Methyl-red VOGES-PROSKAUER broth, MR-VP | AS-1297

Used for differentiation of bacteria based on acid production (Methyl Red test) and acetoin production (Voges-Proskauer reaction).

Biochemical assays like the Methyl Red (MR) and Voges-Proskauer (VP) tests are frequently used to determine and identify members of the *Enterobacteriaceae* family. The results of the fermentation of glucose are evaluated in these experiments.

The MR test determines an organism's ability to ferment glucose into stable acid end products, principally lactic, acetic, and formic acids. When methyl red indicator is introduced to the culture, it becomes red, indicating a pH of less than 4.4.

The ability of the organism to produce acetoin, also known as acetylmethylcarbinol, as a neutral byproduct of the fermentation of glucose is determined by the VP test. Acetoin is transformed into diacetyl, which when combined with creatine and alpha-naphthol reagents, produces a red color that signifies a positive VP test.

The MR and VP tests are often performed simultaneously on a single culture to differentiate between mixed acid fermenters (MR positive) and butanediol fermenters (VP positive).

Composition (gr/L)

Pancreatic Digest of Casein	3.5
Peptic digest of Animal Tissue	3.5
Glucose	5
Potassium Dihydrogen Phosphate	5
Final pH at 25°C	6.9 ± 0.2

Preparation

Dissolve 17 g of the powder into 1 litter distilled water. Pour into tubes or flasks. Autoclave at 121 °C for 15 minutes.

Quality Control

Dehydrated Appearance: Fine, homogeneous, free of extraneous material.

Prepared Appearance: Pale to light, yellow to tan, clear to slightly hazy.

Reaction of 1.7% Solution at 25°C: pH 6.9 ± 0.2

Microbial Test Results

Use a single colony for inoculation. Incubate at 35 ± 2°C for 48 hours Proceed with Methyl Red or Voges-Proskauer test.

For Methyl Red Test: Transfer 2.5 mL of the MR-VP Broth culture to a tube (13 x 100mm). Add 5 drops of Methyl Red and observe for a color change.

For Voges-Proskauer Test: Transfer 2.5 mL of the MR-VP Broth culture to a tube (13 x 100mm). Add 0.3 mL (6 drops) of Voges-Proskauer Reagent A (5% α-naphthol). Add 0.1 mL (2 drops) of Voges-Proskauer Reagent B (40% KOH). Gently agitate the tube and let stand for 10 – 15 minutes. Observe for a color change.

Organism (ATCC)	Recovery	Methyl Red	Voges-Proskauer
Citrobacter freundii (8454)	Good	+ (red)	- (no change)
Enterobacter aerogenes (13048)	Good	- (yellow)	+ (red)
Escherichia coli (25922)	Good	+ (red)	- (no change)
Serratia marcescens (14756)	Good	±	+

Storage

Keep the container at 15-30 °C and prepared medium at 2-8 °C.