
TT BROTH (HAJNA) and IODINE for TETRATHIONATE, HAJNA

INTENDED USE

Remel TT Broth (Hajna) is a liquid medium recommended for use in qualitative procedures for selective isolation and enrichment of *Salmonella* species.

SUMMARY AND EXPLANATION

TT Broth (Hajna) is a modification of the enrichment medium originally described by Kauffman and Knox.^{1,2} Hajna and Damon modified the formulation by adding yeast extract, peptone, carbon sources, and selective agents.³ This medium is recommended by the United States Department of Agriculture (USDA) for recovering *Salmonella* species from meat and food products.⁴

PRINCIPLE

Casein and meat peptone provide nitrogen and amino acids necessary for bacterial growth. Peptone also serves to accelerate the fermentation of dextrose and mannitol. Yeast extract is a source of B-complex vitamins. Sodium chloride supplies essential electrolytes and maintains osmotic equilibrium. Tetrathionate is formed in the medium by the addition of a solution containing iodine and potassium iodide. Sodium desoxycholate and brilliant green are selective agents which inhibit gram-positive organisms; sodium thiosulfate and tetrathionate suppress coliforms. Organisms which produce the enzyme tetrathionate reductase, such as *Salmonella* spp., thrive in TT Broth (Hajna), while coliforms and other fecal organisms are inhibited.

REAGENTS (CLASSICAL FORMULA)*

TT Broth (Hajna):

Sodium Thiosulfate	38.0 g	D-Mannitol	2.5 g
Calcium Carbonate	25.0 g	Yeast Extract	2.0 g
Casein Peptone.....	9.0 g	Dextrose	0.5 g
Meat Peptone.....	9.0 g	Sodium Desoxycholate.....	0.5 g
Sodium Chloride.....	5.0 g	Brilliant Green.....	0.01 g
		Demineralized Water.....	1000.0 ml

Iodine for Tetrathionate, Hajna:

Potassium Iodide.....	8.0 g	Iodine.....	5.0 g
		Demineralized Water.....	40.0 ml

pH 7.6 ± 0.2 @ 25°C (After addition of Iodine Solution)

*Adjusted as required to meet performance standards.

PRECAUTIONS

***Warning! Iodine for Tetrathionate, Hajna** causes irritation and possible burns by all routes of exposure; may cause allergic skin reaction; may be harmful if swallowed or absorbed through the skin. This substance has caused adverse reproductive and fetal effects in animals.

This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

*Warning pertains to Iodine for Tetrathionate **only**.

PREPARATION OF DEHYDRATED CULTURE MEDIUM

1. Suspend 91.5 g of medium in 1000 ml demineralized water.
2. Heat to boiling with agitation to completely dissolve.
3. Cool to below 45°C.
4. Mix well and dispense into sterile tubes.

PROCEDURE

1. Immediately before inoculation, add Iodine for Tetrathionate, Hajna (REF R114352) to each tube of TT Broth equivalent to a 4% solution (e.g., 0.4 ml of Iodine Solution to each 10.0 ml of TT Broth). Mix well. Do not heat after adding Iodine Solution.
2. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, and testing.
3. Incubate tubes aerobically with caps loosened for 18-48 hours at 33-37°C.
4. Observe for growth as indicated by the development of turbidity.
5. Subculture broth to appropriate selective medium for further testing.

QUALITY CONTROL

Each lot number of TT Broth (Hajna) has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures.

CONTROL

Salmonella enterica serovar Enteritidis ATCC® 13076
Salmonella enterica serovar Typhimurium ATCC® 14028
Escherichia coli ATCC® 25922

INCUBATION

Aerobic, up to 48 h @ 33-37°C
Aerobic, up to 48 h @ 33-37°C
Aerobic, up to 48 h @ 33-37°C

RESULTS

Growth on subculture
Growth on subculture
Inhibition (complete) on subculture

LIMITATIONS

1. Add the Iodine for Tetrathionate, Hajna immediately before sample inoculation. Use the complete medium, with Iodine Solution, on the day it is prepared.⁵
2. TT Broth (Hajna) is not suitable for growth of *Salmonella enterica* serovars: Typhi, Paratyphi, Sendai, Pullorum, and Gallinarium.⁵

BIBLIOGRAPHY

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4. United States Department of Agriculture. 2009. Microbiology Laboratory Guidebook. Retrieved November 03, 2009 from http://origin-www.fsis.usda.gov/PDF/MLG_4_04.pdf.
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Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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