Dehydrated Culture Media
Bases / Media Supplements

Technical Information

Lysine Iron MiVeg Agar

Product Code : VM1377

Application:- Lysine Iron MiVeg Agar is recommended for the differentiation of enteric organisms especially *Salmonella* serotype Arizonae based on their ability to decarboxylate or deaminate lysine and to form hydrogen sulphide (H_2S).

Composition

Ingredients	Gms / Litre
MiVeg peptone	5.0
Yeast extract	3.0
Dextrose	1.0
L-Lysine	10.0
Ferric ammonium citrate	0.5
Sodium thiosulphate	0.04
Bromo cresol purple	0.02
Agar	15.0
Final pH (at 25°C)	6.7 ± 0.2

** Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Lysine Iron MiVeg Agar is prepared by using MiVeg peptone instead of Peptic digest of animal tissue thereby making the medium free from BSE/TSE risks. Lysine Iron MiVeg Agar is modification of Lysine Iron Agar which was developed by Edwards and Fife (1) to detect lactose fermenting *Salmonellae*. *Salmonellae* are known to decarboxylate lysine rapidly and produce large amounts of hydrogen sulphide (2, 3). This is a sensitive medium for the detection of lactose fermenting and lactose non-fermenting *Salmonella* species. Many strains of this group ferment lactose very rapidly thus suppressing hydrogen sulphide (H_2S) production on Triple Sugar Iron MiVeg Agar (VM1021). So there is a possibility that the organisms frequently found in food poisoning outbreaks could be overlooked. Thatcher and Clark (4) described the isolation of *Salmonella* species from foods from selective agar and to inoculate it on Lysine Iron MiVeg Agar and Triple Sugar Iron MiVeg Agar (VM1021) together. Using these two media greater discrimination can be made between coliform organisms e.g. *Escherichia* and *Shigella* (5, 6).

MiVeg peptone and yeast extract supplies all the essential nutrients required for the growth of the organisms. Dextrose serve as a fermentable carbohydrate. Ferric ammonium citrate and sodium thiosulphate are hydrogen sulphide (H_2S) production indicators. (H_2S) producing organisms cause blackening of the medium due to ferrous sulphide production. Lysine decarboxylation causes an alkaline reaction (purple colour) to give the amine cadaverine and the organisms which do not decarboxylate lysine, produce acid butt (yellow colour). Lysine deaminating organisms form alpha-Ketocarboxylic acid, which reacts with iron salt near the surface of the medium under the influence of oxygen to form reddish-brown compound. The medium is stabbed to the base of the butt and streaked on slant.

Methodology

Suspend 34.56 grams of powder media in 1000 ml distilled water. Mix thoroughly and heat to boiling to dissolve the medium completely. Dispense into tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubes in slanted position to form slants with deep butts.

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 slants.

Reaction

Reaction of 3.45% w/v aqueous solution is pH 6.7 ± 0.2 at 25°C.

pH Range

6.5 - 6.9

Cultural Response/Characteristics

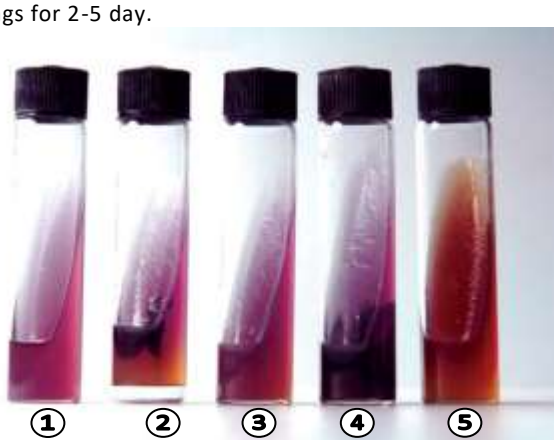
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organisms (ATCC)	Inoculum (CFU)	Growth	Recovery	Butt	Slant	H_2S
Citrobacter freundii (8090)	10^2-10^3	luxuriant	>70%	A	K	+
Escherichia coli (25922)	10^2-10^3	luxuriant	>70%	K	K	-
Proteus mirabilis (25933)	10^2-10^3	luxuriant	>70%	A	R	+
Salmonella serotype Arizonae (13314)	10^2-10^3	luxuriant	>70%	K	K	+
Salmonella serotype Typhimurium (14028)	10^2-10^3	luxuriant	>70%	K	K	+
Shigella flexneri (12022)	10^2-10^3	luxuriant	>70%	A	K	-

Key : + = blackening of medium
-- = no blackening of medium
R = deep red, lysine deamination
A = acidic reaction, yellow colour
K = alkaline reaction, purple colour, (no colour change)

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 day.



VM1377 Lysine Iron MiVeg Agar

1. Control
2. *Citrobacter freundii*
3. *Escherichia coli*
4. *Salmonella* serotype Typhimurium
5. *Proteus mirabilis*

Further Reading

1. Edward P.R. and Fife M.A., 1961, Appl. Microbiol., 9:478.
2. Moeller V., 1954, Acta Pathol. Microbiol. Scand., 355:259.
3. Ewing W.H., Davis B.R. and Edward P.R., 1960, Pub. Hlth. Labs., 18:77.
4. Thatcher F.S. and Clark D.S., 1968, University of Toronto Press, p. 100.
5. Johnson J.G., Kunz L.J., Barron W. and Ewing W.H., 1966, Appl. Microbiol.,14:212.
6. Finegold S.M. and Martin W.J., 1982, Bailey and Scott's Diagnostic Microbiology, 6th ed., The C.V. Mosby Co., St. Louis.

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