

## Technical Data Sheet

# CE Simmons Citrate Agar

Ordering number: 1.02501.0500

Simmons Citrate Agar is a synthetic test agar proposed by Simmons (1926) for the identification of microorganisms (particularly of enteric Gram-negative bacilli from clinical specimens) on the basis of their metabolism of citrate, being the sole carbohydrate source.

IVD in vitro diagnosticum - For professional use only

### Mode of Action

In Simmons Citrate Agar, ammonium dihydrogen phosphate is the sole source of nitrogen and dipotassium hydrogen phosphate acts as a buffer. Sodium chloride maintains the osmotic balance and sodium citrate is the sole carbohydrate source. Metabolism of citrate leads to alkalization of the medium, which is indicated by a change in the color of the pH indicator bromothymol blue from green to deep blue. Magnesium sulfate is a cofactor for a variety of metabolic reactions.

According to Van Kregten et al. (1984) this culture medium can be used for cultivating *Klebsiella* by adding inositol.

### Typical Composition

Ammonium Dihydrogen Phosphate	1 g/l
K <sub>2</sub> HPO <sub>4</sub>	1 g/l
NaCl	5 g/l
Sodium Citrate	2 g/l
MgSO <sub>4</sub>	0.2 g/l
Bromothymol Blue	0.08 g/l
Agar-Agar	13 g/l

### Preparation

Suspend 22.3 g/l. Autoclave 15 min at 121 °C. Prepare slant agar tubes or pour plates.

The appearance of the plates or slants are clear and green.

The pH of the single-strength broth at 25 °C is in the range of 6.4 -6.8.

Preparation of *Klebsiella* agar: Add 10 g inositol/l before autoclaving the culture medium.

## Specimen

e.g. Isolated bacteria from stool.

Clinical specimen collection, handling and processing. See general instructions of use.

## Experimental Procedure and Evaluation

Streak a pure culture of the microorganism to be tested on the surface of the culture medium.

Incubation: 24 h at 35 °C aerobically.

Growth	Microorganisms
Positive, culture medium deep blue	Citrate-positive: <i>Citrobacter</i> , <i>Enterobacter</i> , <i>S. paratyphi</i> B., <i>S. enteritidis</i> , <i>S. typhimurium</i> , <i>Arizona</i> , <i>Klebsiella</i> , <i>Serratia</i> and others
Negative or inhibited	Citrate-negative: <i>Escherichia</i> , <i>Shigella</i> , <i>S. typh.</i> , <i>S. paratyphi</i> A and others

## Storage

The product can be used for sampling until the expiry date if stored upright, protected from light and properly sealed at +15 °C to +25 °C.

After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25° C.

## Disposal

Please mind the respective regulations for the disposal of used culture medium (e.g. autoclave for 20 min at 121 °C, disinfect, incinerate etc.).

## Quality Control

Control Strains	ATCC #	Incubation	Expected Results
<i>Enterobacter cloacae</i>	13047	24 h at 35 °C	Growth good to very good, color change to blue
<i>Salmonella typhimurium</i>	14028	24 h at 35 °C	Growth good to very good, color change to blue
<i>Klebsiella pneumoniae</i>	13883	24 h at 35 °C	Growth good to very good, color change to blue
<i>Escherichia coli</i>	25922	24 h at 35 °C	Growth none to poor, no color change
<i>Shigella flexneri</i>	12022	24 h at 35 °C	Growth none to poor, no color change
<i>Morganella morganii</i>	25830	24 h at 35 °C	Growth none to poor, no color change

Please refer to the actual batch related Certificate of Analysis.



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*Enterobacter cloacae, Escherichia coli*

## Literature

American Public Health Association (1992). Compendium methods for the microbiological examination of foods. 3<sup>rd</sup> edition.

American Public Health Association, American Water Works Association and Water Pollution Control Federation (1998). Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> edition.

Ewing, W.H. and Edwards, P.R. (1960). The principal divisions and groups of *Enterobacteriaceae* and their differentiation. Int. Bull. Bact. Nomencl. Taxon. **10**: 1-12.

Simmons, J.S. (1926). A culture medium for differentiating organisms of typhoid-colon aerogenes groups and for isolating of certain fungi. J. Infect. Dis. **39**: 209-241.

Van Kregten, E., Westerdahl, N.A.C. and Willers, J.M.N. (1984). New, simple medium for selective recovery of *Klebsiella pneumoniae* and *Klebsiella oxytoca* from human feces. J. Clin. Microbiol. **20**: 936-941.

## Ordering Information

Product	Cat. No.	Pack size
Simmons Citrate agar	1.02501.0500	500 g
Myo-Inositol	1.04728.0100	100 g

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