Technical Information

Decarboxylase MiVeg Agar Base

Product Code : VM1501

Application:- Decarboxylase MiVeg Agar Base is recommended to differentiation of bacteria on the basis of their ability to decarboxylate the amino acid added to the medium.

Composition

Ingredients	Gms / Litre
MiVeg 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.

Principle & Interpretation

Decarboxylase MiVeg Agar Base is prepared by using MiVeg peptone in place of animal peptone thereby making the medium BSE/TSE risks free. 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.

It contains MiVeg peptone and yeast extract which supplies nitrogenous nutrients for the bacterial growth. Dextrose serve as the fermentable carbohydrate. Bromo cresol purple act as a pH indicator which changes colour from purple to yellow in acidic condition. The acidic pH stimulates Decarboxylase activity hence the amino acids are decarboxylated or degraded to form corresponding amine. The colour of the medium changes from yellow to purple violet as a respect of increased pH due to production of amines. 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 cover the inoculated tubes with a layer of sterile mineral oil for better results.

Methodology

Suspend 24 grams of powder media in 1000 ml distilled water. Mix thoroughly. 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 upright position. When L-Ornithine hydrochloride is used, readjustment of pH is necessary. Cover the inoculated tubes with a layer of sterile mineral oil for better results.

Quality Control

Physical Appearance

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

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Purple coloured, clear to slightly opalescent gel forms in tubes as butt.

Reaction

Reaction of 2.4 % w/v aqueous solution pH: 6.5 ±0.2 at 25°C

pH range

6.3-6.7

Cultural Response/Characteristics

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 and overlaying the surface mineral oil.

Organisms (ATCC)	Inoculum (CFU)	Lysine	Arginine	Ornithine
Citrobacter freundii (8090)	10^3	-	±	±
Enterobacter aerogenes (13048)	10^3	+	+	+
Escherichia coli (25922)	10^3	±	±	±
Klebsiella pneumonia (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

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

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.

Disclaimer :

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