P8976 Phenol Red Broth Base

Phenol Red Broth Base is used for the determination of fermentation of carbohydrates in the differentiation of microorganisms.

Composition:

Ingredients	Grams/Litre
Proteose Peptone 10.00	10.0
Beef Extract 1.00	1.0
Sodium Chloride 5.00	5.0
Phenol Red 0.018	0.018
Final pH 7.4 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder in a dry place in tightly-sealed containers at 2-25°C.
Appearance: Light yellow to pink colored, homogeneous, free flowing powder.
Color and Clarity: Red colored, clear solution without any precipitate.

Directions:
Suspend 16 g of Phenol Red Broth Base in 1000 ml of distilled water. Heat to dissolve the medium completely. Dispense into tubes containing inverted Durham's tubes and sterilize by autoclaving at 15 lbs. pressure (121°C) for 15 minutes. Aseptically add a filter sterilized or autoclave sterilized carbohydrate solution to the base medium.

Principle and Interpretation:
The ability of an organism to ferment a specific carbohydrate in the basal medium, results in the production of acid and gas, which helps in the differentiation between the genera and species of bacteria. Phenol Red Broth Base is a complete medium without carbohydrate. It is used as a negative control for studying fermentations or as a base for the addition of carboydrates. Proteose peptone and beef extract provide nitrogenous nutrients to the organisms. Phenol red is the pH indicator, which turns yellow at acidic pH. Sodium chloride maintains osmotic equilibrium. Gas formation is seen in Durham's tubes.

Cultural characteristics after 18-24 hours or longer if necessary at 35-37°C. (for more details see 3, 4)

Organisms (ATCC)	Growth	Base		Adonitol		Arabinose		Dextrose		Dulcitol		Galactose	
		Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas
Citrobacter freundii (8090)	+++	-	-	-	-	+	+	+	+	-	-	+	+
Enterobacter aerogenes (13048)	+++	-	-	+	+	+	+	+	+	-	-	+	+
Escherichia coli (25922)	+++	-	-	-	-	+	+	+	+	-	-	+	+
Klebsiella pneumoniae (13883)	+++	-	-	+	+	+	+	+	+	-	-	+	+
Proteus vulgaris (13315)	+++	-	-	-	-	-	-	+	+	-	-	+	+
Salmonella typhimurium (14028)	+++	-	-	-	-	+	+	+	+	+	+	+	+
Salmonella typhi (6539)	+++	-	-	-	-	-	-	+	-	-	-	+	-
Serratia marsecense (8100)	+++	-	-	-	-	-	-	+	+	-	-	+	-
Shigella flexneri (12022)	+++	-	-	-	-	-	-	+	-	-	-	+	-

Organisms (ATCC)	Growth	Inositol		Lactose		Maltose		Mannitol		Raffinose		Rhamnose	
		Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas
Citrobacter freundii (8090)	+++	-	-	+	+	+	+	+	+	-	-	+	+
Enterobacter aerogenes (13048)	+++	+	+	+	+	+	+	+	+	+	+	+	+
Escherichia coli (25922)	+++	-	-	+	+	+	+	+	+	-	-	+	+
Klebsiella pneumoniae (13883)	+++	+	+	+	+	+	+	+	+	+	+	+	+
Proteus vulgaris (13315)	+++	-	-	-	-	+	+	-	-	-	-	-	-
Salmonella typhimurium (14028)	+++	+	+	-	-	+	+	+	+	-	-	+	+
Salmonella typhi (6539)	+++	-	-	-	-	+	-	+	-	-	-	-	-
Serratia marsecense (8100)	+++	+	-	-	-	+	-	+	-	-	-	-	-
Shigella flexneri (12022)	+++	-	-	-	-	+	-	+	-	-	-	-	-

Organisms (ATCC)	Growth	Salicin		Sorbitol		Starch		Sucrose		Trehalose		Xylose	
		Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas
Citrobacter freundii (8090)	+++	-	-	+	+	[+]	+	+	+	+	+	+	+
Enterobacter aerogenes (13048)	+++	+	+	+	+	+	-	+	+	+	+	+	+
Escherichia coli (25922)	+++	-	-	+	+	-	-	-	-	+	+	+	+
Klebsiella pneumoniae (13883)	+++	+	+	+	+	-	-	+	+	+	+	+	+
Proteus vulgaris (13315)	+++	+	+	-	-	-	-	+	+	+	+	+	[+]
Salmonella typhimurium (14028)	+++	-	-	+	+	-	-	-	-	+	+	+	+
Salmonella typhi (6539)	+++	-	-	+	-	-	-	-	-	+	-	+	-
Serratia marsecense (8100)	+++	+	[+]	+	-	-	-	+	+	+	[+]	-	-
Shigella flexneri (12022)	+++	-	-	+	-	+	-	-	-	+	-	-	-

Key: + = positive reaction, yellow color
- = negative reaction, no color cange or red
[+] = weak /slight

References:

1. MacFaddin, J., (1985). Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams and Wilkins. Baltimore,Maryland.
2. American Type Culture Collection, Manassas, Va., U.S.A.
3. Bergey's Manual of Systematic Bacteriology, 1984, Vol. 1, Williams and Wilkins, Baltimore.
4. Bergey's Manual of Systematic Bacteriology, 1994, 9th ed., Williams and Wilkins, Baltimore.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.