EMB HiVeg™ Agar, Levine MV022

EMB HiVeg Agar is recommended for the isolation, enumeration or differentiation of members of *Enterobacteriaceae.*

Composition ** :

Ingredients	Grams/Litre
HiVeg peptone	10.0
Dipotassium phosphate	2.0
Lactose	10.0
Eosin - Y	0.4
Methylene blue	0.065
Agar	15.0

Final pH (at 25°C) 7.1 ± 0.2
** Formula adjusted, standardized to suit performance parameters.

Directions :

Suspend 37.5 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. AVOID OVERHEATING. Cool to 50°C and shake the medium in order to oxidize the methylene blue (i.e. restore its blue colour) and to suspend the precipitate which is an essential part of the medium.
Precaution : Store the medium away from light to avoid photooxidation.

Principle and Interpretation :

This medium is prepared by using HiVeg peptone in place of peptic digest of animal tissue which makes the medium free from BSE/TSE risks. EMB HiVeg Agar, Levine is the modification of Levine EMB Agar which was developed by Levine (1, 2) and is used for the differentiation of *Escherichia coli* and *Enterobacter aerogenes* and also for the rapid identification of *Candida albicans*. Eosin-Y and methylene blue make the medium slightly selective and inhibit certain gram-positive bacteria. These dyes differentiate between lactose fermenters and non-fermenters. Coliforms as lactose-fermenting organisms, appear as blue black colonies, whereas *Salmonella* and *Shigella* as non lactose fermenting organisms appear as colourless, transparent or amber colonies. EMB HiVeg Agar like the conventional medium, with added Chlortetracycline hydrochloride can also be used for rapid identification of *Candida albicans* in clinical specimens, as proposed by Weld (3, 4). Some gram-positive bacteria such as faecal *Streptococci*, yeasts grow on this medium and form pinpoint colonies. A positive identification of *Candida albicans* can be made after 24 - 48 hours incubation at 35 - 37°C in 10% carbon dioxide atmosphere, from specimens such as faeces, oral and vaginal secretions and nail or skin scraping etc. However, the typical appearance is variable.

Quality Control :

Appearance of powder
Light purple coloured, homogeneous, free flowing powder, may contain upto a large amount of minute to small dark red purple particles.

Product Profile :

Vegetable based (Code MV)◉	Animal based (Code M)
MV022 HiVeg peptone	**M022** Peptic digest of animal tissue

Recommended for	:	Isolation, enumeration and differentiation of members of *Enterobacteriaceae*.
Reconstitution	:	37.5 g/l
Quantity on preparation (500g)	:	13.33 L
(100g)	:	2.66 L
pH (25°C)	:	7.1 ± 0.2
Supplement	:	None
Sterilization	:	121°C / 15 minutes.

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

Gelling
Firm, comparable with 1.5% Agar gel.
Colour and Clarity
Reddish purple coloured slightly opalescent gel with greenish cast and finely dispersed precipitate, forms in petri plates
Reaction
Reaction of 3.75% w/v aqueous solution is pH 7.1 ± 0.2 at 25°C.
Cultural Response
Cultural characteristics observed after an incubation at 35 - 37°C for 24 - 48 hours.

Organisms (ATCC)	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Candida albicans (10231)	10^2-10^3	good-luxuriant	>50%	colourless
Enterobacter aerogenes(13048)	10^2-10^3	good	>50%	pink-red
Enterococcus faecalis (29212)	10^3- 2 x 10^3	inhibited	0%	-
Escherichia coli (25922)	10^2-10^3	luxuriant	>70%	blue-black*
Pseudomonas aeruginosa (27853)	10^2-10^3	luxuriant	>70%	colourless
Saccharomyces cerevisiae (9763)	10^2-10^3	none-poor	<20%	cream
Salmonella serotype Typhimurium (14028)	10^2-10^3	luxuriant	>70%	colourless
Staphylococcus aureus (25923)	10^3- 2 x 10^3	none-poor	<20%	colourless

Key: * = with metallic sheen

References

1. Levine M., 1918, J. Infect. Dis., 23:43.
2. Levine M., 1921, Bull. 62, Iowa State College Engr. Exp. Station.
3. Weld J. T., 1952, Arch. Dermat. Syph., 66:691.
4. Weld J. T., 1953, Arch. Dermat. Syph., 67(5):433.

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