

# PHENOL RED AGAR w/ and w/o CARBOHYDRATE

## INTENDED USE

Remel Phenol Red Agar w/ and w/o Carbohydrate are solid media recommended for use in qualitative procedures for the determination of fermentation reactions of microorganisms.

## SUMMARY AND EXPLANATION

The fermentation properties of bacteria are used to differentiate between genera and species of bacteria.<sup>1</sup> In 1950, Vera recommended using casein peptone in fermentation test media because of its high growth-promoting qualities.<sup>2</sup> It was also reported that peptone could be used with phenol red as the pH indicator in fermentation tests.

## PRINCIPLE

A solid fermentation medium permits observation of the fermentation reactions under both aerobic and anaerobic conditions, and gas production is indicated by splitting of the agar or bubbles in the medium. Phenol Red Agar is a complete basal medium prepared with phenol red as an indicator which changes the medium from red-orange to yellow when acid is produced. This medium may be used for fermentation studies of pure cultures of many species of bacteria due to the high growth-promoting qualities of casein peptone. Lactose may be added to the agar base in a final concentration of 10%. The tube medium may be prepared either as a butt or a slant. Phenol Red Agar Base w/o Carbohydrate is used as a negative control for fermentation studies.

## REAGENTS (CLASSICAL FORMULAE)\*

### Base Medium:

Casein Peptone.....	10.0 g	Phenol Red.....	18.0 mg
Sodium Chloride.....	5.0 g	Agar.....	15.0 g
		Demineralized Water.....	1000.0 ml

pH 7.4 ± 0.2 @ 25°C

The following carbohydrates are available per liter of medium:

Lactose..... 100.0 g

\*Adjusted as required to meet performance standards.

## PROCEDURE

- Using a sterile inoculating needle, inoculate Phenol Red Agar w/ and w/o Carbohydrate from a pure, 18-24 hour culture growing on an agar plate. Streak the slant and stab the agar butt to within one-fourth inch from the bottom of the tube. Phenol Red Agar w/o Carbohydrate may be inoculated as a negative control tube and incubated in parallel with the fermentation test.
- Incubate the tubes in ambient air with caps loosened at 33-37°C for 18-48 hours. Some microorganisms require prolonged incubation, up to 30 days for some, for valid interpretation of a negative test.
- Examine cultures frequently; microorganisms utilize carbohydrate at different rates.

## INTERPRETATION OF THE TEST

Positive Test - Yellow color, fermentation (acid production)

Negative Test - Red-orange color (no fermentation)

## QUALITY CONTROL

All lot numbers of Phenol Red Agar w/ and w/o Carbohydrate have been tested using the following quality control organisms and found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

### CONTROL

#### Phenol Red Agar Base:

*Escherichia coli* ATCC® 25922

### INCUBATION

Ambient, 18-24 h @ 33-37°C

### RESULTS

Negative

#### Phenol Red Agar w/ Lactose:

*Escherichia coli* ATCC® 25922

*Salmonella enterica* serovar Typhimurium ATCC® 14028

Ambient, 18-24 h @ 33-37°C

Ambient, 18-24 h @ 33-37°C

Positive

Negative

## BIBLIOGRAPHY

- MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.
- Vera, H.D. 1950. Am. J. Public Health. 40:1267-1272.

Refer to the front of Remel *Technical Manual of Microbiological Media* for General Information regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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