50738 GN Enrichment Broth (Gram Negative Broth) NutriSelect® Plus

For the selective cultivation of gram-negative intestinal bacteria in particular *Shigella* from all types of material, acc. to Hajna (1955).

Composition:

Ingredients	Grams/Litre
Mixed peptone	20.0
D(+)-Glucose	1.0
D-Mannitol	2.0
Dipotassium hydrogen phosphate	4.0
Potassium dihydrogen phosphate	1.5
Sodium chloride	5.0
Sodium citrate	5.0
Sodium deoxycholate	0.5

Final pH 7.2 +/- 0.2 at 37°C

Store dehydrated powder between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Protect from moisture and light by keeping container in a low humidity environment.

Appearance(color): Faintly yellow to light beige
Solubility(color): Slightly yellow to Brown
Color and Clarity: Light amber coloured, clear to slightly opalescent solution in tubes.

Directions:
Dissolve 39 g in 1 liter distilled water. Sterilize by autoclaving at 115°C for 15 minutes.

Principle and Interpretation:
GN (Gram Negative) Broth was developed by Hajna(2) as an enrichment medium for the recovery of Salmonella and Shigella from clinical specimens and non-clinical specimens such as urine, blood clots, throat swabs, swabs from eating and drinking utensils etc (2,3).
GN Broth, Hajna is also recommended by APHA (7) for the microbiological examination of foods. Croft and Miller succeeded in isolating more Shigella strains by use of this medium, rather than by direct streaking(1). Taylor and Schelhart reported improved recovery of Salmonella spp. and Shigella spp. when using GN Broth enrichment compared to selenite enrichment media for isolation of Shigella (7). The medium contains mixed peptone, which provides amino acids and other nitrogenous substances to support bacterial growth. The combination of sodium citrate and sodium deoxycholate are added to inhibit gram-positive and some gram-negative bacteria such as coliforms. Phosphates serve as a buffering system. Sodium chloride maintains osmotic balance of the medium. The higher concentration of mannitol over dextrose limits the growth of Proteus and other dextrose fermenting bacteria, and enhances growth of mannitol fermenting species, such as Salmonella and Shigella. This enrichment broth should be used in conjunction with selective and nonselective plating media to increase the probability of isolating pathogens (4,5,6).

Cultural characteristics after 18-24 hours at 35-37°C. Recovery is observed on MacConkey agar after 24 hours.

Organisms (ATCC/WDCM)	Inoculum (CFU)	Growth	Recovery	Appearance of Colony
Escherichia coli (25922/ 00013)	50-100	++	++	Pink-red with bile ppt
*Proteus mirabilis (*25993/-)	50-100	++	++	colorless
Salmonella enterica serovar Typhimurium (14028/00031)	50-100	++	++	colorless
Enterococcus faecalis (19433/00009)	50-100	-/+	-/+	Pale pink -red
Pseudomonas aeruginosa (27853/00025)	50-100	++	++	colorless
Shigella flexneri (12022/00126)	50-100	++	++	colorless

References:

1. Croft C. C., Miller M. J., Am. J. Clin. Pathol., 26:411 (1956)
2. Hajna A. A., Publ. Health Lab., 13:59 (1955)
3. Hajna A. A., Publ. Health Lab., 13:83 (1955)
4. MacFaddin J. F., Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore (1985)
5. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C. (2003)
6. Salfinger Y., and Tortorello M.L., Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C. (2015)
7. Taylor W.I., Schelhart D., Appl. Environ. Microbiol., 16:1383 (1968)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.