Decarboxylase HiVeg™ Agar Base MV501

Decarboxylase HiVeg Agar Base is used to differentiate bacteria on the basis of their ability to decarboxylate the amino acid added to the medium.

Composition ** :

Ingredients	Grams/Litre
HiVeg peptone	5.0
Yeast extract	3.0
Dextrose	1.0
Bromo cresol purple	0.02
Agar	15.0

Final pH (at 25°C) 6.5 ± 0.2
** Formula adjusted, standardized to suit performance parameters.

Directions :

Suspend 24 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Add 5 grams of desired L-Amino acid in hydrochloride form (L-Lysine / L-Ornithine / L-Arginine) per litre of the medium. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Dispense into test tubes and cool in a slanted position. When L-Ornithine hydrochloride is used, readjustment of pH is necessary.

Principle and Interpretation :

Decarboxylase HiVeg Agar Base is prepared by using HiVeg peptone which is free from BSE/TSE risks. This medium is the modification of Decarboxylase Agar Base which is formulated as described by Moeller (1) to differentiate bacteria on the basis of their ability to decarboxylate the amino acids. The medium like the conventional medium is useful for the identification of the *Enterobacteriaceae* and other gram-negative bacilli (2, 3). Production of ornithine decarboxylase is especially useful for differentiating *Enterobacter* and *Klebsiella* species as the former produces this enzyme and are motile while latter are nonmotile and do not synthesize this enzyme.
HiVeg peptone and yeast extract supply nitrogenous nutrients for the bacterial growth. Dextrose is the fermentable carbohydrate. Bromo cresol purple is the pH indicator which changes colour from purple to yellow in acidic condition. Decarboxylase activity is stimulated by acidic pH and hence the amino acids are decarboxylated or degraded to form corresponding amine. Production of these amines increases the pH of the medium changing the colour of the indicator and in turn the medium from yellow to purple violet. Each isolate must be inoculated into a tube of the basal medium without amino acid. If this tube becomes alkaline then the test is invalid. Exposure of the medium to air may cause alkalinization so the inoculated tubes if covered with a layer of sterile mineral oil will give best results.

Quality Control :

Appearance of powder
Light yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

Product Profile :		
Vegetable based (Code MV)◉		**Animal based** (Code M)
MV501 HiVeg peptone		**M501** Peptic digest of animal tissue
Recommended for	:	Differentiating bacteria on the basis of their ability to decarboxylate the amino acid added to the medium.
Reconstitution	:	24.0 g/l
Quantity on preparation (500g)	:	20.83 L
pH (25°C)	:	6.5 ± 0.2
Supplement	:	Amino acid
Sterilization	:	121°C / 15 minutes.
Storage : Dry Medium - Below 30°C, Prepared Medium 2 - 8°C.		

Gelling
Firm, comparable with 1.5% Agar gel
Colour and Clarity
Purple coloured, clear to slightly opalescent gel forms in tubes as slants.
Reaction
Reaction of 2.4% w/v aqueous solution is pH 6.5 ± 0.2 at 25°C.
Cultural Response
Cultural characteristics observed after an incubation at 35 - 37°C for 4 days after the addition of the amino acids L-Lysine, L-Arginine and L-Ornithine.

Organisms (ATCC)	Inoculum	Lysine	Arginine	Ornithine
Citrobacter freundii (8090)	10^3	-	±	±
Enterobacter aerogenes (13048)	10^3	+	+	+
Escherichia coli (25922)	10^3	±	±	±
Klebsiella pneumoniae (13883)	10^3	+	-	-
Proteus mirabilis (25933)	10^3	-	-	+
Proteus vulgaris (13315)	10^3	-	-	-
Salmonella serotype Paratyphi A	10^3	-	(+) or +	+
Salmonella serotype Typhi (6539)	10^3	+	(+) or -	-
Serratia marcescens (8100)	10^3	+	-	+
Shigella dysenteriae (13313)	10^3	-	- or (+)	-
Shigella flexneri (12022)	10^3	-	- or (+)	-
Shigella sonnei (25931)	10^3	-	±	+

Key : - = negative reaction, yellow colour
+ = positive reaction, purple colour
(+) = delayed positive reaction
± = variable reaction

References :

1. Moeller, 1955, Acta. Pathol. Microbiol. Scand., 36:158.
2. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
3. Murray PR, Baron, Pfaller, and Yolken (Eds.), 2003, In Manual of Clinical Microbiology, 8th ed., ASM, Washington, D.C.

◉ Prepared from GMO free Vegetable proteins replacing Animal based peptones. Freedom from BSE/TSE worries.