GN Broth, Hajna

M242

Intended use

For selective enrichment of gram-negative enteric organisms.

Composition **

Ingredients	g / L
Tryptose	20.000
Dextrose (Glucose)	1.000
Mannitol	2.000
Sodium citrate	5.000
Sodium deoxycholate	0.500
Dipotassium phosphate	4.000
Monopotassium phosphate	1.500
Sodium chloride	5.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 39.0 grams in 1000 ml purified/distilled water. Heat if necessary to disssolve the medium completely Dispense in test tubes or flasks as desired. Sterilize by autoclaving at 115°C (10 lbs pressure) for 15 minutes. **AVOID EXCESSIVE HEATING.**

Principle And Interpretation

Hajna (1) developed Gram Negative (GN) Broth as an enrichment medium for recovery of Salmonella and *Shigella* from clinical and non-clinical specimens such as urine, blood clots, throat swabs, swabs from eating and drinking utensils etc (1,2). GN Broth, Hajna is also recommended by APHA (3) for the microbiological examination of foods. Croft and Miller isolated more strains of *Shigella* from rectal swabs using this medium (4). Taylor and Schelhart showed the superiority of GN Broth to selenite enrichment media for isolation of *Shigella* (5). Hajna (2,6) also suggested the enrichment of organisms from rectal swabs in this medium 1-6 hours before plating on solid media.

The medium contains tryptose, which provides amino acids and other nitrogenous substances to support bacterial growth. The combination of sodium citrate and sodium deoxycholate inhibit gram-positive and some gram-negative bacteria such as coliforms. Phosphates serve as a buffering system. Sodium chloride maintains osmotic equilibrium. The higher concentration of mannitol over dextrose limits the growth of Proteus and enhances growth of mannitol fermenting Salmonella and *Shigella*. This enrichment broth should be used in conjunction with selective and non selective plating media to increase the probability of isolating pathogens (3,7,8).

GN Broth, Hajna, Granulated should be inoculated directly with the specimen. In case of stool specimens, approximately 1 gram should be used for inoculation. Appropriate references for processing of clinical and food samples should be followed (2,3,9,10). After incubation of 6-8 hours and again after 24 hours, sub culturing on selective agar media should be carried out (7).

Type of specimen

Clinical samples - Rectal swab, faeces, urine etc.

Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (11,12).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic Use only. For professional use only. Read the label before opening the container. Wear protective gloves/ protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Further isolation and biochemical tests must be performed for confirmation.
2. Some strains may show poor growth due to nutritional variations.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Light amber coloured, clear to slightly opalescent solution in tubes.

Reaction

Reaction of 3.9% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH

6.80-7.20

Cultural Response

Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours.

Organism	Inoculum (CFU)	Growth in GN broth	Growth after 24 hours on MacConkey Agar	Colour of colony
Escherichia coli ATCC 25922 (00013*)	50-100	good	good	pink-red with bile ppt
Enterococcus faecalis ATCC 19433 (00009*)	50-100	none-poor	none-poor	pale pink-red
Proteus mirabilis ATCC 25933	50-100	good	good	colourless
Pseudomonas aeruginosa ATCC 27853 (00025*)	50-100	good	good	colourless
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	good	good	colourless
Shigella flexneri ATCC 12022 (00126*)	50-100	good	good	colourless

Key : (*) Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (11,12).

Reference

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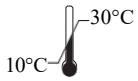
IVD ***In vitro* diagnostic medical device**



Storage temperature

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