KOSER CITRATE BROTH

CAT Nº: 1200

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

FORMULA IN g/l

Sodium Citrate	3.00	Monopotassium Phosphate	1.00
Sodium Ammonium Phosphate	1.50	Magnesium Sulfate	0.20

Final pH 6.7 ± 0.2 at 25ºC

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°C for 15 minutes. Tighten the caps after sterilization. The prepared medium should be stored at 2-8°C. The color of the prepared medium is colorless.

The dehydrated medium should be homogeneous, free-flowing and beige in color. If there are any physical changes, discard the medium.

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.

Inoculate and incubate at 35 ± 2°C for 18 – 24 hours. Bacteria which able to use citrate as their carbon source will grow in the medium causing turbidity.

MICROBIOLOGICAL TEST

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 35 ± 2°C and observed after 24 hours.

Microorganisms	Growth
Enterobacter aerogenes ATCC 13048	Good
Enterobacter cloacae ATCC 23355	Good
Escherichia coli ATCC 25922	Null

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.

STORAGE

Once opened keep powdered medium closed to avoid hydration.