

Kligler Iron HiVeg™ Agar

MV078

Kligler Iron HiVeg Agar is recommended as a differential medium in the study of the gram-negative intestinal microorganisms, on the basis of their fermentative ability for dextrose and lactose and production of hydrogen sulphide.

Composition ** :

Ingredients	Grams/Litre
HiVeg special peptone	15.0
HiVeg extract	3.0
Yeast extract	3.0
HiVeg 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.

Directions :

Suspend 57.5 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Mix well and distribute into tubes. 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. Use a straight wire to inoculate the butt. Do not use screw-capped tubes or bottles.

Principle and Interpretation :

This medium is prepared by using vegetable peptones in place of animal based peptones which makes the medium free of 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 hydrogen sulphide production. Kligler Iron HiVeg Agar differentiates lactose fermenters from nonfermenters. Kligler Iron HiVeg Agar is the modification of Kligler Iron Agar with the use of vegetable peptones and serves the same purpose. It differentiates *Salmonella* serotype Typhi from other *Salmonellae* and also *Salmonella* serotype Paratyphi A from *Salmonella* serotype Scottmuelleri and *Salmonella* serotype Enteritidis.

Sodium thiosulphate and ferrous sulphate accelerate hydrogen sulfide (H₂S) production. Phenol red is the pH indicator. Fermentation of dextrose is indicated by yellow butt and that of lactose by yellow slant and hydrogen sulfide (H₂S) production is indicated by blackening in the butt. Pure cultures of suspected organisms from plating media such as MacConkey HiVeg Agar (MV081), Bismuth Sulphite HiVeg Agar (MV027), Deoxycholate Citrate HiVeg Agar (MV065), SS HiVeg Agar (MV108) etc. are inoculated on Kligler Iron HiVeg Agar for identification.

Product Profile :

Vegetable based (Code MV)©		Animal based (Code M)
MV078	HiVeg peptone No. 3 HiVeg special peptone HiVeg extract	M078 Proteose peptone Peptone Special Beef extract
Recommended for	:	Differential medium in the study of the gram-negative intestinal microorganisms on the basis of dextrose and lactose fermentation and H ₂ S production
Reconstitution	:	57.5 g/l
Quantity on preparation (500g)	:	8.69 L
	(100g):	1.73 L
pH (25°C)	:	7.4 ± 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 pink coloured, homogeneous, free flowing powder.

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity

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

Reaction

Reaction of 5.8% w/v aqueous solution is pH 7.4 ± 0.2 at 25°C.

Cultural Response

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

Organisms (ATCC)	Growth	Butt	Slant	Gas	H ₂ S
<i>Citrobacter freundii</i> (8090)	luxuriant	A	A	+	+
<i>Enterobacter aerogenes</i> (13048)	luxuriant	A	A	+	-
<i>Escherichia coli</i> (25922)	luxuriant	A	A	+	-
<i>Klebsiella pneumoniae</i> (13883)	luxuriant	A	A	+	-
<i>Proteus vulgaris</i> (6380)	luxuriant	A	K	-	+
<i>Salmonella</i> serotype Paratyphi A	luxuriant	A	K	+	-
<i>Salmonella</i> serotype Enteritidis (13076)	luxuriant	A	K	+	+
<i>Salmonella</i> serotype Schottmuelleri	luxuriant	A	A	+	+
<i>Salmonella</i> serotype Typhi (6539)	luxuriant	A	K	-	+
<i>Shigella flexneri</i> (12022)	luxuriant	A	K	-	-

Key: A = acid production (yellow)

K = alkaline reaction (red)

+ = positive reaction, gas production /blackening of medium

- = negative reaction

References :

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.