Dey-Engley Neutralizing HiVeg™ Agar

MV186

Dey-Engley Neutralizing HiVeg™ Agar is used in disinfectant testing where neutralization of the antiseptics and disinfectants is important for determining its bactericidal activity.

Composition**

Ingredients	Gms / Litre
HiVeg™ hydrolysate	5.000
Yeast extract	2.500
Dextrose	10.000
Sodium thiosulphate	6.000
Sodium thioglycollate	1.000
Sodium bisulphite	2.500
Lecithin	7.000
Polysorbate 80	5.000
Bromo cresol purple	0.020
Agar	15.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 54.02 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Dey-Engley Neutralizing HiVeg™ Agar is prepared by using HiVeg™ hydrolysate in place of Casein enzymic hydrolysate which is free from BSE/TSE risks. Dey-Engley Neutralizing HiVeg™ Agar is modification of the medium formulated as per the procedure described by Engley and Dey (1). A strongly bacteriostatic substance inhibits the growth and reproduction of bacteria without killing them. These bacteria hold the ability to cause infection under favourable conditions. Dey-Engley Neutralizing Agar neutralizes a broad spectrum of antiseptics and disinfectants including quaternary ammonium compounds, phenolics, iodine and chlorine preparations, mercurials, formaldehyde and glutaraldehyde (1).

HiVeg™ hydrolysate provide source of nitrogen, carbon, long chain amino acids and other essential nutrients, dextrose acts as the energy source and yeast extract provides vitamin B-complex. The present formulation incorporates neutralizing substances for almost all the active substances that are used as antiseptics and disinfectants. Sodium bisulfite neutralizes aldehydes; sodium thioglycollate neutralizes mercurials; sodium thiosulfate neutralizes iodine and chlorine; lecithin neutralizes quaternary ammonium compounds; and polysorbate 80 neutralizes substituted phenolics (2-5). Bromocresol purple has been used as the indicator for dextrose utilization. Due to the high concentration of lecithin in the broth medium, turbidity cannot be used to detect growth. Therefore, bromocresol purple and dextrose are added to the medium that will detect dextrose fermenting organisms, if positive, will change the colour of the medium from purple to yellow(1).

For Agar Medium: Dey -Engley Neutralizing HiVeg™ Agar medium can be over-filled, producing a meniscus or dome-shaped surface that can be pressed onto a surface for sampling its microbial burden. Incubate the plates, by covering the lids, at an appropriate temperature. The presence of microorganism is determined by the appearance of colonies on the surface of agar medium. Neutralization Test: Growth in Neutralizing Broth and no growth in Neutralizing Broth Base indicate neutralization of disinfectant. To check bactericidal activity, both broth tubes are inoculated on D/E Neutralizing HiVeg™ Agar. Positive growth from negative tubes of Neutralizing Broth Base indicates bacteriostatic substance while negative growth indicates a bactericidal disinfectant. All positive tubes should show growth on Dey-Engley Neutralizing HiVeg™ Agar. The control disinfectants used in test procedure are 2% chlorine, 2%formaldehyde, 1% glutaraldehyde, 2% iodine, 2% phenol, 1/750 quaternary ammonium compounds, 1/1000 mercurials etc.

Quality Control

Appearance

Light yellow to bluish grey homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Purple red coloured opalescent gel (may have particulate precipitate) forms in Petri plates.

Reaction
Reaction of 5.4% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH
7.40-7.80

Cultural Response
Cultural characteristics observed after an incubation at 35 - 37°C for 40 - 48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery
Cultural Response			
Bacillus subtilis ATCC 6633	50-100	luxuriant	>=70%
Escherichia coli ATCC 25922	50-100	luxuriant	>=70%
Pseudomonas aeruginosa ATCC 27853	50-100	luxuriant	>=70%
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=70%
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>=70%

Storage and Shelf Life

Store dehydrated medium at 10-30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1.Engley, and Dey. 1970. Chem. Spec. Manuf. Assoc. Proc.Mid-Year Meet.
2.Brummer, B. 1976. Appl. Environ. Microbiol. 32.
3.Downes, F. P, and K Ito. 2001. APHA FOOD. Compendium of Methods for the Microbiological Examination of Foods 4 ed. Washington, D.C.
4.Erlandson, A. L, and C. A Lawrence. 1953. Science 118.
5.Quisno, R.A., I.W. Gibby, and M.J. Foter. 1946. Am. J. Phar. 118.

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