

## TCBS HiVeg™ Agar / (Selective)

MV189 / MV870

TCBS HiVeg Agar/(Selective) is recommended for the selective isolation and cultivation of *Vibrios* causing cholera and *Vibrios* which cause food poisoning.

## Composition\*\* :

Ingredients	MV189	MV870
	Grams/Litre	Grams/Litre
HiVeg special peptone	—	16.00
HiVeg peptone No. 3	15.00	—
Yeast extract	6.00	5.00
Sodium thiosulphate	10.00	10.00
Sodium citrate	10.00	10.00
Synthetic detergent No. II	2.00	2.00
Sucrose	20.00	20.00
Sodium chloride	10.00	10.00
Ferric citrate	1.00	1.00
Bromo thymol blue	0.04	0.04
Thymol blue	0.04	0.04
Agar	15.00	15.00

Final pH (at 25°C) 8.6 ± 0.2 8.8 ± 0.2

\*\* Formula adjusted, standardized to suit performance parameters

## Directions :

Suspend 89 grams in 1000 ml distilled water. Heat to boil to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 50°C and pour into sterile petri plates.

## Principle and Interpretation :

TCBS HiVeg Agar / (Selective) is prepared by using vegetable peptones in place of animal based peptones, thus making the media free of BSE/TSE risks. TCBS HiVeg Agar is the modification of TCBS Agar which was first formulated by Nakanishi (1) and further modified by Kobayashi et al (2). It promotes rapid growth of pathogenic *Vibrios* after 24 hours incubation at 37°C. The contaminating non-*Vibrios* are suppressed.

*Vibrio* species are almost widely recognized for their role in human intestinal infections. Diarrhoea causing *Vibrio cholera* and *Vibrio parahaemolyticus* are of worldwide importance (3).

HiVeg peptone No. 3 or HiVeg special peptone, yeast extract provide nitrogenous compounds, vitamin B complex and other essential growth nutrients. Synthetic detergent and sodium citrate inhibit gram-positive bacteria (4). Sodium thiosulphate serves as a good source of sulphur, which in combination with ferric citrate detects the production of hydrogen sulphide. For the metabolism of *Vibrios*, sucrose is added as a fermentable carbohydrate. Bromo thymol blue and thymol blue are the pH indicators. The alkaline pH of the medium improves the recovery of *Vibrio cholerae*. Strains of *Vibrio cholerae* produce yellow colonies on TCBS HiVeg Agar because of fermentation of sucrose. *Vibrio alginolyticus* also produce yellow colonies. *Vibrio parahaemolyticus* is a sucrose non-fermenting organism and therefore produces blue-green colonies, as does *Vibrio vulnificus*. Occasional isolates of *Pseudomonas* and *Aeromonas* species also produce blue-green colonies, but overall TCBS HiVeg Agar is highly selective and any H<sub>2</sub>S-negative colony is possibly *Vibrio* species.

The medium should be inoculated heavily with faecal specimens because some *Vibrio* species readily die off on

## Product Profile :

Vegetable based (Code MV) ©	Animal based (Code M)
<b>MV189/MV870</b>	<b>M189/M870</b>
HiVeg special peptone HiVeg peptone No. 3 Synthetic detergent No. II	Peptone special Protease peptone Oxgall
<b>Recommended for</b>	: Selective isolation and cultivation of <i>Vibrios</i> causing cholera and <i>Vibrios</i> which cause food poisoning.
<b>Reconstitution</b>	: 89.0 g/l
<b>Quantity on preparation (500g)</b>	: 5.61 L
	(100g) : 1.12 L
<b>pH (25°C)</b>	: (MV189) : 8.6 ± 0.2
	: (MV870) : 8.8 ± 0.2
<b>Supplement</b>	: None
<b>Sterilization</b>	: Boiling (DO NOT AUTOCLAVE)
<b>Storage</b>	: Dry Medium - Below 30°C, Prepared Medium 2 - 8°C.

the medium, owing to fermentation of sucrose and accumulation of acids.

## Quality Control :

## Appearance of Powder

Yellow coloured w/ tan cast, homogeneous, free flowing powder.

## Gelling

Firm, comparable with 1.5% Agar gel.

## Colour and Clarity

Bluish green coloured, clear to slightly opalescent gel forms in petri plates.

## Reaction

Reaction of 8.9% w/v aqueous solution of MV189 is pH 8.6 ± 0.2 at 25°C.

Reaction of 8.9% w/v aqueous solution of MV870 is pH 8.8 ± 0.2 at 25°C.

## Cultural Response :

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

Organisms (ATCC)	Growth	Colour of colony
<i>Vibrio cholerae</i> (15748)	good-luxuriant	yellow
<i>Vibrio fluvialis</i>	good-luxuriant	yellow
<i>Vibrio parahaemolyticus</i> (17802)	good-luxuriant	blue
<i>Vibrio vulnificus</i>	fair to good	greenish yellow
<i>Escherichia coli</i> (25922)	inhibited	—
<i>Proteus vulgaris</i> (13315)	inhibited	—
<i>Enterococcus faecalis</i> (29212)	inhibited	—
<i>Shigella flexneri</i> (12022)	inhibited	—

## References :

- Nakanishi, 1963, Modern Media, 9:246.
- Kobayashi, Enomoto, Sakazaki and Kuwahara, 1963, Jap. J. Bacteriol., 18:387.
- Murray PR, Baron, Pfaller, and Tenenbaum (Eds.), 2003, In Manual of Clinical Microbiology, 8<sup>th</sup> ed., ASM, Washington, D.C.
- Howard B., 1994, Clinical and Pathogenic Microbiology, 2<sup>nd</sup> ed., The C.V. Mosby Co., Mosby-Year Book, Inc., St. Louis.