GN BROTH (Hajna) (7218)

Intended Use
GN Broth (Hajna) is used for the selective enrichment of Gram-negative organisms.

Product Summary and Explanation
Hajna formulated Gram Negative (GN) Broth as an enrichment medium for enteric gram-negative bacilli, especially *Salmonella* spp. and *Shigella* spp.[1,2,3] Croft and Miller demonstrated improved recovery of *Shigella* spp. using GN Broth enrichment compared to direct inoculation of agar.[4] Taylor and Schelhart reported improved recovery of *Salmonella* spp. and *Shigella* spp. when using GN Broth enrichment compared to direct inoculation of media.[5] Taylor and Schelhart found GN Broth to be superior to selenite enrichment medium for recovering *Shigella* spp.[6]

GN Broth, Hajna, is recommended as an enteric enrichment broth for clinical specimens.[7,8] This broth is used as a nonselective enrichment to recover *Salmonella* spp. and *Shigella* spp. from food.[9]

Principles of the Procedure
Enzymatic Digest of Casein and Enzymatic Digest of Animal Tissue are used as a nitrogen and vitamin source in this medium. Dextrose and Mannitol are the fermentable carbohydates. The higher concentration of Mannitol over Dextrose favors growth of mannitol-fermenting *Salmonella* spp. and *Shigella* spp. over mannitol non-fermenting species, such as *Proteus*. The Phosphates are buffering agents. Sodium Citrate and Sodium Deoxycholate inhibit growth of Gram-positive bacteria and coliforms. Sodium Chloride maintains the osmotic balance of the medium.

Formula/Liter
Enzymatic Digest of Casein ..... 10 g
Enzymatic Digest of Animal Tissue..... 10 g
Dextrose..... 1 g
Mannitol ..... 2 g
Sodium Citrate ..... 5 g
Sodium Deoxycholate ..... 0.5 g
Dipotassium Phosphate..... 4 g
Monopotassium Phosphate ..... 1.5 g
Sodium Chloride ..... 5 g
Final pH: 7.0 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precautions
1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions
1. Dissolve 39 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and light beige.

Prepared Appearance: Prepared medium is gold to light amber and clear.

Expected Cultural Response: Cultural response after 24 - 48 hours incubation at 35°C.

Microorganism	Response
Escherichia coli ATCC® 25922	growth
Enterococcus faecalis ATCC® 29212	partial to complete inhibition
Salmonella typhimurium ATCC® 14028	growth
Shigella sonnei ATCC® 25931	growth

The organisms listed are the minimum that should be performed for quality control testing.

Test Procedure
Refer to appropriate references for specific procedures.

Results
Growth of Gram-negative organisms, especially *Salmonella* spp. and *Shigella* spp. is enhanced.

Storage
Store dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure
Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Packaging

GN Broth (Hajna)	**Code No.**	**7218A**	**500 g**
		7218B	**2 kg**
		7218C	**10 kg**

References

1. **MacFaddin, J. F.** 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1, p. 357-359. Williams & Wilkins, Baltimore, MD.
2. **Hajna, A. A.** 1955. A new specimen preservative for gram-negative organisms of the intestinal group. Public Health Lab. **13**:59-62.
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4. **Croft, C. C., and M. J. Miller.** 1956. Isolation of *Shigella* from rectal swabs with Hajna "GN" broth. Am. J. Clin. Path. **26**:411-417.
5. **Taylor, W. I., and D. Schelhart.** 1967. Isolation of shigellae, IV. Comparison of plating media with stools. Am. J. Clin. Path. **48**:356-362.
6. **Taylor, W. I., and D. Schelhart.** 1968. Isolation of shigellae, V. Comparison of enrichment broths with stools. Appl. Microbiol. **16**:1383-1386.
7. **Forbes, B. A., and P. A. Granato.** 1995. Processing specimens for bacteria, p. 265-267. *In* P. R. Murray, E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Yolken (eds.). Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.
8. **Isenberg, H. D. (ed.).** 1992. Clinical microbiology procedures handbook, 1.10.8. American Society for Microbiology, Washington, D.C.
9. **Vanderzant, C. and D.F. Splittstoesser (eds.).** Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.

Technical Information
Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (410)780-5120 or fax us at (410)780-5470.