Phenol Red Agar Base

M053

Phenol Red Agar Base is used as a basal medium to which carbohydrates may be added for use in fermentation studies of microorganisms.

Composition**

Ingredients	Gms / Litre
Proteose peptone	10.000
Beef extract	1.000
Sodium chloride	5.000
Phenol red	0.025
Agar	15.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 31.02 grams in 1000 ml distilled water. Add 5-10 grams of carbohydrate as desired.Heat to boiling to dissolve the medium completely. Dispense in tubes or flasks as desired and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Allow the tubed media to cool in slanted position to form slants with deep butts.

Note : For critical studies, it is recommended to use filter sterilized carbohydrate which is to be incorporated aseptically in sterile medium base

Principle And Interpretation

Phenol Red Agar media are recommended (1, 2, 3) for studying the fermentation of various carbohydrates individually by the pure cultures of microorganisms.

Proteose peptone which is free from fermentable carbohydrates is added in the medium thereby preventing the production of false positive reactions. Phenol Red Agar when supplemented with a specific carbohydrate, a positive carbohydrate fermentation reaction is indicated by the production of a yellow colour in agar due to the effect of acid production. Gas production is indicated by the splitting of agar or by the bubbles formation. Plates or tubes may be incubated aerobically or anaerobically depending on the type of the test organism. Addition of some carbohydrates may result in an acid reaction and hence 0.1N sodium hydroxide can be added dropwise to restore the original colour taking care not to obtain too deep red or cerise colour.

Quality Control

Appearance
Light yellow to pink homogeneous free flowing powder

Gelling
firm, comparable with 1.5% Agar gel

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

Reaction
Reaction of 3.1% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH
7.20-7.60

Cultural Response
M053: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours.

Organism	Inoculum (CFU)	Growth	without carbohydrate, (Acid)	without carbohydrate, (Gas)	with dextrose, (Acid)	with dextrose, (Gas)
Cultural Response						

Alcaligenes faecalis ATCC 8750	50-100	luxuriant	Negative reaction, no colour change	Negative reaction	Negative reaction, no colour change	Negative reaction
Escherichia coli ATCC 25922	50-100	luxuriant	Negative reaction, no colour change	Negative reaction	Positive reaction, yellow colour	Positive reaction
Klebsiella pneumoniae ATCC 13883	50-100	luxuriant	Negative reaction, no colour change	Negative reaction	Positive reaction, yellow colour	Positive reaction
Proteus vulgaris ATCC 13315	50-100	luxuriant	Negative reaction, no colour change	Negative reaction	Positive reaction, yellow colour	Positive reaction
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	Negative reaction, no colour change	Negative reaction	Positive reaction, yellow colour	Positive reaction
Shigella flexneri ATCC 12022	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. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
2. Finegold and Baron, 1986, Bailey and Scotts Diagnostic Microbiology, 7th ed., The C.V. Mosby Co., St. Louis.
3. Ewing, 1986, Edwards and Ewings Identification of Enterobacteriaceae, 4th ed., Elsevier Science Publishing Co., Inc., New York.

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