

Fermentation HiVeg™ Medium for Neisseriae

MV825

This medium is recommended for studying fermentation reaction of fastidious organisms such as *Neisseriae* species.

Composition ** :

Ingredients	Grams/Litre
HiVeg hydrolysate	20.0
Cystine	0.5
Sodium chloride	5.0
Sodium sulphite	0.5
Phenol red	0.017
Agar	3.5

Final pH (at 25°C) 7.5 ± 0.1

** Formula adjusted, standardized to suit performance parameters.

Directions :

Suspend 29.51 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense and sterilize by autoclaving at 12 lbs pressure (118°C) for 15 minutes. The pressure should not exceed 12 lbs. Cool to around 40-45°C and add membrane filter-sterilized sugar solutions to final concentration of 1%. (i.e. 5 ml of 20% Sugar solution per 100 ml of medium).

Principle and Interpretation :

This medium is prepared by completely replacing animal based peptones by vegetable peptones making the medium free from BSE/TSE risks. Fermentation HiVeg Medium for Neisseriae is the veg modification of Fermentation Medium for Neisseriae recommended for studying fermentations of fastidious microorganisms such as *Neisseriae*. This medium produces relatively rapid results in detecting acid production from sugars like dextrose, fructose, lactose, maltose, sucrose etc. In case of *Neisseriae gonorrhoeae*, it has been shown that it metabolizes dextrose aerobically by a combination of Entner-Doudoroff and Pentose Phosphate pathways (1). Utilization of sugar like dextrose by *Neisseriae gonorrhoeae* yields acetic acid and little lactic acid. On prolonged incubation (72 hours or longer), the peptone in the medium is deaminated enzymatically to amino acids. These products combined with acetic acid oxidation after the depletion of glucose produce alkaline byproducts that tend to neutralise the acid produced and may cause glucose test medium to revert from an acid to alkaline reaction (false negative) (3). Cysteine acts as an amino acid source as well as a reducing agent which can remove (bind) molecular oxygen thereby preventing the accumulation of peroxides which are lethal to certain microorganisms (2). Small amount of agar in the medium reduces convection currents in the medium and hence contributes to maintain anaerobic conditions in the depth of the tubes. HiVeg hydrolysate supplies the necessary nitrogenous nutrients to the organisms while sodium chloride maintains the osmotic equilibrium in the

Product Profile :

Vegetable based (Code MV)Ⓞ	Animal based (Code M)
MV825 HiVeg hydrolysate	M825 Casein enzymic hydrolysate
Recommended for	: Studying fermentation reaction of fastidious microorganism such as <i>Neisseriae</i> species.
Reconstitution	: 29.51 g/l
Quantity on preparation (500g):	16.94 L
pH (25°C)	: 7.5 ± 0.1
Supplement	: Sugar solutions
Sterilization	: 118°C / 15 minutes.
Storage : Dry Medium - Below 30°C, Prepared Medium 2 - 8°C.	

medium. Phenol red is the pH indicator which turns yellow at acidic pH. Observe the inoculated tubes after every 4 hours.

Quality Control :

Appearance of powder

Beige coloured, homogeneous free flowing powder.

Gelling

Semisolid, comparable with 0.35% Agar gel

Colour and Clarity

Straw coloured clear to slightly opalescent gel forms in tubes as butts.

Reaction

Reaction of 2.95% w/v aqueous solution is pH 7.5 ± 0.1 at 25°C

Cultural Response

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

Organisms (ATCC)	Inoculum (CFU)	Growth	Acid*	Motility
<i>Escherichia coli</i> (25922)	10 ² -10 ³	luxuriant	+	+
<i>Neisseria gonorrhoea</i> (19424)	10 ² -10 ³	luxuriant	+	-
<i>Streptococcus pneumoniae</i> (6303)	10 ² -10 ³	luxuriant	+	-

Key : * = Acid in presence of added dextrose

+ = positive reaction

References :

- Morse, Stein and Hines, 1974, J. Bact., 120:702.
- MacFaddin J.F., 1985 (ed), Media For Isolation-Cultivation-Identification Maintenance of Medical Bacteria. Vol I, Williams and Wilkins, Baltimore.
- Murray PR, Baron, Pfaller, and Tenenbaum (Eds). 2003. In Manual of Clinical Microbiology 8th ed, ASM, Washington, DC.