Mannitol Nitrate Motility Medium

Cat. 1509

For the rapid differentiation of Enterobacteria from clinical samples.

Practical information

Aplications	Categories
Detection	Enterobacteria

Industry: Clinical

Principles and uses

Mannitol Nitrate Motility Medium is a semisolid medium that permits the rapid identification of Enterobacteria on the basis of motility, mannitol utilization and nitrate reduction to nitrite.

Casein peptone provides the nitrogen, minerals, amino acids and nutrients essential for bacterial growth. Mannitol is a fermentable carbohydrate for energy source. Potassium nitrate provides additional nutrients and organisms capable of reducing nitrate show increased motility. Phenol red is a pH indicator. Bacteriological agar is the solidifying agent.

Motile bacteria show a diffuse turbidity away from the inoculation line, while non-motile organisms only grow along the stab line. If mannitol is fermented, the medium changes its color from red to yellow.

Nitrate reduction tests are conducted adding Gries Reagent (2 drops of solution A, and then 2 drops of the solution B) to the surface of the medium. Nitrate-negative organisms are unable to reduce nitrates and they yield no color after adding the reagent. Nitrate-positive: The appearance of a pink or red coloration indicates that the nitrates have been reduced to nitrites.

Formula in g/L

Bacteriological agar	3,5	Mannitol	7,5
Meat peptone	10	Phenol red	0,04
Potassium nitrate	1		

Preparation

Suspend 22,04 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Dispense into tubes to obtain a butt depth of 6-7 cm and sterilize in autoclave at 121 ºC for 15 minutes.

Instructions for use

The medium is inoculated by stabbing the center of the tube to its base and incubating at 35±2 ºC for 18-24 hours.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Pink-orange	Pink-orange	7,6±0,2

Microbiological test

Incubation conditions: (35±2 ºC / 18-24 h).

Microrganisms	Characteristic reaction
Klebsiella pneumonieae ATCC 13883	Motility (-), Mannitol (+), Nitrate (+)

Acinetobacter anitratum ATCC 17924	Motility (-), Mannitol (-), Nitrate (-)
Escherichia coli ATCC 25922	Motility (+), Mannitol (+), Nitrate (+)
Proteus mirabilis ATCC 25933	Motility (+), Mannitol (-), Nitrate (+)

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

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