

# SIMMONS Citrate Agar

Synthetic test agar proposed by SIMMONS (1926) for the identification of microorganisms (particularly of Enterobacteriaceae and certain fungi) on the basis of their metabolism of citrate, being the sole carbohydrate source.



*In Vitro Diagnostic Medical Device –*

*For professional use only*



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## Principle

Microbiological method.

## General Information

This culture medium complies with the recommendations of the APHA for the examination of water (1998) and the recommendations of the APHA for the examination of food (1992).

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

## Mode of Action

Metabolism of citrate leads to alkalization of the medium, which is indicated by a change in the colour of the pH indicator bromothymol blue to deep blue.

## Typical Composition (g/litre)

Ammonium dihydrogen phosphate 1.0; di-potassium hydrogen phosphate 1.0; sodium chloride 5.0; sodium citrate 2.0; magnesium sulfate 0.2; bromothymol blue 0.08; agar-agar 13.0.

## Preparation

Suspend 22.3 g/litre, autoclave (15 min at 121 °C), prepare slant agar tubes or pour plates.

pH: 6.6 ± 0.2 at 25 °C.

The plates or slants are clear and green.

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

## Storage

Usable up to the expiry date when stored dry and tightly closed at +15 to +25° C. Protect from light.

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.

## Specimen

e.g. Isolated bacteria from stool .

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

*See also General Instruction for Use „How to use Dehydrated Culture Media“*

*For MSDS, warnings and precautions see our website: [www.merck-chemicals.com](http://www.merck-chemicals.com)*

## Experimental Procedure and Evaluation

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

Incubation: 24 - 48 hours 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

## Literature

American Public Health Association: Compendium methods for the microbiological examination of foods. - 3<sup>rd</sup> ed. 1992.

American Public Health Association, American Water Works Association and Water Pollution Control Federation: Standard Methods for the Examination of Water and Wastewater, 20th ed., Wash., 1998.

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

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

VAN KREGTEN, E., WESTERDAHL, N.A.C., a. WILLERS, J.M.N.: New, simple medium for selective recovery of *Klebsiella pneumoniae* and *Klebsiella oxytoca* from human feces. - *J. Clin. Microbiol.*, 20; 936-941 (1984).

## Ordering Information

Product	Ordering No.	Pack size
SIMMONS Citrate Agar	1.02501.0500	500 g
myo-Inositol	1.04728.0100	100 g

# SIMMONS Citrate Agar

## Quality control

Test strains	Growth	Colour change to blue
<i>Enterobacter cloacae</i> ATCC 13047	good / very good	+
<i>Salmonella typhimurium</i> ATCC 14028	good / very good	+
<i>Klebsiella pneumoniae</i> ATCC 13883	good / very good	+
<i>Escherichia coli</i> ATCC 25922	none / poor	-
<i>Shigella flexneri</i> ATCC 12022	none / poor	-
<i>Morganella morganii</i> ATCC 25830	none / poor	-