

Technical Information

Purple Agar Base

Product Code: DM 1098

Application: 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

Principle & Interpretation

Purple media were originally formulated by Vera ⁽³⁾ and further modified by addition of beef extract ⁽⁴⁾. This media Base is used for studying carbohydrate fermentation reactions and helpful in the identification of gram-negative enteric bacteria after addition of the desired carbohydrate ^(1, 2). These media are also 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 except glucose (dextrose) in 1% concentration to avoid possible reversion of reactions. If the medium containing carbohydrate is sterilized by autoclaving, precautions should be taken to use minimum amount of heat required for sterilization to prevent hydrolysis of the carbohydrate.

Methodology

Suspend 31.02 grams of powder media in 1000 ml distilled water. Add 5 - 10 grams of the carbohydrate to be tested. Shake well & 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.

Quality Control

Physical 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 range 6.60-7.00

Cultural Response/Characteristics

DM 1098: 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)
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellowreaction colour	positive
<i>Listeria monocytogenes</i> ATCC 19112	50-100	luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellow colour (fermentative metabolism)	negative reaction
<i>Neisseria meningitides</i> ATCC 13090	50-100	good-luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellowreaction colour	negative
<i>Staphylococcus aureus</i> ATCC 25923	50-100	luxuriant	negative reaction, no colour change	negative reaction	positive reaction, yellowreaction colour	negative

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

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.

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