ATCC 13883	good-luxuriant	good-luxuriant
Proteus vulgaris ATCC 13315	good-luxuriant	good-luxuriant
Pseudomonas aeruginosa ATCC 27853	good-luxuriant	good-luxuriant
Salmonella Enteritidis ATCC 13076	good	inhibited
Shigella flexneri ATCC 12022	good	inhibited
Salmonella Typhi ATCC 6539	good	inhibited

Storage and Shelf Life

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

Reference

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