

Simmons Citrate Broth



Medium used for the identification and determination of *Enterobacteriaceae* on the basis of citrate utilization.

• CONTENTS (Liter)

Ammonium Dihydrogen Phosphate	1.0 g
Dipotassium Phosphate	1.0 g
Sodium Chloride	5.0 g
Sodium Citrate	2.0 g
Magnesium Sulfate	0.2 g
Bromothymol Blue	0.08 g
Final pH = 6.7 ± 0.2 at 25°C	

• PROCEDURE

Suspend 9.3 G of powder in 1 L of distilled or deionized water. Heat to boiling until completely dissolved. Sterilize by autoclave at 121°C for 15 minutes. Cool to 45 - 50°C in water bath. Mix well. Pour into tubes. If necessary, dispense the medium before autoclave.

• INTERPRETATION

Simmons Citrate Broth is a medium used for the identification and determination of *Enterobacteriaceae* on the basis of citrate utilization. Ammonium dihydrogen phosphate and sodium citrate serve as the sole nitrogen and carbon source respectively. Microorganisms also use inorganic ammonium salts as their sole nitrogen source. Metabolism of these salts causes the medium to become alkaline as evidenced by a change in color of the bromothymol blue from green (neutral) to blue (alkaline). Bromothymol blue is the pH indicator. The rise in pH is due to an oxidative reaction which occurs in the presence of oxygen. Magnesium sulfate is a magnesium ion required in a large variation of enzymatic reactions, including DNA replication. Dipotassium phosphate is a buffer.

• TECHNIC

Inoculate the specimen using a sterile needle to the medium. Incubate at 35 ± 2°C for 24 - 48 hours up to 4 days. Slightly loosen the caps. Refer appropriate references for recommended test procedure.

• QUALITY CONTROL FOR USE

Dehydrated medium

Appearance: free-flowing, homogeneous

Color: yellow, may have green tinge

Prepared medium

Appearance: clear

Color: green

Incubation conditions: 35 ± 2°C / 24 - 48 hours up to 4 days / loosen the caps

Microorganism	ATCC	Inoculum CFU	Growth	Characteristics
<i>Enterobacter aerogenes</i>	13048	50-100	good	blue
<i>Salmonella typhimurium</i>	14028	50-100	good	blue
<i>Klebsiella pneumoniae</i>	13883	50-100	good	blue
<i>Escherichia coli</i>	25922	≥10 ³	inhibited	green
<i>Shigella flexneri</i>	12022	≥10 ³	inhibited	green

• STORE

The powder is very hygroscopic. Store the powder at room temperature, in a dry environment, in its original container tightly closed and use it before the expiry date on the label. Store prepared medium at 2 - 8°C.

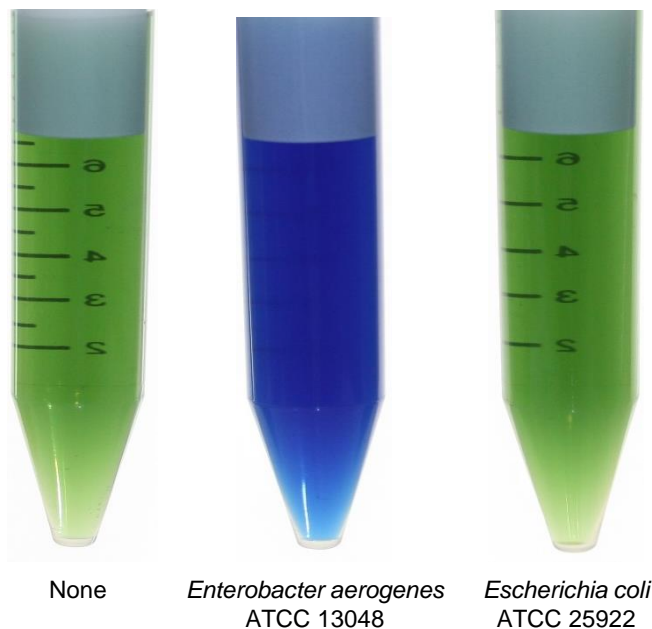
• REFERENCES

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.

• PACKAGE

Cat. No : MB-S1605 Simmons Citrate Broth	500 G
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• MICROBIAL CULTURE IMAGES



Incubation conditions : 35 ± 2°C / 24 - 48 hours up to 4days