Starkey's Sulphate Reducing Agar Base

M1981

Recommended for the cultivation and enumeration of sulphate reducing bacteria.

Composition**

Ingredients	Gms / Litre
Tryptone	15.000
Soya peptone	5.000
Sodium chloride	5.000
Magnesium sulphate, heptahydrate	2.000
Ferrous ammonium sulfate, hexahydrate	2.000
Agar	20.000
Final pH (at 25°C)	7.3±0.1

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 47.43 grams (the equivalent weight of dehydrated medium per litre) in 1000ml distilled water containing 4 ml of 60% sodium lactate. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Sulphur bacteria of most importance in water and waste water field are the sulphate reducing bacteria including *Desulfovibrio* . Desulfovibrio desulfuricans reduces sulfates and other sulphur compounds to hydrogen sulphide. These organisms are a major problem to the petroleum industry as they cause corrosion to iron pipes(2) leading to perforations in the oil well system pipes.

Starkey's Sulphate Reducing Agar Base is formulated as per APHA (1). This Medium is suitable for enumeration of sulphate reducing bacteria. The Agar plates should be used within 1 or at most 4 hours after solidification, to prevent saturation with oxygen. To prevent moisture condensation on Petri dish covers, replace covers with sterile absorbent tops within 10-15 minutes after solidification. Maintain the anaerobic conditions properly and incubate at room temperature. The typical growth of sulphate reducing bacteria than occurs as blackening around the colonies within 2-7 days.

Tryptone, Soya peptone provides nitrogen, amino acids and long chain peptides for the growth of microorganisms. Sodium chloride maintains the osmotic balance. Magnesium sulphate and Ferrous ammonium sulphate provides essential ions. *Desulfovibrio* oxidizes Sodium lactate and reduces sulphate to sulphide.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 2% Agar gel.

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

Reaction
Reaction of 4.74% w/v aqueous solution (containing 0.4ml of 60% v/v sodium lactate) at 25°C. pH : 7.3±0.1

pH
7.20-7.40

Cultural Response
Cultural characteristics observed after an incubation at 30°C for upto 1 week, under anaerobic condition.

Cultural Response

Organism	Inoculum (CFU)	Growth
Cultural Response		
Desulfovibrio desulfuricans ATCC 13541	50-100	good-luxuriant

Storage and Shelf Life

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

Reference

1. Eaton A. D., Clesceri L. S. and Greenberg A. E., Rice E. W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
2. Pelczar M.J. Jr., Reid R.D., Chan E.C.S., 1977, Microbiology, 4th edition, Tata McGraw-Hill Publishing Company Ltd, New Delhi.

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