



## GN Broth Medium 11.

MM242

### Intended Use:

For enrichment of *Shigella* from pharmaceutical products in accordance with Indian pharmacopoeia 2017.

### Composition\*\*

Ingredients	Gms / Litre
Polypeptone peptone	20.000
Glucose	1.000
Sodium citrate	2.000
Sodium deoxycholate	0.500
Di-potassium hydrogen phosphate	4.000
Mono potassium dihydrogen 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 34.00 grams in 1000 ml purified/ distilled water. Mix well and allow to stand for 15 minutes. With continuous stirring bring gently to boil and maintain at boiling till completely dissolved. DO NOT AUTOCLAVE. Dispense in sterile test tubes or flasks as desired.

### Principle And Interpretation

GN Broth is recommended by the Indian Pharmacopoeia (1) for the selective isolation of *Shigella* species with subsequent isolation on a selective medium, XLD Agar (MH031). Croft and Miller isolated more strains of *Shigella* from rectal swabs using this medium (2). Taylor and Schelhart showed the superiority of GN Broth to selenite enrichment media for isolation of *Shigella* (3). Hajna (4,5) also suggested the enrichment of organisms from rectal swabs in this medium 1-6 hours before plating on solid media.

The medium contains polypeptone peptone, 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. *Proteus*, *Pseudomonas* and coliforms do not overgrow *Salmonella* and *Shigella* in GN Broth during the first 6 hours of incubation. This enrichment broth should be used in conjunction with selective and nonselective plating media to increase the probability of isolating pathogens (6,7,8).

### Type of specimen

Pharmaceutical samples

### Specimen Collection and Handling

For pharmaceutical samples, follow appropriate techniques for sample collection, processing as per guidelines (1). After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions

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 specimens. Safety guidelines may be referred in individual safety data sheets.

### Limitations

1. Further isolation and biochemical tests must be carried out for confirmation.

## 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 inoculation in GN Broth and then subculture on XLD Agar and incubation at 30-35°C for 24-48 hours.

#### Growth promoting properties

Growth promotion was carried out in accordance with the method of IP. Clearly visible growth of microorganism comparable to that previously obtained with previously tested and approved lot of medium occurs at the specified temperature for not more than the shortest period of time specified inoculating ≤100 cfu (at 30-35°C for ≤24 hours).

#### Inhibitory properties

No growth of the test microorganism occurs for the specified temperature for not less than longest period of time specified inoculating ≥100 cfu (at least 100 cfu) (at 30-35°C for ≥48 hours).

#### Cultural Response

Organism	Inoculum (CFU)	Growth in GN broth	Recovery on XLD Agar	Recovery	Colour of colony
<b>Growth promoting</b>					
<i>Shigella boydii</i> ATCC 8700	50 -100	good	good-luxuriant	≥50 %	red translucent
<b>Inhibitory</b>					
<i>Staphylococcus aureus</i> ATCC 6538 (00193*)	≥10 <sup>3</sup>	inhibited		≤0 %	

\* - Corresponding WDCM numbers

## Storage and Shelf Life

Store below 30°C in a tightly closed container and the prepared medium at 2-8°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. Use before expiry date on the label. 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 (6,7).

## Reference

1. Indian Pharmacopoeia, 2017, Ministry of Health and Family Welfare, Govt. of India,.
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4. Hajna A. A., 1955, Publ. Health Lab., 13:83.
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Please refer disclaimer Overleaf.

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10. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S. and Warnock, D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1

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