

Modified Giolitti and Cantoni Broth (ISO) (NCM0184)

Intended Use

Modified Giolitti and Cantoni Broth (ISO) is used for the detection and enumeration of coagulase-positive staphylococci from food and animal feeding stuffs using the Most Probable Number (MPN) technique according to ISO 6888-3:2003. This medium is not intended for use in the diagnosis of disease or other conditions in humans.

Description

Originally described by Giolitti and Cantoni as a medium for the enrichment of staphylococci from foodstuffs, Mossel later applied the medium to use with samples from dried milk and infant food. Optimized for use in samples where staphylococci may be stressed and/or in low numbers, growth of the target organisms is promoted by sodium pyruvate, Glycine and the high concentration of mannitol. Selectivity is achieved via lithium chloride, which inhibits Gram-negative bacilli, and potassium tellurite, which inhibits Gram-positive organisms other than staphylococci. Further selectivity is achieved by use of anaerobiosis either by pouring a plug of agar/paraffin or by incubation in a jar or incubator under anaerobic conditions. Anaerobiosis particularly inhibits the growth of *Micrococcus* spp.

The presence of coagulase-positive staphylococci is indicated by the reduction of tellurite, resulting in a blackening of the broth or a black precipitate. Coagulase-positive staphylococci are principally *Staphylococcus aureus* but may also include the species *Staphylococcus intermedius* and *Staphylococcus hyicus*.

Typical Formulation

Peptone Mix	15.0 g/L
Yeast Extract	5.0 g/L
Lithium Chloride	5.0 g/L
Mannitol	20.0 g/L
Sodium Chloride	5.0 g/L
Glycine	1.2 g/L
Sodium Pyruvate	3.0 g/L
Final pH: 6.9 ± 0.2 at 25°C	

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Supplement

X043 1% Potassium Tellurite – see below for volumes

Precaution

Refer to SDS

Preparation

Single Strength:

1. Dissolve 54.2 grams of the medium in one liter of purified water.
2. Swirl to mix and add 1 gram of polyoxyethelene sorbitan mono-oleate (Tween 80).
3. Heat with frequent agitation to completely dissolve.
4. Dispense the medium in appropriate tubes and autoclave at 121°C for 15 minutes then allow to cool to 44-47°C.
5. Prior to use add X043 1% Potassium Tellurite to give a final concentration of 0.1 g/L, e.g. add 0.1mL X043 to 9ml of single strength base. DO NOT REHEAT MEDIA CONTAINING POTASSIUM TELLURITE.



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Double Strength:

6. Dissolve 108.4 grams of the medium in one liter of purified water.
7. Swirl to mix and add 2 grams of polyoxyethelene sorbitan mono-oleate (Tween 80).
8. Heat with frequent agitation to completely dissolve.
9. Dispense the medium in appropriate tubes and autoclave at 121°C for 15 minutes then allow to cool to 44-47°
10. Prior to use add X043 1% Potassium Tellurite to give a final concentration of 0.1g/L, e.g. add 0.2mL X043 to 9ml of double strength base. DO NOT REHEAT MEDIA CONTAINING POTASSIUM TELLURITE.

If product is to be used on day of preparation, allow to cool to 44-47°C and use immediately after supplementation with potassium tellurite. If the medium is not used as above then the base medium must be re-heated to 100° C for 15 minutes to expel any dissolved oxygen and cooled to 44-47°C. DO NOT REHEAT MEDIA CONTAINING POTASSIUM TELLURITE.

Test Procedure

Incubate anaerobically (either by agar/paraffin plug in each tube or under anaerobic conditions in a gas jar or anaerobic workstation) at 37°C for 24 to 48 hours (\pm 2 hours). Formation of a black precipitate or the blackening of the broth indicates the presence of coagulase-positive staphylococci.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing and beige.

Prepared Appearance: Prepared medium is clear, pale yellow (will be darker if prepared at double-strength)

Minimum QC:

Staphylococcus aureus WDCM 00034
Escherichia coli WDCM 00013

Results

Refer to appropriate references for results.

Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing or appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedures

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Storage

Store dehydrated culture media at 2-30°C away from direct sunlight. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References

1. Giolitti, G. and Cantoni, C. (1966). A medium for the isolation of staphylococci from foodstuffs. J. Appl. Bacteriol. 29:395-398.
2. Mossel, D.A.A., Harrewijn, G.A. and Elzebroek, J.M. (1973). UNICEF.
3. ISO 6888-3:2003 Microbiology of food and animal feeding stuffs - Horizontal method for the



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Technical Specification Sheet



enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) - Part 3: Detection & MPN technique for low numbers.

Effective Date: 4/11/2019

Revision: 1



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