Tetrathionate Broth Base, Hajna

Intended Use
Tetrathionate Broth Base, Hajna is used for selective enrichment of *Salmonella*, particularly in food and dairy products prior to isolation.

Summary
Tetrathionate Broth Base was first formulated by Mueller who showed that this medium favours the unrestricted growth of enteric pathogens by selectively inhibiting the coliforms. Muellers medium was subsequently modified by Kauffman and Knox in which they obtained a greater number of isolates. Tetrathionate Broth Base, Hajna is the modification formulated by Hajna and Damon. This medium is recommended by APHA for the selective enrichment of *Salmonella* from foodstuffs.

Principle
Peptone special and yeast extract are the sources of carbon, nitrogen, vitamins and minerals. The selectivity depends on the ability of thiosulphate and tetrathionate (formed by the addition of iodine-iodide) to suppress commensal coliform organisms. Sodium deoxycholate and brilliant green inhibit gram-positive organisms. Dextrose and Mannitol are the carbohydrates sources. Calcium carbonate neutralizes the acidic tetrathionate decomposition products. Sodium chloride maintains the osmotic balance of the medium.

Formula*

Ingredients	g/L
Sodium Thiosulphate	38.0
Calcium Carbonate	25.0
Peptone Special	18.0
Sodium Chloride	5.0
D-Mannitol	2.5
Yeast Extract	2.0
Dextrose	0.5
Sodium Deoxycholate	0.5
Brilliant Green	0.01
Final pH (at 25°C)	7.6 ± 0.2

*Adjusted to suit performance parameters

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of Specimen
Food and dairy samples

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.
The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions
1. Suspend 91.51 g of the powder in 1000 mL purified / distilled water. Mix thoroughly.
2. Heat to dissolve the powder completely or place in flowing steam for 30 minutes.
3. DO NOT AUTOCLAVE. Cool to 45°C.
4. Mix and add 40 mL of iodine solution (8 g potassium iodide and 5 g of iodine per 40 mL).
5. Mix and dispense 10 mL aliquots in tubes.
6. Do not heat after the addition of iodine.

Note: Due to the presence of calcium carbonate, the prepared medium forms opalescent solution with a white precipitate.

Quality Control

Dehydrated Appearance: Cream coloured, homogenous, free flowing powder.
Prepared Appearance: Light green coloured opalescent solution with heavy white precipitate, on standing the precipitate settles down.
Cultural Response: Cultural characteristics observed after an incubation of 18-24 hours at 30°C-35°C and subsequent recovery on MacConkey Agar for 18-24 hours at 30°C-35°C.

Organism (ATCC)	Growth	Colour of Colony
Salmonella enterica subsp. *enterica* serovar *Typhimurium* (14028)	Good	Colourless
Salmonella enterica subsp. *enterica* serovar *Typhimurium* (23564)	Good	Colourless
Salmonella Enteritidis (13076)	Good	Colourless
Escherichia coli (25922)	Partial Inhibition	Pink with bile precipitate
Escherichia coli (8739)	Partial Inhibition	Pink with bile precipitate

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

References

1. Mueller L., 1923, C.R. Soc. Biol. (Paris), 89:434.
2. Kauffman F., 1930, Zentralb. Bakteriol. Parasitenkd. Infektionskr- Hyg. Abt. I. Orig., 113:148.
3. Knox R., Gell P. and Pollack M., 1942, J. Pathol. Bacteriol, 54:469.
4. Hajna A. A. and Damon S. R., 1956, Appl. Microbiol., 4:341.
5. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
6. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
7. Pollock M. R. and Knor R., 1943, Biochem J., 37:476.
8. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201200100100	Dehydrated Culture Media	100 g
201200100500	Dehydrated Culture Media	500 g