Mannitol Salt HiVeg™ Agar Base / Broth MV118 / MV383

Mannitol Salt HiVeg Agar Base / Broth is used as a selective medium for the isolation of pathogenic *Staphylococci*.

Composition ** :

Ingredients	MV118 Grams/Litre	MV383 Grams/Litre
HiVeg peptone No. 3	10.00	10.00
HiVeg extract	1.00	1.00
Sodium chloride	75.00	75.00
D-Mannitol	10.00	10.00
Phenol red	0.025	0.025
Agar	15.00	—

Final pH (at 25°C) 7.4 ± 0.2
** Formula adjusted, standardized to suit performance parameters.

Directions :

Suspend 111 grams of MV118 or 96 grams of MV383 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. If desired, add 5% v/v Egg Yolk Emulsion (FD045) to MV118. Mix well and dispense as desired.

Principle and Interpretation :

These media are prepared by completely replacing animal based peptones with vegetable peptones which makes the medium free of BSE/TSE risks. Mannitol Salt HiVeg media are the modification of Mannitol Salt media which are prepared as suggested by Chapman (1) and are used for the selective isolation of pathogenic *Staphylococci* and also are recommended for the detection and enumeration of coagulase-positive *Staphylococci* in milk (2) food (3) and other specimens.

The medium contains HiVeg extract and HiVeg peptone No. 3 which makes it very nutritious as they provide essential growth factors and trace nutrients. Many other bacteria except *Staphylococci* are inhibited by 7.5% sodium chloride. Mannitol is the fermentable carbohydrate source. The differential action of the medium is attributed to D-Mannitol. *Staphylococcus aureus* grows on this medium and ferment mannitol to produce yellow colonies with yellow zones. Most coagulase-negative species of *Staphylococci* and *Micrococci* do not ferment mannitol and grow as small red colonies surrounded by red or purple zones. The colour of colonies and medium is due to the reactivity of phenol red to the pH of the medium; phenol red is red at pH 8.4 and yellow at 6.8. Yellow colonies should be tested for production of coagulase. Addition of 5% v/v Egg Yolk Emulsion (FD045) enables to detect lipase activity of *Staphylococci* alongwith mannitol fermentation. The salt clears egg yolk emulsion and the lipase production is detected as yellow opaque zone around the colonies (4). Presumptive coagulase-positive *Staphylococci* produces colonies surrounded by bright yellow zones while non-pathogenic *Staphylococci* produce colonies with reddish purple zones.

Product Profile :

Vegetable based (Code MV)◉	Animal based (Code M)
MV118/MV383 HiVeg peptone No. 3 HiVeg extract	**M118/M383** Proteose peptone Beef extract

Recommended for	:	Isolation of pathogenic *Staphylococci.*
Reconstitution	:	(MV118) : 111.0 g/l
		(MV383) : 96.0 g/l
Quantity on preparation (500g)	:	(MV118) : 4.5 L
(100g)	:	(MV118) : 0.9 L
(500g)	:	(MV383) : 5.2 L
pH (25°C)	:	7.4 ± 0.2
Supplement	:	(MV118) : Egg Yolk Emulsion (FD045), if desired
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 of MV118.

Colour and Clarity
Red coloured, clear to slightly opalescent gel forms in petri plates, clear solution in tubes.

Reaction
Reaction of 11.1% w/v of MV118 or 9.6% w/v of MV383 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)	Inoculum (CFU)	Growth	Recovery	Colour of colony on MV118
Staphylococcus aureus (25923)	10^2-10^3	good to luxuriant	>70%	yellow
Staphylococcus epidermidis (12228)	10^2-10^3	fair to good	>50%	red
Escherichia coli (25922)	10^3-$2x10^3$	inhibited	0%	—
Enterobacter aerogenes (13048)	10^3-$2x10^3$	inhibited	0%	—
Proteus mirabilis (12453)	10^3-$2x10^3$	none to poor	<20%	red

References :

1. Chapman G.H., 1945, J. Bact., 50:201.
2. Standard Methods for the Examination of Dairy Products. 17th Edition, 2004 Edited by H. Michael Wehr and Joseph H.Frank.
3. Bacteriological Analytical Manual, 1995, Food and Drug Administration, 8th ed., AOAC, International, U.S.A.
4. Gunn B.A., Dunkelberg W.E. and Creitz J.R., 1972, Am. J. Clin. Path., 57:236

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

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