Technical Information

Kligler Iron MiVeg Agar

Product Code : VM1078

Application:- Kligler Iron MiVeg Agar is recommended as a differential medium used for gram-negative intestinal microorganisms differentiation on the basis of their ability to ferment dextrose and lactose and hydrogen sulphide production.

Composition

Ingredients	Gms / Litre
MiVeg special peptone	15.0
MiVeg extract	3.0
Yeast extract	3.0
MiVeg peptone No. 3	5.0
Lactose	10.0
Dextrose	1.0
Ferrous sulphate	0.2
Sodium chloride	5.0
Sodium thiosulphate	0.3
Phenol red	0.024
Agar	15.0
Final pH (at 25°C)	7.4 ± 0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Kligler Iron MiVeg Agar is prepared by adding MiVeg Special peptone and MiVeg extract in place of peptic digest of animal tissue and Beef Extract thus making the medium free from BSE/TSE risks free. Kligler (1) developed a Lead Acetate Medium for differentiation of typhoid-paratyphoid group. Kligler (2) further evaluated this medium by combining the principles of Russell Double Sugar Medium (3). Bailey and Lacey (4) substituted phenol red for the Andrade's indicator from the previous formulation permitting the differentiation of gram-negative bacilli on their ability to ferment dextrose, lactose and H_2S production. Kligler Iron MiVeg Agar differentiates lactose fermenters from lactose non fermenters. This medium is the modification of Kligler Iron Agar. It differentiates *Salmonella* serotype Paratyphi A from *Salmonella* serotype Scottmuelleri and *Salmonella* serotype Enteritidis.

The combination of ferrous sulphate and sodium thiosulphate enables the detection of H_2S production, which is evidenced by blackening in the butt. Phenol red is the pH indicator. Dextrose fermentation is indicated by yellow butt and that of lactose by yellow slant and hydrogen sulfide (H_2S) production is indicated by blackening in the butt. Pure cultures of suspected organisms from plating media such as MacConkey MiVeg Agar (VM1081), Bismuth Sulphite MiVeg Agar (VM1027), Deoxycholate Citrate MiVeg Agar (VM1065), SS MiVeg Agar (VM1108) etc. are inoculated on Kligler Iron MiVeg Agar for identification.

Methodology

Suspend 57.5 grams of powder media in 1000 ml distilled water. Mix thoroughly and heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubes to set as slants with 1 inch butts. Best reactions are obtained on freshly prepared media. Do not use screw-capped tubes or bottles.

Quality Control

Physical Appearance

Light pink coloured, homogeneous, free flowing powder.

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Red coloured, clear to slightly opalescent gel forms as slants in tubes.

Reaction

Reaction of 5.75% w/v aqueous solution is pH 7.4 ± 0.2 at 25°C.

pH Range

7.2 - 7.6

Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organisms (ATCC)	Growth	Butt	Slant	Gas	H_2S
Citrobacter freundii (8090)	luxuriant	A	A	+	+
Enterobacter aerogenes (13078)	luxuriant	A	A	+	_
Escherichia coli (25922)	luxuriant	A	A	+	_
Klebsiella pneumoniae (13883)	luxuriant	A	A	+	_
Proteus vulgaris (6380)	luxuriant	A	K	_	+
Salmonella serotype Paratyphi A	luxuriant	A	K	+	_
Salmonella serotype Enteritidis (13076)	luxuriant	A	K	+	+
Salmonella serotype Scottmuelleri	luxuriant	A	A	+	+
Salmonella serotype Typhi (6539)	luxuriant	A	K	_	+
Shigella flexneri (12022)	luxuriant	A	K	_	_

Key: A = acid production (yellow)
K = alkaline reaction (red)
+ = positive reaction, gas production /blackening of medium
- = negative 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: 2-8^0 in sealable plastic bags for 2-5 day.

Further Reading

1. Kligler I.J., 1917, Am. J. Publ. Health, 7:1042.
2. Kligler J.J., 1918, J. Exp. Med., 28:319.
3. Russell F.F., 1911, J. Med. Res., 25:217.
4. Bailey S.F. and Lacey G.R., 1927, J. Bact., 13:182.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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