Technical Information

Antibiotic MiVeg Assay Medium No. 11 (Neomycin, Erythromycin MiVeg Assay Agar)

Product Code : VM1004

Application:- Antibiotic MiVeg Assay Medium No.11 (Neomycin, Erythromycin MiVeg Assay Agar) is used for microbiological assay of antibiotics

Composition**

Ingredients	Gms / Litre
MiVeg peptone	6.000
MiVeg hydrolysate	4.000
Yeast extract	3.000
MiVeg extract	1.500
Dextrose	1.000
Agar	15.000
Final pH (at 25°C)	8.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Antibiotic MiVeg Medium No.11 (Neomycin, Erythromycin MiVeg Assay Agar) is prepared with vegetable peptones instead of animal peptones, to make the medium BSE, TSE risks free. It serves for the same purpose of Antibiotic Medium No.11 (Neomycin, Erythromycin Assay Agar). Grove and Randall have elaborately elucidated the methods to perform Antibiotic Assay assays and various medias used for estimating the antibiotic concentrations of various formulations (1). Schmidt and Moyer have reported the use of antibiotic assay medium for the liquid formulation used in the performance of antibiotic assay (2). These media are also in accordance with USP (3) and FDA (4). This media can be used as a seed layer or base layer for various assays. It is often used as inoculum medium for Staphylococcus aureus . It is used for antibiotic plate assay of Ampicillin, Carbomycin, Erythromycin, Clindamycin and Gentamycin with Micrococcus luteus , of Oleandomycin, Paromomycin, Neomycin, Netilmycin, Sisomycin with Staphylococcus epidermidis . It can also be used for plate assay of Kanamycin and Neomycin with either Staphylococcus auerus or Bacillus pumilus and for plate assay of Framycetin with Bacillus pumilus .

The ingredients like MiVeg peptone, MiVeg hydrolysate, yeast extract and MiVeg extract provide nutrients growth factors. Dextrose provides the carbon and energy source. Agar provides excellent medium for antibiotic diffusion and gives well-defined zones of inhibition. Higher pH provides the optimal conditions for activity of antibiotic and also supports the growth of the test organisms.

It is preferable to use freshly prepared plates for antibiotic assays. Test organisms are inoculated in sterile seed agar pre-cooled to 40-45°C and spread evenly over the surface of solidified base agar. All conditions in the microbiological assay must be controlled carefully.

Methodology

Suspend 30.5 grams of powder media in 1000 ml purified/distilled water. Mix throughly. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Suggestion: *This medium is recommended for Erythromycin,Chlortetracycline, Dihydrostreptomycin sulphate, Erythromycin estolate, Framycetin, Gentamicin, Gentamicin sulphate, Kanamycin sulphate, Kanamycin monosulphate, Kanamycin acid sulphate, Netilmicin sulphate Netilmicin, Neomycin, Paromomycin, Sisomycin, Spiramycin, Streptomycin sulphate*

Other Tests :

Cup plate method is carried out using *B. pumilis / kanamycin and M. flavis / erythromycin*

1) Dilution : 16 mg Kanamycin in 10 ml distilled water
Stock : 1:10 dilution of above solution

concentration	stock (ml)	Distilled water (ml)	zone of inhibition
5	0.25	4.75	15 mm
20	1.00	4.00	20 mm
100	5.00	-	25 mm

2) Dilution : 9 mg Erythromycin in 10 ml distilled water

Stock : 1:10 dilution of above solution

Concentration	stock (ml)	Distilled water (ml)	zone of inhibition
5	0.25	4.75	22 mm
10	0.50	4.50	32 mm
100	5.00	-	41 mm

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder.

Gelling

Firm,comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Light yellow coloured, clear to slightly opalescent gel forms in Petri plates .

Reaction

Reaction of 3.05% w/v aqueous solution at 25°C. pH : 8.3±0.2

pH range

8.10-8.50

Cultural Response/Characteristics

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

Organisms	Inoculum (CFU)	Growth	Recovery at	Antibiotics assayed
Micrococcus luteus ATCC 9341	50-100	luxuriant	>=70%	Erythromycin While assaying Tylosin Tylosin tartarate,Vancomycin hydrochloride, adjust the pH to 8.0±0.2
Staphylococcus aureus ATCC 6538p	50-100	luxuriant	>=70%	Kanamycin monosulphate,Kanamycin acid sulphate, Netilmicin sulphate
Staphylococcus epidermidis ATCC 12228	50-100	luxuriant	>=70%	Gentamicin, Neomycin,Netilmicin Paromomycin, Sisomycin
Bacillus pumilis ATCC 14884	50-100	luxuriant	>=70%	Chlortetracycline ,Framycetin, Kanamycin sulphate
Bacillus subtilis ATCC 6633	50-100	luxuriant	>=70%	Dihydrostreptomycin sulphate, Erythromycin estolate,Kanamycin monosulphate Kanamycin acid sulphate,Spiramycin Streptomycin sulphate
Bacillus subtilis NCTC 8236	50-100	luxuriant	>=70%	Dihydrostreptomycin sulphate Streptomycin sulphate
Bacillus subtilis NCTC 8241	50-100	luxuriant	>=70%	Erythromycin estolate,Gentamicin sulphate

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1.Grove and Randall, 1955, Assay Methods of Antibiotics Medical Encyclopedia, Inc, New York.
2. Schmidt and Moyer, 1944; J. Bact, 47:199.
3. United States Pharmacopoeia 2011, USP 34/NF 29, US Pharmacopoeial Convention Inc, Rockville, MD
4. Tests and Methods of Assay of Antibiotics and Antibiotic containing Drugs, FDA, CFR, 1983. Title 21, part 436, Subpart D, Washington ,D.C.U.S Government printing office, paragraphs 436, 100-436, 106 pg 242-259 (April 1).

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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