Technical Information

ITC Broth Base (TTC Broth Base)

Product Code: DM 2220

Application: - ITC or TTC Broth Base (Irgasan/ Triclosan Ticarcillin Chlorate Broth Base) is recommended for selective enrichment and enumeration of *Yersinia enterocolitica.*

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Yeast extract	1.000
Magnesium chloride. hexahydrate	60.000
Sodium chloride	5.000
Malachite green	0.010
Irgasan (Trichlosan)	0.001
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

ITC Broth is formulated in accordance with APHA (1) and is recommended by ISO Committee (2) as a selective enrichment medium for *Y. enterocolitica* from foods. ITC Broth was developed by Wauters et al (3) as a new enrichment broth, derived from modified Rappaport Broth and based on the selective agents irgasan, ticarcillin and potassium chlorate.

The genus *Yersinia* belongs to the family *Enterobacteriaceae*. They are usually nitrate reductase positive and show fermentative metabolism. The genus comprises of 11 species, of which *Yersinia enterocolitica* s most important as a causative agent of human foodborne illness. Variety of enrichment methods has been described for recovery of *Y. enterocolitica* from foods. The most efficient procedures for recovering enteropathogenic bacteria from foods have incorporated at least one and often two enrichment steps before plating onto selective differential agar media.

Casein enzymic hydrolysate and yeast extract supply essential nutrients for the growth of test microorganism. Ticarcillin has inhibitory action on both gram-positive and gram-negative organisms. Irgasan inhibits gram-positive organisms. Potassium chlorate has disinfecting properties.

For enrichment prepare 1: 10 homogenate of food sample by weighing 25 grams of food and adding it to 225 ml of primary enrichment medium. Prepare homogenate and carefully transfer the homogenate into sterile jar for incubation. After incubation, streak onto agar plates such as MacConkey Agar (DM 1081). After incubation, observe for the colonies of *Yersinia*, which are pinkish coloured, smooth and have an entire edge. Colonies of *Yersinia* are larger on agar media when incubated at 25°C as *Y.enterocolitica* is more active biochemically at 25°C than at 35-37°C.

Methodology

Suspend 44.11 grams of dehydrated powder media in 988 ml distilled water. Mix thoroughly & heat to boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C.Aseptically add rehydrated contents of 1 vial of Ticarcillin Supplement (MS 2102) and Potassium Chlorate Supplement (MS 2103). Shake well & before dispensing in sterile tubes.

Quality Control

Appearance
Light yellow to light blue homogeneous free flowing powder

Colour and Clarity
Peacock green coloured, clear solution without any precipitate

Reaction
Reaction of 4.41% w/v aqueous solution at 25°C. pH : 6.9±0.2

pH Range
6.70-7.10

Cultural Response
DM 2220: Cultural characteristics observed with added Ticarcillin Supplement (MS 2102) and Potassium Chlorate Supplement (MS 2103) after an incubation at 25-30°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth
Cultural Response		
Escherichia coli ATCC 25922	>=10^3	inhibited
Staphylococcus aureus ATCC 25923	>=10^3	inhibited
Yersinia enterocolitica ATCC 27729	50-100	good-luxuriant

Storage and Shelf Life

Dried Media: Store below 10-30°C in tightly closed container and prepared medium at 2-8°C. Use before expiry period on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Vanderzant C. and Splittstoesser D. F., (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.
2. International Organization for Standardization (ISO), 1994, Draft ISO/DIS 10273.
3.Wauters G., Goossens V., Janssens M. and Vandepitte J., 1988, In. J. Syst. Bacteriol., 38, 424-429.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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