MIO HiVeg™ Medium (Motility Indole Ornithine HiVeg™ Medium) MV378

Motility Indole Ornithine HiVeg Medium (MIO HIVeg Medium) is used for the identification of *Enterobacteriaceae* on the basis of motility, indole production and ornithine decarboxylase activity.

Composition ** :

Ingredients	Grams/Litre
HiVeg hydrolysate	10.0
HiVeg 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.

Directions :

Suspend 31 grams in 1000 ml distilled water. 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.

Principle and Interpretation :

MIO HiVeg Medium is prepared by using vegetable peptones which are free of BSE/TSE risks. MIO HiVeg 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.
HiVeg hydrolysate and HiVeg peptone provide amino acids and other nitrogenous substances. Yeast extract is the source of vitamin B complex. Dextrose is the fermentable carbohydrate. Cultures are stab-inoculated.
Motility and Ornithine decarboxylation reactions are read before testing indole production. Motile organisms show either diffused growth or turbidity extending away from stab inoculation line while non-motile organisms grow along the stab-line. Organisms ferment dextrose to form acid which causes the pH indicator bromo cresol purple to change from purple to yellow. 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. Indole is produced from tryptophan present in HiVeg hydrolysate. The indole produced combines with the aldehyde present in the Kovac's reagent to form a red complex.

MV378 MIO HiVeg Medium

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

Product Profile :

Vegetable based (Code MV)◉	Animal based (Code M)
MV378 HiVeg peptone HiVeg hydrolysate	**M378** Peptic digest of animal tissue Casein enzymic hydrolysate

Recommended for	:	Identification of *Enterobacteriaceae* on the basis of motility, indole production and ornithine decarboxylase activity.
Reconstitution	:	31.0 g/l
Quantity on preparation (500g)	:	16.12 L
pH (25°C)	:	6.5 ± 0.2
Supplement	:	None
Sterilization	:	121°C / 15 minutes.

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

Quality Control :

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

Gelling
Semisolid, comparable with 0.2% Agar gel.

Colour and Clarity
Purple coloured, clear to slightly opalescent gel forms in tubes as butts.

Reaction
Reaction of 3.1% 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 40 - 48 hours.

Organisms (ATCC)	Inoculum	Growth (CFU)	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

References :

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

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

HIMEDIA®