

# Tryptophan Broth

Tryptophan is recommended for use in the cultivation and differentiation of coliforms, as well as for indole testing,  
during the bacteriological examination of water.

|                         |          |                         |          |
|-------------------------|----------|-------------------------|----------|
| REF: BS.1/NZ01.100.0100 | 100 Gram | REF: BS.1/NZ01.250.0250 | 250 Gram |
| REF: BS.1/NZ01.500.0500 | 500 Gram |                         |          |

## PRINCIPLE AND INTERPERTATION :

Tryptone Water is recommended by APHA (5) for the detection of indole production by coliforms, which is an important feature in bacterial differentiation. This test demonstrates the ability of certain bacteria to decompose the amino acid tryptophan to indole, which accumulates in the medium (2). Indole testing is recommended as an aid in the differentiation of microorganisms based on indole production; however, for complete identification of organisms, further biochemical confirmation is necessary. Certain microorganisms break down tryptophan with the help of the enzyme tryptophanase, which mediates indole production through hydrolytic activity (8). The indole produced can be detected using Kovacs or Ehrlich's reagent (4). Indole reacts with the aldehyde present in these reagents to produce a red colour in the alcohol layer. The alcohol layer extracts and concentrates the red-coloured complex. It contains HM peptone, which provides the necessary nitrogen and carbon sources, vitamins, growth factors, and trace ingredients required for the growth of non-fastidious organisms. Sodium chloride maintains the osmotic equilibrium of the medium. DL-Tryptophan is an amino acid that serves as the substrate for the indole reaction.

## MEDIA COMPOSITION

| Item            | Formula per liter of medium |
|-----------------|-----------------------------|
| HM peptone #    | 10.00 gm                    |
| DL-Tryptophan   | 1.00 gm                     |
| Sodium chloride | 5.00 gm                     |

Final pH (at 25°C) 7.5 ± 0.2

\*\* Formula adjusted, standardized to suit performance parameters.

# - Equivalent to Meat peptone

## PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.

**S56:** dispose of this material and its container at hazardous or

special waste collection point.

**S57:** use appropriate container to avoid environmental contamination.

**S61:** avoid release in environment.

For further information, refer to the Tryptophan Broth material safety data sheet.

## STORAGE AND STABILITY

**BioScien** Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C. Use before expiry date on the label.

## PREPARATION

Suspend 16 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. Mix well and dispense into tubes or flasks as desired.

## Deterioration

The colour of **BioScien** Tryptophan Broth: Cream to yellow, homogeneous, free-flowing powder. Prepared medium: Light yellow, clear solution.

## EQUIPMENT REQUIRED NOT PROVIDED

- Sterile petri dishes
- Incubator
- Autoclave

## PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after 18-24 hours after incubation at 35-37°C.

| Organisms (ATCC)                          | Growth    | Indole reaction                                            |
|-------------------------------------------|-----------|------------------------------------------------------------|
| Escherichia coli ATCC 25922 (00013*)      | luxuriant | positive reaction, red ring at the interface of the medium |
| Klebsiella aerogenes ATCC 13048 (00175*)  | luxuriant | negative reaction, no colour development / cloudy ring     |
| Klebsiella pneumoniae ATCC 13883 (00097*) | luxuriant | negative reaction, no colour development / cloudy ring     |

## QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact **BioScien** technical support

## REFERENCE

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. Collee J. G., Fraser A. G., Marmion B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone.
3. Finegold S. M. and Baron E. J., 1986, Bailey and Scotts Diagnostic Microbiology, 7th Ed., The C.V. Mosby Co., St. Louis.
4. Greenberg A. E., Clesceri L. S. and Eaton A. D., (Eds.), 1998, Standard Methods for the Examination of Water and Wastewater, 20th Ed., APHA, Washington, D.C.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
6. 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.
7. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

| SYMBOLS IN PRODUCT LABELLING                                                       |                             |                                                                                     |                                  |
|------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|----------------------------------|
|   | For in-vitro diagnostic use |  | Number of <n> test in the pack   |
|   | Batch Code/Lot number       |  | Caution                          |
|   | Catalogue Number            |  | Do not use if package is damaged |
|   | Temperature Limitation      |  | Consult Instruction for use      |
|   | Expiration Date             |                                                                                     |                                  |
|  | Manufactured by             |                                                                                     |                                  |