Koser Citrate Broth

Cat. 1200

For the differentiation of Escherichia coli and Enterobacter on the basis of citrate use.

Practical information

Aplications	Categories
Differentiation	Enterobacteria
Differentiation	Escherichia coli

Industry: Clinical

Principles and uses

Koser Citrate Broth is used to differentiate Escherichia coli from the Enterobacter group on the basis of citrate use utilization.

It is used in the same way as Simmons Citrate Agar (Cat. 1014), with the advantage of differentiating between coliforms of fecal origin (the majority is citrate-negative) and organisms from dirt that are 90% positive according to Wilson and Miles. These same authors report that only 6,7% of the coliforms isolated from human or animal feces are citrate-positive. Enterobacter aerogenes and Enterobacter cloacae use sodium citrate as a source of carbon and the inorganic ammonium phosphate salt as a source of nitrogen. Escherichia coli cannot use sodium citrate as carbon source and does not grow in this medium. Biochemical identification methods for identifying E. coli frequently include Koser citrate. Magnesium sulphate is a magnesium ion required in a large variation of enzymatic reactions, including DNA replication. Monopotassium phosphate is a buffer.

Formula in g/L

Monopotassium phosphate	1	Sodium citrate	3
Sodium ammonium phospate	1,5	Magnesium phosphate	0,2

Preparation

Suspend 5,7 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 screw-capped tubes and sterilize in autoclave at 121 ºC for 15 minutes. Tighten the caps after sterilization.

Instructions for use

Inoculate and incubate at 35±2 °C 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	Beige	Colorless	6,7±0,2

Microbiological test

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

Microrganisms	Specification
Enterobacter aerogenes ATCC 13048	Good growth
Enterobacter cloacae ATCC 23355	Good growth
Escherichia coli ATCC 25922	Null growth

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

Koser J. Bact. 8:493. 1973. Wilson G.S. and Miles A.A., "Topley and Wilson's Principles of Bacteriology and Inmunology", 4th Ed., Edward Arnold Ltd., London, Vol. 1. page 760.