



Phenol Red Sorbitol Broth

M1012

Phenol Red Sorbitol Broth is used for sorbitol fermentation studies of microorganisms.

Composition**

| Ingredients | Gms / Litre |
|---------------------|-------------|
| Proteose peptone | 10.000 |
| Beef extract | 1.000 |
| Sodium chloride | 5.000 |
| Sorbitol | 5.000 |
| Phenol red | 0.018 |
| Final pH (at 25°C) | 7.4±0.2 |

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 21 grams in 1000 ml distilled water and mix well. Heat if necessary to ensure complete dissolution. Distribute in fermentation tubes (tubes containing inverted Durham's tubes). Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Phenol Red Broth Medium is formulated as per Vera (2) and is recommended to determine the fermentation reaction of carbohydrates for the differentiation of microorganisms (3, 4, 5). Phenol Red Broth Medium with various carbohydrates serves as a differential medium by aiding in differentiation of various species and genera by their ability to ferment the specific carbohydrate, with the production of acid or acid and gas (6). Phenol Red Sorbitol Broth is used to study sorbitol fermentation in various bacteria.

Proteose peptone and beef extract serve as sources for carbon and nitrogen. Sodium chloride is the osmotic stabilizer. Phenol red is the pH indicator, which turns yellow at acidic pH i.e. on fermentation of sorbitol. Gas formation is seen in Durhams tubes. All of the *Enterobacteriaceae* grow well in this medium. In addition to producing a pH colour shift, the production of mixed acids, notably butyric acids, often results in a pungent, foul odour from the culture medium (1).

Quality Control

Appearance

Light yellow to pink coloured homogeneous free flowing powder

Colour and Clarity of prepared medium

Red coloured Clear solution without any precipitate

Reaction

Reaction of 2.1% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH

7.20-7.60

Cultural Response

M1012: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours.

| Organism | Inoculum (CFU) | Growth | Acid | Gas |
|---|----------------|-----------|----------------------------------|-------------------|
| Cultural Response <i>Citrobacter freundii</i> ATCC 8090 | 50-100 | luxuriant | Positive reaction, yellow colour | Positive reaction |

| | | | | |
|--|--------|-----------|-------------------------------------|--------------------------|
| <i>Escherichia coli</i> ATCC 25922 | 50-100 | luxuriant | Positive reaction, yellow colour | Positive reaction colour |
| <i>Enterobacter aerogenes</i> ATCC 13048 | 50-100 | luxuriant | Positive reaction, yellow colour | Positive reaction colour |
| <i>Klebsiella pneumoniae</i> ATCC 13883 | 50-100 | luxuriant | Positive reaction, yellow colour | Positive reaction colour |
| <i>Proteus vulgaris</i> ATCC 13315 | 50-100 | luxuriant | Negative reaction, no colour change | Negative reaction |
| <i>Salmonella Typhi</i> ATCC 6539 | 50-100 | luxuriant | Positive reaction, yellow colour | Negative reaction colour |
| <i>Salmonella Typhimurium</i> ATCC 14028 | 50-100 | luxuriant | Positive reaction, yellow colour | Positive reaction colour |
| <i>Serratia marcescens</i> ATCC 8100 | 50-100 | luxuriant | Positive reaction, yellow colour | Negative reaction colour |
| <i>Shigella flexneri</i> ATCC 12022 | 50-100 | luxuriant | Positive reaction, yellow colour | Negative reaction colour |

Storage and Shelf Life

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

Reference

1. Koneman E. W., Allen S. D., Janda W.M., Schreckenberger P.C., Winn W.C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed., J. B. Lippincott Company
2. Vera H. D., 1950, Am. J. Public Health, 40, 1267
3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification -Maintenance of Medical Bacteria, Vol. I, 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.
5. Ewing W. H., 1986, Edwards and Ewings Identification of Enterobacteriaceae, 4th ed., Elsevier Science Publishing Co., Inc., New York.
6. MacFaddin J. F., 2000, Biochemical tests for Identification of Medical Bacteria, 3rd ed., Lippincott, Williams and Wilkins, Baltimore.

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