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Simmons Citrate Agar

Simmons Citrate Agar is designed for differentiation between faecal coli and members of the aerogenes group based on citrate utilization.

REF: BS.1/NZ01.100.0100	100 Gram	REF: BS.1/NZ01.250.0250	250 Gram
REF: BS.1/NZ01.500.0500	500 Gram		

PRINCIPLE AND INTERPERTATION :

This medium is used for the differentiation between Enterobacteriaceae and the members of aerogenes group based on citrate utilization as sole carbon source. Initially the citrate medium was developed by Koser (1) containing ammonium salt as the only nitrogen source and citrate as the only carbon source for differentiating Escherichia coli and Enterobacter aerogenes by IMViC tests. Later on Simmons (2) modified Kosers formulation by adding agar and bromothymol blue (3). It is recommended by APHA (4).It is also recommended by BIS (5) for isolation of Escherichia coli Ammonium dihydrogen phosphate and sodium citrate serves as the sole nitrogen and carbon source respectively. Bromo thymol blue is the pH indicator. The organisms produce an alkaline reaction which is indicated by the change in colour from green to blue.

Item	Formula per liter of medium
Ammonium dihydrogen phosphate	1.00 gm
Magnesium sulphate	0.200 gm
Dipotassium phosphate	1.00 gm
Sodium citrate	2.00 gm
Sodium chloride	5.00 gm
Bromo thymol blue	0.08 gm
Agar	15.00 gm

MEDIA COMPOSITION

Final pH 6.8 ± 0.2
** Formula adjusted, standardized to suit performance parameters.

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.
  S56: dispose of this material and its container at hazardous or special waste collection point.
  S57: use appropriate container to avoid environmental contamination.
  S61: avoid release in environment.

For further information, refer to the Simmons Citrate material safety data sheet.

STORAGE AND STABILITY

BioScien Simmons Citrate Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use Product performance is best if used within stated expiry period.

PREPARATION

Suspend 24.28 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Mix well and distribute in tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubes as slants.

Deterioration

The color of ***BioScien*** Simmons Citrate agar Is yellow coloured homogeneous free flowing powder. prepared medium is Forest green coloured slightly opalescent gel forms as slants.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile petri dishes
- Incubator
- Autoclave

PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact ***BioScien*** technical support.

REFERENCE

1. Koser, 1923, J. Bact., 8:493.
2. Simmons, 1926, J. Infect. Dis., 39:209. 3. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
4. American Public Health Association, 1981, Standard Methods for the Examination of Water and Wastewater, 15th ed., APHA Inc., Washington, D.C.
5. Bureau of Indian Standards, IS:5887 (Part II) 1976, reaffirmed 1986

SYMBOLS IN PRODUCT LABELLING

IVD	For in-vitro diagnostic use	Σ	Number of <n> test in the pack
LOT	Batch Code/Lot number	⚠	Caution
REF	Catalogue Number		Do not use if package is damaged
	Temperature Limitation		Consult Instruction for use
	Expiration Date		
	Manufactured by		

Organisms (ATCC)	Growth	Citrate Utilisation
Escherichia coli ATCC 25922	Inhibited	Negative reaction, green colour
Klebsiella pneumoniae ATCC® 13883	good-luxuriant	Positive reaction, blue colour
Salmonella Typhimurium ATCC 14028	good-luxuriant	Positive reaction, blue colour
Shigella dysenteriae ATCC 13313	Inhibited	Negative reaction, green colour