Tetrathionate Broth Base, Hajna (TT Broth Base)

M327

Tetrathionate Broth Base, Hajna is used for enrichment and isolation of Salmonellae.

Composition**

Ingredients	Gms / Litre
Peptone, special	18.000
Yeast extract	2.000
Sodium chloride	5.000
D-Mannitol	2.500
Dextrose	0.500
Sodium deoxycholate	0.500
Sodium thiosulphate	38.000
Calcium carbonate	25.000
Brilliant green	0.010
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 91.51 grams in 1000 ml distilled water. Heat just to boiling or place in flowing steam for 30 minutes. DO NOT AUTOCLAVE. Cool to 45°C. Mix and add 40 ml of Iodine solution (8 g potassium iodide and 5 g iodine per 40 ml). Mix and dispense 10 ml amounts in tubes. Do not heat after addition of iodine.

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

Principle And Interpretation

Tetrathionate Broth Base was first formulated by Mueller (1) who showed that this medium favours the unrestricted growth of enteric pathogens by selectively inhibiting the coliforms. Muellers medium was subsequently modified by Kauffman (2) and Knox (3) in which they obtained more number of isolates. Tetrathionate Broth Base, Hajna is the modification formulated by Hajna and Damon (4). This medium is recommended by APHA (5) for the selective enrichment of Salmonellae from foodstuffs. 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 (6, 7). 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. After enrichment of the sample, streak on the plates of Brilliant Green Agar (M016), MacConkey Agar (M081), Bismuth Sulphite Agar (M027) for further confirmation,

Quality Control

Appearance
Cream to light green homogeneous free flowing powder

Colour and Clarity of prepared medium
Light green coloured opalescent solution with white precipitate, on standing the precipitate settles down.

Reaction
Reaction of 9.15% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH
7.40-7.80

Cultural Response
M327: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours (Recovery is done on MacConkey Agar M081).

Organism	Inoculum (CFU)	Growth on M081	Colour of colony
Escherichia coli ATCC 25922	50-100	fair-good	pink-red with bile precipitate
Salmonella Arizonae ATCC 13314	50-100	good-luxuriant	colourless
Salmonella Enteritidis ATCC 13076	50-100	good-luxuriant	colourless
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	colourless

Storage and Shelf Life

Store below 30°C in tightly closed container and use freshly prepared medium. Use before expiry date on the label.

Reference

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.

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