

Technical Information

Motility-Indole-Lysine MiVeg Medium (MIL MiVeg Medium)

Product Code : VM1847

Application:- Motility - Indole - Lysine MiVeg Medium is recommended for the identification of members of *Enterobacteriaceae* on the basis of motility, lysine decarboxylase, lysine deaminase and indole production.

Composition

Ingredients	Gms / Litre
MiVeg peptone	10.0
MiVeg hydrolysate	10.0
Yeast extract	3.0
L-Lysine hydrochloride	10.0
Dextrose	1.0
Ferric ammonium citrate	0.5
Bromo cresol purple	0.02
Agar	2.0
Final pH (at 25°C)	6.6±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Motility - Indole - Lysine MiVeg Medium (MIL MiVeg Medium) is prepared by using vegetable peptone in place of animal based peptone thus the medium becomes free of BSE/TSE risks. This Medium is the modification of MIL Medium which is formulated according to Reller and Merrett (1). It provides 4 differential reactions in a single culture tube. This medium is recommended to use along with Triple Sugar Iron (TSI) MiVeg Agar (VM1021) and Urea MiVeg Agar Base (VM1112) so as to enable initial identification of members of *Enterobacteriaceae*.

It contains MiVeg peptone, MiVeg hydrolysate which supplies amino acids and other complex nitrogenous substances. Yeast extract provides the B-complex vitamins. Dextrose serve as a source of energy. Bromocresol purple act as a pH indicator which help in detection of decarboxylase activity. The colour of the medium changes from purple to yellow due to dextrose fermentation. The acidic pH also stimulates enzyme activity. The production of amines due to degradation of amino acid elevates the pH and turns the medium at the bottom of the tube to purple while due to the higher oxygen tension, the upper portion of the tube remains acidic (yellow). Oxidative deamination of lysine yields a compound which reacts with ferric ammonium citrate, giving reddish colour at the top of the medium (2).

Cultures are inoculated by stabbing and incubated at 37°C for 18-24 hours. Motility, lysine deamination and lysine decarboxylation reactions are read before testing indole reaction. Motile cultures shows diffused growth while non-motile cultures grow only in the stab line. Lysine deamination is observed as red or red-brown colour at the top of the medium while decarboxylation shows a purple colour throughout the medium. This colour may vary in intensity, may be a light colour due to reduction of indicator. For testing indole production add 3-4 drops of Kovac's reagent to the medium. A pink to red coloured ring indicates a positive reaction.

Methodology

Suspend 36.52 grams of powder media in 1000 ml distilled water. Mix thoroughly. Heat to boiling to dissolve the medium completely. Dispense into tubes in 5 ml amounts. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubes in an upright position.

Quality Control

Physical Appearance

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

Gelling

Semisolid, comparable with 0.2% Agar gel.

Colour and Clarity of prepared medium

Reddish purple coloured, clear gel forms in tubes as butt.

Reaction

Reaction of 3.65 % w/v aqueous solution pH: 6.6 $\pm$ 0.2 at 25°C

pH range

6.4-6.8

Cultural Response/Characteristics

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

Organisms (ATCC)	Inoculum (CFU)	Motility	Indole production	Lysine Deaminase	Lysine decarboxylase
<i>Enterobacter aerogenes</i> (13048)	10 ² -10 ³	+	-	-	+
<i>Escherichia coli</i> (25922)	10 ² -10 ³	+	+	-	+
<i>Klebsiella pneumoniae</i> (13883)	10 ² -10 ³	-	-(+)	-	+
<i>Proteus mirabilis</i> (25933)	10 ² -10 ³	+	-	+	-
<i>Proteus vulgaris</i> (13315)	10 ² -10 ³	+	+	+	-
<i>Salmonella</i> serotype Enteritidis	10 ² -10 ³	+	-	-	+
<i>Shigella flexneri</i> (12022)	10 ² -10 ³	-	- or +	-	-

Key : Motility : + = positive reaction, growth away from stabline-
- = negative reaction, growth along the stabline
Indole : + = pink-red ring on addition of Kovacs Reagent
- = no pink or red coloured ring on addition of Kovacs Reagent
Lysine Deaminase : + = red-brown colour reaction at the top
Lysine decarboxylase : + = purple colour
(+) = Occasional 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° in sealable plastic bags for 2-5 days.

Further Reading

1. Reller and Merrett, 1975, J. Clin. Microbiol., 2:247.
2. Forbes, Salin and Weissfeld, 1998, Bailey and Scott's, Diagnostic Microbiology, 10th ed., Mosby, Inc, St. Louis, MO.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at CDH is true and accurate
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents. Do not use the products if it fails to meet specifications for identity and performance parameters.