

## Technical Information

### Giolitti Cantoni Broth Base

#### Product Code: DM 1584I

**Application:** - Giolitti Cantoni Broth Base with addition of potassium tellurite is recommended for selective enrichment of *Staphylococcus aureus* from suspected food stuffs, in accordance with ISO.

#### Composition\*\*

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Meat extract	5.000
Yeast extract	5.000
Mannitol	20.000
Sodium chloride	5.000
Lithium chloride	5.000
Glycine	1.200
Sodium pyruvate	3.000
Tween 80	1.000
Final pH ( after sterilization)	6.9±0.2

\*\*Formula adjusted, standardized to suit performance parameters

#### Principle & Interpretation

Giolitti-Cantoni (1) formulated the broth base and Mossel et al (2) recommended it for detection of *Staphylococcus aureus* in dried baby milk and other weaning foods where the organism should be absent in 1 gram of sample. It is also recommended by ISO Committee (3) for the examination of meat and meat products.

Mannitol and sodium pyruvate present in the basal medium act as growth stimulants for *Staphylococcus aureus*, aiding in detection of small number of organisms (4). Lithium chloride inhibits gram-negative lactose fermenting bacilli (5). Potassium tellurite and glycine inhibit gram-positive bacilli. Addition of sterile paraffin wax to the inoculated medium inhibits *Micrococci* due to creation of anaerobic conditions. Potassium tellurite concentration must be reduced as per the weight of test sample (0.1 - 0.01 gram). The medium should be inoculated as soon as it has been cooled after sterilization, otherwise absorbed oxygen should be expelled by placing the tubes in free-flowing steam for 15 - 20 minutes.

Inoculate 1 gram of sample or 1 ml of a suitable dilution of a sample into 19 ml of Giolitti-Cantoni Broth tubes in duplicate. Overlay the medium with 5 ml molten sterile paraffin wax and incubate at 37°C for 24-48 hours and examine daily. Blackening of the medium (usually at the bottom) within 48 hours indicates the presence of *Staphylococcus aureus*. The blackened medium, when streaked on Baird Parker Agar (M043), shows black colonies surrounded by clear zones (6).

#### Methodology

Suspend 55.20 grams of dehydrated media powder in 1000 ml distilled water. Warm gently to dissolve the medium completely. Dispense 19 ml amounts in 20mmx200mm test tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool rapidly to room temperature and aseptically add 0.1 ml of 1% Potassium Tellurite Solution (MS 2052) to each tube. Add 0.03 ml for testing meat and meat products. Shake well before use.

**Warning:** Lithium chloride is harmful. Avoid bodily contact and inhalation of vapours. On contact with skin, wash with plenty of water immediately.

## Quality Control

### Appearance

Cream to brownish yellow coloured homogeneous free flowing powder

### Colour and Clarity

Medium amber coloured clear solution without any precipitate.

### Reaction

Reaction of 5.52% w/v aqueous solution at 25°C. pH : 6.9±0.2

### pH Range

6.70-7.10

### Cultural Response

DM 1584I: Cultural characteristics observed with addition of 1% Potassium Tellurite Solution (MS 2052) after an incubation at 35-37°C for 24-48 hours.

### Cultural Response

Organism	Inoculum (CFU)	Growth	Tellurite reduction
<b>Cultural Response</b>			
<i>Escherichia coli</i> ATCC 25922	$\geq 10^3$	inhibited	Negative reaction
<i>Micrococcus luteus</i> ATCC 10240	$\geq 10^3$	inhibited	Negative reaction
<i>Staphylococcus aureus</i> ATCC 25923	50-100	luxuriant	Positive, blackening of the medium

## Storage and Shelf Life

**Dried Media:** Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

**Prepared Media:** 2-8° in sealable plastic bags for 2-5 days.

## Further Reading

1. Giolitti C. and Cantoni C., 1966, J. Appl. Bact., 29:395.
2. Mossel D.A.A., Harrewijn G.A. and Elzebroek J.M., 1973, UNICEF.
3. International Organization for Standardization (ISO), 2003, Draft ISO 6888-3:2003(E).
4. Baird-Parker, A.C., 1962, J. Appl. Bact., 25:12.
5. Lambin S. and German A., 1961, 'Precis de Microbiologie', pg. 63, Paris Masson.
6. De Waart J., Mossel D.A.A., Ten Broeke R. and Van de Moosdijk A., 1968, J. Appl. Bact. 31:276.

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