Technical Information

MIO MiVeg Medium (Motility Indole Ornithine MiVeg Medium)

Product Code : VM1378

Application:- Motility Indole Ornithine MiVeg Medium (MIO MiVeg Medium) is recommended for the identification of *Enterobacteriaceae* on the basis of motility, indole production and ornithine decarboxylase activity.

Composition

Ingredients	Gms / Litre
MiVeg hydrolysate	10.0
MiVeg peptone	10.0
Yeast extract	3.0
L-Ornithine hydrochloride	5.0
Dextrose	1.0
Bromo cresol purple	0.02
Agar	2.0
Final pH (at 25°C)	6.5±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

MIO MiVeg Medium is prepared by using vegetable peptones in place of animal based peptones which makes it free from BSE/TSE risks. This Medium is the modification of MIO Medium which was formulated by Ederer and Clark (1) and Oberhofer and Hajkowski (2) for detection of motility, indole and ornithine decarboxylation in single culture tube.

It contains MiVeg hydrolysate and MiVeg peptone which supplies amino acids and other nitrogenous substances. Yeast extract serve as a source of vitamin B complex. Dextrose is the fermentable carbohydrate. Cultures are inoculated by stabbing.

Before testing indole production readings of Motility and Ornithine decarboxylation reactions are taken. Motile organisms show either diffused growth or turbidity in the medium while non-motile organisms grow along the stab-line. The colour of pH indicator bromo cresol purple changes from purple to yellow due to acid production by dextrose fermenting organism. Organisms possessing ornithine decarboxylase, decarboxylates ornithine to putrescine which increases the pH making it alkaline, indicated by colour change from yellow to purple throughout the medium. Decarboxylase negative reaction is indicated by yellow colour or yellow with a purple band near the top of the medium. MiVeg hydrolysate contains tryptophan which produces indole. The indole produced combines with the aldehyde present in the Kovac's reagent to form a red complex.

Methodology

Suspend 31 grams of powder media in 1000 ml distilled water. Mix thoroughly. Heat to boiling to dissolve the medium completely. Dispense in test 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

Light 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

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

Reaction

Reaction of 3.1 % 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 40-48 hours

Organisms (ATCC)	Inoculum (CFU)	Growth	Motility	Indole	Ornithine**
Enterobacter aerogenes(13048)	10^2-10^3	luxuriant	+	-	+
Escherichia coli (25922)	10^2-10^3	luxuriant	+	+	+
Klebsiella pneumoniae (13883)	10^2-10^3	luxuriant	-	-	-
Proteus mirabilis (25933)*	10^2-10^3	luxuriant	+	-	+

Key : + = positive reaction
- = negative reaction
* = motility of *Proteus mirabilis* is temperature dependent. It is more pronounced at 20-22°C and almost absent at 35-37°C.
** = Decarboxylation

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.

VM1378 MI0 MiVeg Medium

1. Control
2. *Escherichia coli*
3. *Klebsiella pneumoniae*
4. *Proteus mirabilis*

Further Reading

1. Ederer and Clark, 1970, Appl. Microbiol., 20:849.
2. Oberhofer and Hajkowski, 1970, Am. J. Clin. Pathol., 54:720.

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
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