



Shigella Broth Base

M1326

Intended Use:

Recommended for the isolation and cultivation of *Shigella* species from food.

Composition**

Ingredients	Gms / Litre
Tryptone	20.000
Sodium chloride	5.000
Dipotassium hydrogen phosphate	2.000
Potassium dihydrogen phosphate	2.000
Dextrose (Glucose)	1.000
Polysorbate 80 (Tween 80)	1.500
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 31.5 grams in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool medium to 45-50°C and add rehydrated content of one vial of NO 0.55 Selective Supplement (FD108) under aseptic conditions. Mix well and dispense aseptically into sterile test tubes or flasks as desired.

Principle And Interpretation

Shigella are gram-negative, non-motile, non-spore forming rod-shaped bacteria closely related to *Escherichia coli* and *Salmonella*. *Shigella* infection is typically via ingestion (faecal-oral contamination), depending on age and condition of the host, as few as 10 bacterial cells can be enough to cause an infection. *Shigella* causes dysentery that results in the destruction of the epithelial cells of the intestinal mucosa in the cecum and rectum. Some strains produce enterotoxin and Shiga toxin, similar to the verotoxin of *E. coli* O157:H7(1). Shigella Broth Base is used for the isolation and cultivation of *Shigella* species (2), as recommended by APHA (3).

Shigella Broth Base contains tryptone as a source of carbon, nitrogen, vitamins and minerals. Dextrose provides the necessary carbohydrates. Buffering action in the medium is provided by dipotassium hydrogen phosphate and potassium dihydrogen phosphate. Sodium chloride maintains the osmotic balance of the medium. Polysorbate 80 is inhibitory for growth of accompanying microflora besides providing growth factors. Novobiocin is inhibitory for gram-positive bacteria such as *S. aureus* and certain gram-negative organisms such as *H. influenzae* and some species of *Proteus*.

Type of specimen

Food samples

Specimen Collection and Handling

For food samples, follow appropriate techniques for sample collection and processing as per guidelines (3). 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 biochemical and serological tests must be carried out for further identification.

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 solution

Reaction

Reaction of 3.15% 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 with added NO 0.55 Selective Supplement (FD108).

Organism	Inoculum (CFU)	Growth
<i>Shigella dysenteriae</i> ATCC 13313	50-100	luxuriant
<i>Shigella flexneri</i> ATCC 12022 (00126*)	50-100	luxuriant
<i>Shigella sonnei</i> ATCC 25931	50-100	luxuriant
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	>=10 ⁴	inhibited

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°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. 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 sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

Reference

- Hale T. L., Keusch G. T., 1996, *Shigella*. In: Barons Medical Microbiology (Barron S et al, Eds.), 4th Ed., Univ of Texas Medical Branch.
- Atlas R.M., 1997, Handbook of Microbiological Media 2nd Edition, CRC Press, Boca Raton, New York, London, Tokyo.
- Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
- Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
- 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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