Technical Information

ISP Medium No. 7 (Tyrosine Agar)

Product Code: DM 1362

Application: - ISP Medium No. 7 (Tyrosine Agar) is recommended for the isolation and characterization of *Streptomyces* species as per International Streptomyces Project.

Composition**

Ingredients	Gms / Litre
L-Asparagine	1.000
L-Tyrosine	0.500
Dipotassium phosphate	0.500
Magnesium sulphate. 7H2O	0.500
Sodium chloride	0.500
*Trace salt solution (ml)	1.000
Agar	20.000
*Trace salt solution contains	-
Ferrous sulphate, 7H2O	1.360
Copper chloride, 2H2O	0.027
Cobalt chloride, 6H2O	0.040
Sodium molybdate, 2H2O	0.025
Zinc chloride	0.020
Boric acid	2.850
Manganese chloride, 4H2O	1.800
Sodium tartarate	1.770
Final pH (at 25°C)	7.3±0.1

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Streptomyces and *Nocardia* species appear morphological similar in clinical material and in culture [2, 3]. Nocardiosis, caused by *Nocardia* species, is a disease of man, most frequently encountered in immunosuppressed, patients and in animals [2]. Based on enzymatic hydrolysis of casein, tyrosine and xanthine *Streptomyces* species may be differentiated from *Nocardia* species. Clear zones in the medium surrounding growth indicate hydrolysis of the substrate present [2, 3]. International Streptomyces Project Medium No. 7 (Tyrosine Agar) is recommended for the isolation and enumeration of *Streptomyces* species [1].

The medium contains L-tyrosine, which is utilized by *Streptomyces* species form zone of clearance around the colony indicates tyrosine hydrolysis which help in the differentiation of *Sreptomyces* species. Trace elements provide essential factors for the growth of *Streptomyces* species.

Inoculate the medium by streaking the isolate to be tested onto the agar surface with a sterile inoculating loop. The medium may need to be incubated for upto 3 weeks to allow positive hydrolytic reactions to develop. Examine plates at regular intervals for growth and hydrolysis.

Methodology

Suspend 23 grams of dehydrated medium in 1000 ml distilled water containing 15 ml glycerol. Mix well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and pour into sterile Petri plates.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 2.0% agar gel.

Colour and Clarity of prepared medium

Yellow coloured, clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 2.3% w/v aqueous solution containing 1.5% glycerol at 25°C. pH : 7.3±0.1

pH Range 7.20-7.40

Cultural Response/Characteristics

DM 1362: Cultural characteristics observed after an incubation at 25-30°C for 48-72 hours.(Tyrosine hydrolysis is observed upto 3 weeks)

Organism	Growth	Tyrosine hydrolysis
Streptomyces achromogenes ATCC 12767	good-luxuriant	Positive reaction, clear **zones around the colonies**
Streptomyces albus subsp albus ATCC 3006	good-luxuriant	Positive reaction, clear **zones around the colonies**
Streptomyces lavendulae ATCC 8664	good-luxuriant	Positive reaction, clear **zones around the colonies**
Streptomyces lividans ATCC 69441	good-luxuriant	Positive reaction, clear **zones around the colonies**
Nocardia asteroids	good	Negative reaction, no clear zones

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. Atlas R. M., 1993, Handbook of Microbiological Media, 3rd ed., CRC Press. Inc.
2.Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Eds.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
3.Larone, 1995, Medically Important Fungi: A Guide to Identification, 3rd Ed., American society for Microbiology, Washington, D.C

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