

69527 Modified Giolitti and Cantoni Broth (ISO) (Giolitti Cantoni Broth, Modified (ISO) NutriSelect® Plus

Giolitti Cantoni Broth Base with addition of potassium tellurite is used for selective enrichment of *Staphylococcus aureus* from foods.

Composition:

Ingredients	Grams/Litre
Casein enzymic hydrolysate	10.0
Beef extract	5.0
Yeast extract	5.0
Mannitol	20.0
Sodium chloride	5.0
Lithium chloride	5.0
Glycine	1.2
Sodium pyruvate	3.0

Final pH 6.9 +/- 0.2 at 25°C

Store dehydrated powder between 10- 30°C in a tightly closed container and the prepared medium at 2-8°C. Protect from moisture and light by keeping container in a low humidity environment. Use before expiry date on the label.

Appearance(color): Faint yellow to faint beige to faint brown, free flowing powder
Color and Clarity: Medium amber coloured, clear solution without any precipitate

Directions:

Suspend 54.2 grams in 1000 ml distilled water. Warm gently to dissolve the medium completely. Dispense 19 ml amounts in 20mm x 200mm test tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool rapidly to room temperature and aseptically add 0.3 ml of 3.5% Potassium Tellurite Solution to each tube. Add 0.03 ml for testing meat and meat products. Mix well before use.

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

Principle and Interpretation:

Giolitti-Cantoni Broth, a tellurite-mannitol-glycine enrichment broth, based on the formulation of Giolitti & Cantoni is employed for the recovery of low number of *Staphylococcus aureus* from foodstuffs (1). Giolitti- Cantoni Broth was also recommended by Mossel et.al. for detecting *Staphylococcus aureus* in dried milk, baby food and other food products (3). This medium was recommended as an enrichment medium by the International Dairy Federation (IDF) and APHA for detecting *S. aureus* in dried milk and other foods stating that the organism should be absent in 1 gram of sample (4,5). ISO committee has also recommended this medium for examination of meat and meat products (2). Giolitti-Cantoni Broth Base contains tryptone, yeast extract and HM peptone B as sources of carbon, nitrogen, vitamins and minerals and B-complex vitamins. Mannitol and sodium pyruvate are growth stimulants for staphylococci and aid detection of the organism when present in small numbers only (7). The growth of Gram-negative lactose fermenting bacilli are inhibited by lithium chloride and Gram-



positive bacilli are inhibited by Potassium tellurite in combination with glycine (6). The creation of anaerobic conditions by overlaying with 2cm of sterile paraffin wax inhibits the growth of micrococci. The medium is suitable for the examination of meat and meat products (8). For this purpose, the concentration of the Potassium tellurite must be reduced to 0.35% and it is recommended that the weight of the test sample should be reduced to 0.1-0.01g.

Cultural characteristics observed with added 3.5% Potassium Tellurite Solution, after an incubation for 24- 48 hrs at 35 -37°C.

Organisms (ATCC/WDCM)	Inoculum (CFU)	Growth	Tellurite reduction
<i>Escherichia coli</i> (25922/ 00013)	$\geq 10^4$	-	
<i>Micrococcus luteus</i> (10240/-)	$\geq 10^4$	-	
<i>Pseudomonas aeruginosa</i> (27853/00025)	$\geq 10^4$	-	
<i>Staphylococcus aureus</i> <i>subsp. aureus</i> (6538/00032)	50-100	++/+++	positive, blackening at the bottom of the tubes or general blackening of the medium
<i>Staphylococcus aureus subsp. aureus</i> (25923/00034)	50-100	++/+++	positive, blackening at the bottom of the tubes or general blackening of the medium
<i>Bacillus cereus</i> (11778/00001)	$\geq 10^4$	-	
<i>Staphylococcus epidermidis</i> (12228/00036)	50-100	+/++	variable reaction

References:

1. Giolitti C. and Cantoni C., 1966, J. Appl. Bacteriol., 29: 395
2. International Organization for Standardization (ISO), 1977, Draft ISO/DIS 5551, Part 2
3. Mossel D. A. A., Harrewijn G. A. and Elzebroek J. M., 1973, UNICEF.
4. Marshall, (Ed.), Standard Methods for the Microbiological Examination of Dairy Products, 1993, 16th Ed., American Public Health Association, Washington, D.C.
5. International Dairy Federation, 1978, IDF Standard 60A:1978, International Dairy Federation, Brussels, Belgium.
6. Lambin S. and German A., 1961, Precis De Microbiologie, pg. 63, Paris Masson.
7. Baird-Parker A. C. (1962) J. Appl. Bact. 25. 12.
8. ISO/DIS 5551 (1177) Part 2.



Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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