ISP Medium No. 7 (Tyrosine Agar)

M362

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	1.360mg
Copper chloride, 2H2O	0.027mg
Cobalt chloride, 6H2O	0.040mg
Sodium molybdate, 2H2O	0.025mg
Zinc chloride	0.020mg
Boric acid	2.850mg
Manganese chloride, 4H2O	1.800mg
Sodium tartarate	1.770mg
Final pH (at 25°C)	7.3±0.1

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 23.74 grams (the equivalent weight of dehydrated medium per litre) in 1000 ml distilled water containing 15 ml Glycerol. Heat to boiling to dissolvethe medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And 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 patients who are severely immunosuppressed, and in animals (2). *Streptomyces* species may be differentiated from *Nocardia* species based on enzymatic hydrolysis of casein, tyrosine and xanthine. Clear zones in the medium surrounding colony 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). It is used for the differentiation of *Sreptomyces* species based on tyrosine utilization.

The medium contains L-tyrosine, which is utilized by *Streptomyces* species. Zone of clearance around the colony indicates tyrosine hydrolysis. 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.

Quality Control

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

7.20-7.40

Cultural Response

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

Cultural Response

Organism	Growth	Tyrosine hydrolysis
Cultural Response		
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 asteroides	good	negative reaction, no clear zones

Storage and Shelf Life

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

Reference

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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