Certificate of Analysis

PREPARED MICROBIOLOGICAL MEDIA

TETRATHIONATE-BRILLIANT-GREEN BROTH

Catalogue Number	CMS183-9ml-1
Product Description	Tetrathionate-Brilliant-green Broth, 9ml Tube,
Lot Number	
Date of Manufacture	
Expiry Date	

Intended Use:

For the selective enrichment of *Salmonella* species from feces, food, and meat samples, etc.

Summary and Explanation:

Microbiological control in the food industry plays a critical role in preventing *Salmonella* outbreaks. Tests and media used for the identification of *Salmonella* take advantage of unique aspects of *Salmonella* physiology or biochemistry relative to other genera within the family Enterobacteriaceae. For example, bacteria from the genus *Salmonella* are mostly facultative anaerobes, oxidase-negative, catalase-positive, and gram-negative rods. Most strains are motile and fermented glucose with the production of both acid and gas.

Salmonella contamination is the second leading cause of foodborne illness worldwide. Controlling outbreaks of *Salmonella* is an important task for food regulators, restaurants, and the food industry in general.

The *Salmonella* family includes over 2,300 serotypes of bacteria, but two types, *Salmonella* enteritidis and *Salmonella typhimurium* are responsible for about half of all human infections. Most outbreaks of *Salmonella* are traced back to dairy, poultry, and meat products, but *Salmonella* can grow on nearly any food. Chicken, eggs, and their derivative products are particularly high risk.

REAGENTS (FORMULA):

Meat peptone …….……..8.6		
Brilliant green …….…..... 0.07		g
Calcium Carbonate..... 20.0		g
potassium tetrathionate…….…..... 2.0		g
Sodium chloride..... 6.4.		g
ox-bile (dried)….……...……...…….8.0		g
Deionized Water 1000.0		ml

Preparation Note

Dissolve 63 g in 1 liter of distilled water. Heat gently to the max. 50°C if necessary. Pour into tubes making sure that any undissolved calcium carbonate is evenly distributed. Do NOT autoclave. Let stand for 2 - 3 days at room temperature to achieve an optimal enrichment effect.

QA Testing:	Result:	Expected:
Characteristics	**Pass**	**Pass**
Sterility	**Pass**	**Pass**
Performance	**Pass**	**Pass**

pH	7.0 ± 0.2 @ 25°C
Appearance	Brilliant Green, Sediment Calcium Carbonate
Storage Condition	Refrigerate, 2-8°C
Sterility Method	Do not Autoclave
Sterility Test	Pass

(Absence of growth following 72 hours at 30 - 35°C)

Control Media:
1. The sample is enriched in Lactose-Broth (pre-enrichment).
2. From the pre-enrichment inoculate an appropriate amount into TBG-Broth and incubate for 18-24 h at 35-37°C (selective enrichment).
3. Streak onto appropriate Salmonella media (e.g., Bismuth sulfite Agar; 95388/ SS-Agar; 85640/ XLT4 Agar; 76721/ XLD Agar; 95586/ Brilliant Green Phenol Red Lactose Sucrose Agar; 16026/ Leifson Agar; 61792/ *Salmonella* Chromogen Agar; 84369/ Salmonella ChromoSelect Agar, Improved; 05538/ *Salmonella* ChromoSelect Agar; 78419/ Hektoen Enteric Agar; 51490/ Mac Conkey Agar No 1; 70143).

Principle and Interpretation:

Tetrathionate-Brilliant-green Bile Enrichment Broth is described in the DAB, the European and Indian Pharmacopoeia [1,2,3] for the selective enrichment of Salmonella from foods, water, and other samples. Meat peptone serves as nitrogen, carbon, and general amino acid source, while sodium chloride is responsible for the osmotic balance. Calcium carbonate buffers sulfuric acid produced on the reduction of tetrathionate [5]. Ox-bile and brilliant green inhibit the gram-positive accompanying flora as well as some selected gram-negative species. Potassium tetrathionate inhibits normal flora of fecal specimens. Proteus species can be inhibited by adjusting the pH of the medium to approx. 6.5. An addition of 0.04 g/liter novobiocin is described as well to inhibit *Proteus* species [4].

Cultural characteristics were observed after 18-24 hours at 35-37°C on MacConkey Agar

Organisms	Incubation	Results
Salmonella serotype Typhimurium ATCC 14028	18-24 hours at 35-37°C	Good Grow
Salmonella enteritidis ATCC 13076	18-24 hours at 35-37°C	Good Grow
Escherichia coli ATCC 25922	18-24 hours at 35-37°C	Little Grow
Staphylococcus aureus ATCC 25923	18-24 hours at 35-37°C	No Grow

BIBLIOGRAPHY:

1. European Pharmacopeia II, Kapitel VIII, 10
2. Deutsches Arzneibuch (DAB), 10. Auflage, Kapitel VIII, 10
3. Indian Pharmacopeia, Vol. II, Published by the Controller of Publications, New Dehli, Government of India, Ministry of Health and Family Welfare (1996)
4. L. Jeffries, Novobiocin-tetrathionate broth: A medium of improved selectivity for the isolation of Salmonellae from faeces, J. Clin. Path., 12, 568-571 (1959)
5. K.H. Nealson, Component of tetrathionate-containing and tetrathionate-producing culture media (TBG Broth) for buffering sulfuric acid produced on reduction of tetrathionate. Media component for luminous bacteria, Methods Enzymol. 57, 154, (1978)

Released By: Mehdi Kargar

Date:

All our prepared media products are manufactured at our site in RCFFN, University of Manitoba, and tested both at our site and by the department of Microbiology, University of Manitoba.
The generation of this certificate confirms all sterilization and performance criteria have been achieved.
NOTE: Expiry Date only valid if packs stored unopened at Ambient Room Temperature not exceeding 25°C.

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