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## TECHNICAL PRODUCT INFORMATION

### GN Broth Catalog No: T1470

#### INTENDED USE:

Gram Negative Broth is a selective enrichment medium devised by Hajna for cultivation of Gram-negative organisms of the enteric group<sup>1,2</sup>.

#### HISTORY/SUMMARY:

Hajna (1955) devised a GN (gram negative) broth, which was used in part as a preservative medium and in part as an enrichment for specimens preserved in SP medium. Increased numbers of salmonellae and shigellae were isolated by this method. L Croft and Miller (1956) used GN Broth successfully in the study of outbreaks of shigellosis, and Taylor and Schelhart (1969) apparently found it useful for Shigella<sup>3</sup>.

#### PRINCIPLES:

GN Broth is recommended as an enrichment medium for Gram-negative bacilli, especially Salmonella and Shigella, present in rectal swabs, blood, sputum, urine and other specimens, and it may be used for examination of utensils<sup>4</sup>.

Casein and meat peptones are used as a nitrogen and vitamin source in this medium. Dextrose and Mannitol are the fermentable carbohydrates. The desoxycholate and citrate content inhibits growth of Gram-positive organisms. The Phosphates are buffering agents. Sodium Chloride maintains the osmotic balance of the medium. The mannitol and dextrose are balanced to limit growth of Proteus and to encourage growth of enteric pathogens. Neither Proteus nor Pseudomonas is likely to overgrow Shigella and Salmonella bacilli during the first six hours of incubation.

In the studies reported by Hajna, specimens were incubated for six hours overnight at 37°C.

#### FORMULA:

Component (per liter of purified water)	Amount
Casein Peptone	10.0 g
Meat Peptone	10.0 g
Mannitol	2.0 g
Dextrose	1.0 g
Sodium Citrate	5.0 g
Dipotassium Phosphate	4.0 g
Monopotassium Phosphate	1.5 g
Sodium Chloride	5.0 g
Sodium Desoxycholate	0.5 g

Final pH: 7.0 ± 0.2 @ 25°C.

#### PRECAUTIONS:

Since living organisms used with this material can be infectious to the user, proper handling and disposal methods should be established by the laboratory director. This product is for In Vitro Diagnostic Use.

#### STORAGE:

This media should be stored at 2 - 8°C. Use media prior to expiration date.

**COLLECTION:**

The collection of fecal specimens early in the course of disease is of extreme importance. Collection must be done before antimicrobial therapy is started.

The specimen of choice is a freshly passed stool; preferably several specimens should be collected. Rectal swabs may be collected early in the course of disease, but show very poor positive yields during the convalescent state or in the evaluation of carriers.

**PROCEDURE:**

1. Before inoculation the medium should be brought to room temperature.
2. Inoculate broth with approximately one gram of solid specimen or one mL of liquid specimen.
3. Incubate for approximately 12 hours at 35 - 36°C
4. Inoculate one loopful of broth onto non-inhibitory or slightly inhibitory plating media.
5. Three or four loopfuls are used with highly selective media.

**PERFORMANCE CHARACTERISTICS:**

Approval of NEL of each lot of GN Broth is based on results obtained on a number of tests, among them bacteriological performance with challenged organisms.

Organisms	Results
ATCC# 14028 <i>Salmonella typhimurium</i>	Excellent recovery
ATCC# 9290 <i>Shigella sonnei</i>	Excellent recovery
ATCC# 25922 <i>Escherichia coli</i>	Some recovery
ATCC# 25923 <i>Enterococcus faecalis</i>	Inhibited

**QUALITY CONTROL:**

It is recommended that the user confirm the performance characteristics of this medium. Careful selection of organisms must be made to assure maximum testing success. Incubation temperatures and other environmental conditions must also be controlled to further warrant effective test results.

**LIMITATIONS:**

Enrichment media such as GN Broth must not be used by itself. A selection of non-inhibitory and selective media must be made to further identify microorganisms grown in this medium.

**REFERENCES:**

1. Hajna. Public Health Lab., 13:83, 1955.
2. Edwards and Ewing, Identification of Enterobacteriaceae. Elsevier Science Publ. Co., New York, New York 1986.
3. DHEW Publication No. (CDC) 78-8098, page 5
4. Standard Methods for the Examination of Dairy Products, Eleventh Edition APHA, Inc., New York 1960.
5. Difco & BBL Manual, 2003 Pages 249-250
6. Acumedia 7218 GN Broth (Hajna) Product Information Sheet Rev 4 November 2010