



Andrade Peptone Water

M885

Andrade Peptone Water is a basal medium to which various carbohydrates can be added to study fermentation reactions, particularly of members of the *Enterobacteriaceae*.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Sodium chloride	5.000
Andrade indicator	0.100
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 15.1 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely and dispense in test tubes containing inverted Durhams tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to room temperature and aseptically add sterile stock solution of carbohydrate to a final concentration of 0.5% to 1.0% (w/v).

Principle And Interpretation

Bacteria differ widely in their ability to metabolize carbohydrates and related compounds. Carbohydrate fermentation reactions aids in the differentiation and identification of various bacteria. Andrade Peptone Water is the most commonly used media for carbohydrate fermentation (1). Desired carbohydrate is added to the medium, which is inoculated with the test organism. If the test organism metabolizes the added carbohydrate, acids are produced, thereby lowering the pH of the medium. This causes a subsequent colour change of the indicator, from colourless to pink to red. If the added carbohydrate is not metabolized, the medium remains pale tan to straw coloured. Gas produced during fermentation is collected in the Durhams tube.

The peptic digest used in the medium is free from fermentable carbohydrates (1, 2) and the medium is also free from nitrates which may interfere with gas production. Andrade indicator is a solution of acid fuchsin which when titrated with sodium hydroxide; changes colour from pink to yellow. The Andrade indicator changes colour from yellow to pink as the pH decreases (1). The medium is pink when hot but becomes straw coloured on cooling. Test carbohydrate solutions should be sterilized separately and aseptically added to sterile Andrade Peptone Water. The biochemical identification of organisms capable of growing in this medium is made by various sugar fermentation results (2-4).

Use fresh cultures of organisms only which have been presumptively identified by Gram staining and colony morphology. For final identification further biochemical tests are required.

Quality Control

Appearance

Cream to yellow coloured with pink tinge, homogeneous free flowing powder

Colour and Clarity of prepared medium

Light pink to straw coloured clear solution without any precipitate

Reaction

Reaction of 1.51% w/v aqueous solution at 25°C. pH : 7.4±0.2

Cultural response

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

Cultural Response

Organism	Inoculum (CFU)	Growth	Acid in absence of dextrose	Gas in absence of dextrose	Acid with added dextrose	Gas with added dextrose
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Cultural response

<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	negative reaction	negative reaction	positive reaction, colour changes to pink red	positive reaction
<i>Klebsiella pneumoniae</i> ATCC13883	50-100	luxuriant	negative reaction	negative reaction	positive reaction, colour changes to pink red	positive reaction
<i>Proteus vulgaris</i> ATCC 13315	50-100	luxuriant	negative reaction	negative reaction	positive reaction, colour changes to pink red	positive reaction
<i>Salmonella Typhi</i> ATCC 6539	50-100	luxuriant	negative reaction	negative reaction	positive reaction, colour changes to pink red	negative reaction
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	luxuriant	negative reaction	negative reaction	positive reaction, colour changes to pink red	positive reaction
<i>Shigella flexneri</i> ATCC 12022	50-100	luxuriant	negative reaction	negative reaction	positive reaction, colour changes to pink red	negative reaction
<i>Shigella sonnei</i> ATCC 25931	50-100	luxuriant	negative reaction	negative reaction	positive reaction, colour changes to pink red	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. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
2. Cowan S. T. and Steel K. J., 1974, Manual of Identification of Medical Bacteria, 2nd Ed., Cambridge United Press.
3. Finegold S. M. and Baron E. J., 1986, Bailey and Scotts Diagnostic Microbiology, 7th Ed., The C.V. Mosby Co., St. Louis
4. Murray P. R., Baron E. J., Jorgensen J. H., Pfaller M. A., Tenover F. C., Tenover R.H., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.

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