

Giolitti-Cantoni Broth Base

Intended Use

Giolitti-Cantoni Broth Base is used for enriching *Staphylococcus aureus* from foods during isolation procedures.

Summary and Explanation

Giolitti and Cantoni¹ described a broth medium with added potassium tellurite and a test procedure for enriching small numbers of staphylococci in foods. Mossel et al.² recommended Giolitti-Cantoni Broth for detecting *Staphylococcus aureus* in dried milk and other infant foods where the organism should be absent from 1 g of test material.

The International Organization for Standardization (ISO) and American Public Health Association recommend using Giolitti-Cantoni Broth in a MPN procedure for detecting *S. aureus*.^{3,4}

Principles of the Procedure

Giolitti-Cantoni Broth Base contains peptone and beef extract as sources of carbon, nitrogen, vitamins and minerals. Yeast extract supplies B-complex vitamins which stimulate bacterial growth. D-Mannitol is the carbohydrate source. Sodium pyruvate stimulates growth of staphylococci. Lithium chloride inhibits gram-negative bacilli. Added Tellurite Solution 1% supplies potassium tellurite, which in combination with glycine, inhibits gram-positive bacteria other than staphylococci. TweenTM* 80 acts as an emulsifier.

*Tween is a trademark of ICI Americas Inc.

Formula

Difco™ Giolitti-Cantoni Broth Base

Approximate Formula* Per Liter

Tryptone	10.0	g
Beef Extract.....	5.0	g
Yeast Extract	5.0	g
D-Mannitol	20.0	g
Sodium Chloride	5.0	g
Lithium Chloride	5.0	g
Glycine.....	1.2	g
Sodium Pyruvate	3.0	g

*Adjusted and/or supplemented as required to meet performance criteria.

Directions for Preparation from Dehydrated Product

1. Dissolve 54.2 g of the powder in 1 L of purified water.
2. Add 1.0 g Tween 80.
3. Warm slightly to completely dissolve the powder.
4. Dispense 19 mL amounts into 20 × 200 mm tubes.
5. Autoclave at 121°C for 15 minutes. Cool to 15-30°C.
6. Aseptically add 1.05 mL Tellurite Solution 1% per tube; 0.105 mL when testing meat products (or quality control organisms). Mix thoroughly.
7. Test samples of the finished product for performance using stable, typical control cultures.

User Quality Control

Identity Specifications

Difco™ Giolitti-Cantoni Broth Base

Dehydrated Appearance: Tan, free-flowing, homogeneous.

Solution: 5.42% solution, soluble in purified water upon warming. Solution is medium amber, clear.

Prepared Appearance: Medium amber, clear.

Reaction of 5.42%

Solution at 25°C: pH 6.9 ± 0.2

Cultural Response

Difco™ Giolitti-Cantoni Broth Base

Prepare the medium per label directions. Inoculate (overlying with sterile paraffin wax or mineral oil) and incubate at 35 ± 2°C for 40-48 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	APPEARANCE
<i>Escherichia coli</i>	25922	10 ³ -2 × 10 ³	Inhibition	No blackening
<i>Micrococcus luteus</i>	10240	10 ³ -2 × 10 ³	Inhibition	No blackening
<i>Staphylococcus aureus</i>	6538	10 ² -10 ³	Good	Black
<i>Staphylococcus aureus</i>	25923	10 ² -10 ³	Good	Black



Procedure

For food samples, follow appropriate standard methods for details on sample collection and preparation according to sample type and geographic location.^{3,4}

Consult appropriate references for details on test methods using Giolitti-Cantoni Broth Base.^{3,4}

Expected Results

Read tubes for blackening of the medium (a positive reaction) or no blackening (a negative reaction). If blackening occurs, subculture to Baird-Parker Agar to confirm the isolation of *S. aureus*.

References

1. Giolitti and Cantoni. 1966. J. Appl. Bacteriol. 29:395.
2. Mossel, Harrewijn and Elzebroek. 1973. UNICEF.
3. International Organization for Standardization. 2003. Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci – Part 3: Detection and MPN technique for low numbers. ISO 6888-3, 2003-03-15. ISO, Geneva, Switzerland.
4. Downes and Ito (ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.

Availability

Difco™ Giolitti-Cantoni Broth Base

COMPF **ISO**

Cat. No. 218091 Dehydrated – 500 g

BBL™ Tellurite Solution 1%

Cat. No. 211917 Tube – 20 mL

Difco™ Tween™ 80

Cat. No. 231181 Bottle – 100 g