Technical Information

DNase Test MiVeg Agar Base w/o DNA

Product Code : VM1741

Application:- DNase Test MiVeg Agar (w/o DNA) with DNA Supplement is used to detect the deoxyribonuclease activity of bacteria and fungi particularly *Staphylococci*.

Composition

Ingredients	Gms / Litre
MiVeg hydrolysate	15.0
Papaic digest of soyabean meal	5.0
Sodium chloride	5.0
Agar	15.0
Final pH (at 25°C)	7.2±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

DNase Test MiVeg Agar w/o DNA is prepared by using MiVeg hydrolysate in place of tryptose thereby making the medium free from BSE/TSE risks. This medium is the modification of DNase Test agar base which is used for detecting deoxyribonuclease activity of bacteria and fungi and particularly for identification of pathogenic *Staphylococci*. DNase activity was observed by Weckman and Catlin (1) in *Micrococci* and found the correlation with coagulase activity as coagulase positive species were DNase positive. Di Salvo (2) confirmed the results of Weckman and Catlin and observed accurate correlation of DNase and coagulase activity. In his experiment Di Salvo incorporated DNA and calcium chloride to activate DNase enzyme. DNase medium was modified by adding toluidine blue by Schreier. This medium is modified by replacing toluidine blue with Bromothymol blue (3). This modified medium achieved faster identification of *Serratia marcescens* and could differentiate *Serratia* from other members of the *Enterobacteriaceae*.

The medium contains MiVeg hydrolysate and papaic digest of soyabean meal which supplies essential nutrients. DNase depolymerizes the DNA resulting in the formation of a clear zone around the microbial growth which is visualized by flooding the plate with hydrochloric acid (4). Bromothymol blue serve as a indicator because of it, DNase activity results in the production of a colourless to yellow reaction. For identification further confirmatory tests should be carried out.

Methodology

Suspend 40 grams of powder media in 1000 ml distilled water. Add 2 grams of DNA, 0.025 grams Bromothymol blue and 10 grams of mannitol. Mix thoroughly. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool and pour into plates.

Quality Control

Physical Appearance

Light yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Light amber coloured, clear to slightly opalescent gel forms in petri plates. With added 2 grams of DNA, 0.025 grams of Bromothymol blue and 10 grams of mannitol, the gel formed in petri plates is yellowish green coloured.

Reaction

Reaction of 4.0 % w/v aqueous solution pH: 7.3 ±0.2 at 25°C

pH range

7.1-7.5

Cultural Response/Characteristics

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

Organisms (ATCC)	Inoculum (CFU)	Growth	DNase Activity*
Staphylococcus aureus (25923)	10^2-10^3	luxuriant	+
Staphylococcus epidermidis (12228)	10^2-10^3	luxuriant	-
Streptococcus pyogenes (19615)	10^2-10^3	luxuriant	+
Serratia marcescens (8100)	10^2-10^3	luxuriant	+

Key : * = DNase Test MiVeg Agar with Bromothymol blue
+ = yellow zone surrounding growth
— = no colour change surrounding growth

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. Weckman and Catlin, 1957, J. Bact., 73:747.
2. Di Salvo, 1958, Med. Tech. Bull., U.S. Armed Forces Med. J., 9:191.
3. Schreir, 1969, Am. J. Clin. Pathol., 51:711.
4. Streitfeld, Hoffman and Janklow, 1962, J. Bact., 84:77.

Disclaimer :

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