Technical Information

DNase Test Agar w/ Toluidine blue

Product Code: DM 2041

Application: - DNase Test Agar w/ toluidine blue is recommended for the detection of deoxyribonuclease activity of bacteria and fungi, and especially for identification of pathogenic Staphylococci.

Composition**

Ingredients	Gms / Litre
Tryptose	20.000
Deoxyribonucleic acid (DNA)	2.000
Sodium chloride	5.000
Toluidine blue	0.100
Agar	15.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

DNase Test Agar w/ toluidine blue is used for detecting deoxyribonuclease activity of bacteria and fungi and specialy for identification of pathogenic Staphylococci. With added toluidine blue, it help in differentiation and identification of nonpigmented Serratia species isolated from clinical sources that might be improperly identified as Enterobacter and Klebsiella species. DNase activity was observed by Weckman and Catlin [(1)] in Micrococci and found the correlation between DNase positive and coagulase positive species. 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. Schreier modified DNase medium by adding toluidine blue [(3)]. Modified medium provied faster identification of Serratia marcescens and could differentiate Serratia from other members of the Enterobacteriaceae.

Tryptose provide 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)].

When toluidine blue is added to the medium itself, DNase activity results in the production of a bright pink reaction due to the metachromatic property of toluidine blue. Some strains of Staphylococci may be inhibited on DNase Test Agar due to toluidine blue. Further confirmatory tests for the identification should be carried out.

Methodology

Suspend 42.1 grams of powder media in 1000 ml distilled water. Shake well & heat with frequent agitation to dissolve the medium completely. Sterilize by autoclaving at 118°C to 121°C for 15 minutes. Cool to 45°C and pour into sterile Petri plates.

Quality Control

Physical Appearance
Light yellow to light blue homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Blue coloured, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.2% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH Range 7.10-7.50

Cultural Response/ characteristices
DM 2041: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours.

Organism	Inoculum (CFU)	Growth	D-Nase Activity
Serratia marcescens ATCC 8100	50-100	luxuriant	positive reaction, pink to red zone around the growth
Staphylococcus aureus ATCC 25923	50-100	luxuriant	positive reaction, pink to red zone around the growth
Staphylococcus epidermidis ATCC 12228	50-100	luxuriant	negative reaction
Streptococcus pyogenes ATCC 19615	50-100	luxuriant	positive reaction, pink to red zone around the 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^{o} 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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