Decarboxylase Test HiVeg™ Medium Base (Falkow) MV912

Decarboxylase Test HiVeg Medium Base (Falkow) is used for testing decarboxylase activity.

Composition ** :

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

Final pH (at 25°C) 6.8 ± 0.2
** Formula adjusted, standardized to suit performance parameters.

Directions :

Suspend 9 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Divide into four equal parts. One part is dispensed without addition of any amino acid. To the remaining 3 parts add seperately three L-amino acids - Lysine Hydrochloride, Arginine Hydrochloride and Ornithine Hydrochloride to a final concentration of 0.5%. Dispense in 3-4 ml quantities in screw capped tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle and Interpretation :

This medium is prepared by completely replacing animal based peptones by vegetable peptones which is free from BSE/TSE risks. Decarboxylase Test HiVeg Medium Base is the modification of Decarboxylase Test Medium Base which is used for differentiating bacteria on their ability to decarboxylate the amino acids. First practical application of amino acid decarboxylase test was reported by Moeller for distinguishing various microorganisms (1). Moeller's work was based on the experiments done by Gale (2) and Gale and Epps (3) on bacterial amino acid decarboxylases. Moeller observed that production of lysine, arginine, ornithine decarboxylase by various members of *Enterobacteriaceae* offered an important parameter to other biochemical tests for differentiating bacteria within closely related groups. Further, to differentiate *Salmonella arizonae* from *Citrobacter,* Calquist (4) developed a medium utilizing the lysine decarboxylase reaction. Later on Falkow (5) was the one who emphasized and developed the lysine decarboxylase medium for differentiating *Salmonella*e and *Shigellae* by the valid and reliable results. This medium is recommended for detection of dihydrolase and decarboxylase activity of *Vibrio cholerae* and other *Vibrios*. Dextrose is fermented by the enteric bacteria resulting in acidic pH. Bacteria, which produce lysine or ornithine or arginine decarboxylase, will produce alkaline products and increase the pH. The resulting reaction after 24-96 hours will indicate an alkaline reaction seen as purple colour for decarboxylase producing bacteria and an acid pH (yellow) by the bacteria not producing decarboxylase. Inoculated tubes must be protected from air (by overlaying the medium with sterile mineral oil) to avoid false alkalinization at the surface of the medium. Control tubes of basal media should be inoculated. Biochemical testing should be attempted on pure culture isolation only and subsequent to differential determinations. The decarboxylase reactions can be considered indicative of a given genus or species but conclusive and final identification of these organisms cannot be made solely on the basis of the decarboxylase reactions.

Product Profile :

Vegetable based (Code MV)◉	Animal based (Code M)
MV912 HiVeg peptone	**M912** Peptic digest of animal tissue

Recommended for	:	Testing decarboxylase activity.
Reconstitution	:	9.0 g/l
Quantity on preparation (500g)	:	55.55 L
(100g)	:	11.11 L
pH (25°C)	:	6.8 ± 0.2
Supplement	:	Amino acid
Sterilization	:	121°C / 15 minutes.

Storage : Dry Medium - Below 30°C, Prepared Medium 2 - 8°C.

Quality Control :

Appearance of powder

Yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

Colour and Clarity

Purple coloured, clear solution without any precipitate forms in tubes.

Reaction

Reaction of 0.9% w/v aqueous solution is pH 6.8 ± 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*
Enterobacter aerogenes (13048)	10^2-2 X 10^2	+	-	+
Escherichia coli (25922)	10^2-2X 10^2	±	±	±
Klebsiella pneumoniae (13883)	10^2-2 X 10^2	+	-	-
Proteus vulgaris (13315)	10^2-2 X 10^2	-	-	-
Pseudomonas aeruginosa (27853)	10^2-2 X 10^2	-	+	-
Salmonella serotype Typhi (6539)	10^2-2 X 10^2	+	(+) or -	-
Serratia marcescens (8100)	10^2-2 X 10^2	+	-	+
Shigella flexneri (12022)	10^2-2 X 10^2	-	- or (+)	-

Key : + = positive reaction, purple colour
- = negative reaction, yellow colour
± = variable reaction
(+) = delayed positive reaction
* = Innoculated tubes are overlayed with mineral oil.

References :

1. Moeller, 1954, Acta Path. Micro. Scand., 34:102.
2. Gale, 1940, Biochem. J., 34:392, 583, 846.
3. Gale and Epps, 1943, Nature, 152:327.
4. Calquist, 1956, J. Bact., 71:339.
5. Falkow, 1958, Am. J. Clin. Path., 29:598.

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