Purple Agar Base

M098

Purple Agar Base is recommended for the preparation of carbohydrate media used in fermentation studies for the cultural identification of pure cultures of enteric and other microorganisms.

Composition**

Ingredients	Gms / Litre
Peptone, special	10.000
Beef extract	1.000
Sodium chloride	5.000
Bromo cresol purple	0.020
Agar	15.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 31.02 grams in 1000 ml distilled water. Add 5 - 10 grams of the carbohydrate to be tested. Heat to boiling to dissolve the medium completely. Dispense in tubes as desired and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Alternatively sterilize the basal medium prepared using 900 ml distilled water and add 100 ml separately sterilized 5 - 10% solution of the desired carbohydrate to it.

Principle And Interpretation

Purple Agar Base is used for studying carbohydrate fermentation reactions, particularly in the identification of gram-negative enteric bacteria on addition of the desired carbohydrate (1, 2). Purple media were originally formulated by Vera (3) and further modified by addition of beef extract (4). These media are recommended by FDA (5) for fermentation studies of sugars.

Beef extract and peptone special supply the essential nutrients especially nitrogen sources to the growing organisms. Sodium chloride maintains the osmotic balance of the medium. Bromocresol purple is the pH indicator, which turns yellow at acidic pH. Gas production is evident by splitting of agar. The acid produced during the fermentation of carbohydrate causes bromocresol purple, the pH indicator to turn yellow. If the carbohydrate is not utilized or fermented, the color of the medium remains unchanged or becomes more alkaline (darker purple) due to decarboxylation of the amino acids present in the medium.

It is recommended (6) to add carbohydrate in 1% concentration to avoid possible reversion reactions except glucose (dextrose). If the medium containing carbohydrate is sterilized by autoclaving, precautions should be taken to use minimum amount of heat required for sterilization to avoid hydrolysis of the carbohydrate.

Quality Control

Appearance
Cream to greenish yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Purple coloured clear to slightly opalescent gel forms in tubes as slants

Reaction
Reaction of 3.1% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH
6.60-7.00

Cultural Response
M098: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Acid (without carbohydrate)	Gas (without carbohydrate)	Acid (with1% dextrose)	Gas (with1% dextrose)

Cultural Response

Escherichia coli ATCC 25922	50-100	luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	positive reaction
Listeria monocytogenes ATCC 19112	50-100	luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour (fermentative metabolism)	negative reaction
Neisseria meningitidis ATCC 13090	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	negative reaction
Staphylococcus aureus ATCC 25923	50-100	luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour	negative reaction

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. Ewing W. H., 1986, Edwards and Ewings identification of Enterobacteriaceae , 4th ed. Elsevier Science Publishing Co, Inc., New York, N.Y.
2. Forbes B. A., Sahm A. S., and Weissfeld D. F., 1998, Bailey & Scotts Diagnostic Microbiology, 10th Ed., Mosby, Inc., St. Louis, Mo.
3. Vera H. D., 1950, Am. J. Public Health, 40:1267.
4. Finegold S. M. and Baron E. J., 1986, Bailey and Scotts Diagnostic Microbiology, 7th Ed., The C.V. Mosby Co., St. Louis.
5. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, DC.
6. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. Wilkins, Baltimore and I Williams.

Revision : 2 / 2015