

DEV Tryptophan Broth, Granulated

GM1901

DEV Tryptone Broth, granulated is a medium for subcultivation of coliform, differentiation and for indole testing in the bacteriological examination of water.

Composition**

Ingredients	Gms / Litre
Meat peptone	10.000
Sodium chloride	5.000
DL-Tryptophan	1.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 16 grams in 1000 ml distilled water . Heat if necessary to dissolve the medium completely. Dispense in tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Tryptone Water is recommended by APHA (1) for detection of indole production by coliforms, which is a key feature in differentiation of bacteria. 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. For complete identification of the organisms, further biochemical confirmation is necessary. Certain microorganisms breakdown tryptophan with the help of the enzyme tryptophanase that mediate the production of indole by hydrolytic activity (3). The indole produced can be detected by Kovacs or Ehrlichs reagent (4). Indole combines with the aldehyde present in the above reagent to give red colour in the alcohol layer. The alcohol layer extracts and concentrates the red colour complex.

It contains meat peptone which provides necessary nitrogen sources, carbon, vitamins, growth factors and also trace ingredients to nonfastidious organisms. Sodium chloride maintains osmotic equilibrium of the medium. DL- Tryptophan is an amino acid, which serves as a substrate to study indole reaction.

Quality Control

Appearance

Cream to yellow coloured granular medium

Colour and Clarity of prepared medium

Light yellow coloured clear to slightly opalescent solution .

Reaction

Reaction of 1.6% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH

7.00-7.40

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Indole reaction
Cultural Response <i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	positive reaction, red ring at the interface of the medium

<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	negative reaction, no colour development / cloudy ring
<i>Klebsiella pneumoniae</i> ATCC 13883	50-100	luxuriant	negative reaction, no colour development / cloudy ring

Storage and Shelf Life

Store below 30°C in tightly closed container and prepared medium at 2-8°C. Use before expiry date on label.

Reference

1. Rice E.W., Baird R.B., Eaton A. D., and Clesceri L. S. (Eds.), 2012, Standard Methods for the Examination of Water and Wastewater, 22nd 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. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
4. Finegold S. M. and Baron E. J., 1986, Bailey and Scotts Diagnostic Microbiology, 7th Ed., The C.V. Mosby Co., St. Louis.

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