Motility Indole Ornithine (MIO) Medium

Medium used for the identification and determination of Enterobacteriaceae on the basis of motility, indole production and ornithine decarboxylase activity.

• CONTENTS (Liter)

Peptone	10.0 g
Tryptone	10.0 g
Yeast Extract	3.0 g
L-Ornithine HCl	5.0 g
Dextrose	1.0 g
Bromocresol Purple	0.02 g
Agar	2.0 g

Final pH = 6.5 ± 0.2 at 25°C

• PROCEDURE

Suspend 31.02 G of powder in 1 L of distilled or deionized water. Heat to boiling until completely dissolved. Sterilize by autoclave at 121°C for 15 minutes. Cool to 45 - 50°C in water bath. Mix well. Pour into tubes.

• INTERPRETATION

Motility Indole Ornithine (MIO) Medium is a medium used for the identification and determination of Enterobacteriaceae on the basis of motility, indole production and ornithine decarboxylase activity. Peptone, tryptone and yeast extract provide nitrogens, carbon, vitamins and minerals. Tryptophan in the peptone is degraded to indole by tryptophanase of the microorganism. Dextrose is the fermentable carbohydrate. Dextrose is fermented by organisms with the color change of indicator from purple to yellow. If organisms possess the ornithine decarboxylase, L-ornithine is decarboxylated to putrescine. Putrescine, an amine, makes the medium alkaline causes the pH to increase and change the color of the medium from yellow to purple. Bromocresol purple is the pH indicator. Agar is the solidifying agent.

• TECHNIC

Inoculate the specimen using a sterile needle to the middle of the medium. Incubate at 35 ± 2°C for 24 - 48 hours. Slightly loosen the caps. After incubation, observe motility and ornithine decarboxylase activity. Motility is obseved as a diffuse growth outward from the stab line. Ornithine decarboxylase positive reaction is indicated by purple to pale yellow-purple color; A Negative reaction is indicated by a yellow color. Motility and ornithine decarboxylase activity must be determined before the addition of Kovac's reagent. Indole production is shown by a red coloration on the surface of the medium after the addition of 3 - 4 drops of Kovac's reagent (MB-9410). Refer appropriate references for recommended test procedure.

• QUALITY CONTROL FOR USE

Dehydrated medium
Appearance: free-flowing, homogeneous
Color: light beige
Prepared medium
Appearance : clear to slightly opalescent
Color: purple
Incubation conditions: 35 ± 2°C / 24 - 48 hours / slightly loosen the caps

Microorganism	ATCC	Growth	Motility	Indole	Ornithine Decarboxylation
Escherichia coli	25922	good	+	+	+ (purple)
Enterobacter aerogenes	13048	good	+	-	+ (purple)
Klebsiella pneumoniae	13883	good	-	-	-
Proteus mirabilis	25933	good	+	-	+ (purple)

• STORE

The powder is very hygroscopic. Store the powder at room temperature, in a dry environment, in its original container tightly closed and use it before the expiry date on the label. Store prepared medium at 2 - 8°C.

• REFERENCES

1. MacFaddin J. F., 2000, Biochemical tests for Identification of Medical Bacteria, 3rd Ed., Lippincott, Williams and Wilkins, Baltimore.
2. Ederer G. M. and Clark M., 1970, Appl. Microbiol., 20:849.
3. Oberhofer J. R. and Hajkowski R., 1970, Am. J. Clin. Pathol., 54:726.
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

• PACKAGE

Cat. No : MB-M2174 Motility Indole Ornithine (MIO) Medium	500 G