TM 143 - KOSER CITRATE MEDIUM

INTENDED USE

For differentiation of *Escherichia coli* and *Enterobacter aerogenes* on the basis of citrate utilization.

PRODUCT SUMMARY AND EXPLANATION

Coliform bacteria serve as bacterial indicators of sanitary quality of food and water. These bacteria are normally found in the intestinal tract of humans and many warm-blooded animals. Coliforms encompasses mostly of *Enterobacteriaceae* from the genera *Enterobacter*, *Klebsiella*, *Escherichia,* and *Citrobacter*. The characteristics of the members of *Enterobacteriaceae* are that they are gram-negative rods and ferment glucose to form acid along with gas production. Two important members of the Enterobacteriaceae family are *Escherichia coli* and *Enterobacter aerogenes*. Both can be differentiated on the basis of IMViC test. *Enterobacter* species are able to utilize sodium citrate as the sole carbon source while *E. coli* fail to do so. This property is used to differentiate the coli-aerogenes group. Koser Citrate Medium is used as a base for studying citrate utilization tests. This medium is recommended by APHA, and others, to presumptively identify coliforms encountered in the food and dairy industry.

Koser Citrate Medium may be used in place of Simmon Citrate Agar. Inoculating into Koser Citrate Medium further identifies coli-like colonies from Endo or EMB Agar plates. After 24-48 hours' incubation, tubes showing marked turbidity may be assumed to contain organisms from aerogenes group and if the medium remains clear it may be considered as coli. Presumptive positive organisms identified on this medium should be further confirmed by performing the biochemical tests.

COMPOSITION

Ingredients	Gms / Ltr
Sodium ammonium phosphate	1.500
Potassium dihydrogen phosphate	1.000
Magnesium sulphate	0.200
Sodium citrate	3.000

PRINCIPLE

The various salts used serve as source of carbon and nitrogen to the organisms. Citric acid or its sodium salt is utilized as a sole source of carbon and ammonium salt as the sole source of nitrogen by *E. aerogenes* while *E. coli* does not utilize these salts and hence fail to grow.

INSTRUCTION FOR USE

- Dissolve 5.70 grams in 1000 ml purified / distilled water.
- Dispense into tubes and sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool to 45-50°C.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : White to cream homogeneous free flowing powder.
Appearance of prepared medium : Colourless, clear solution without any precipitate.
pH (at 25°C) : 6.7±0.2

INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Citrate Utilization	Incubation Temperature	Incubation Period
Klebsiella aerogenes	13048	50-100	Luxuriant	Positive reaction, turbidity	35 - 37°C	18-24 Hours
Enterobacter cloacae	23355	50-100	Luxuriant	Positive reaction, turbidity	35 - 37°C	18-24 Hours
Escherichia coli	25922	50-100	None-poor	Negative reaction, no turbidity	35 - 37°C	18-24 Hours
Klebsiella pneumoniae	13883	50-100	Luxuriant	Positive reaction, turbidity	35 - 37°C	18-24 Hours

PACKAGING:
In pack size of 100 gm and 500 gm bottles.

STORAGE
Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL
After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES
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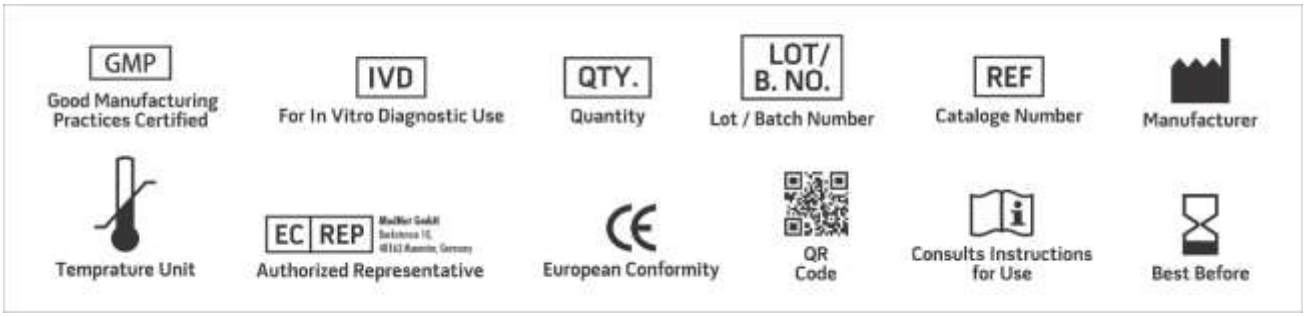

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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