Mutans-Sanguis Agar

M977

Mutans-Sanguis Agar is recommended for differentiation of *Streptococcus mutans* and *Streptococcus sanguis* associated with oral microflora.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	15.000
Yeast extract	5.000
L-Cystine	0.200
Sodium sulphite	0.100
Sodium chloride	1.000
Disodium phosphate	0.800
Sodium bicarbonate	2.000
Sodium acetate	12.000
Sucrose	50.000
Agar	12.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 98.1 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into Petri plates.

Principle And Interpretation

Streptococcus mutans is gram-positive, facultatively anaerobic bacteria commonly found in the human oral cavity and is a significant contributor to tooth decay. They metabolize sucrose to lactic acid (1). Sucrose is the only sugar that *S. mutans* can utilize. *S. mutans* is found in dental plaque, in blood, on heart valves in subacute endocarditis, and infrequently in saliva and throat specimens. *Streptococcus sanguis* is also a part of oral flora and preferentially colonize the tooth surface (2). Mutans Sanguis Agar is recommended for differentiation of *S. mutans* and *S. sanguis* .

Casein enzymic hydrolysate, yeast extract and L-cystine in the medium provide nitrogen, vitamins and minerals necessary to support bacterial growth. Sodium sulphite, sodium acetate, disodium phosphate, and sodium bicarbonate are sources of ions that simulate metabolism. Mutans Sanguis Agar contains sucrose, which allows some species of Streptococci to produce characteristic colonies as a result of extracellular polysaccharide formation from this substrate. *S. mutans* forms rough, heaped, irregular colonies resembling frosted glass. Mostly crumbly, although whole colonies can be picked off the agar which are white, grey or yellow in colour and 0.5 - 2 mm in diameter, may produce a drop of liquid (water-soluble glucan) on top of the colony or a puddle of polysaccharide around the colony. *Streptococcus sanguis* forms smooth or rough, hard and rubbery colonies, which adhere strongly to the agar making them difficult to remove with a loop. They are grey, white or colourless, 1-3 mm in diameter. Some strains do not produce extracellular polysaccharide.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.2% Agar gel.

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

Reaction
Reaction of 9.81% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH
7.10-7.50

Cultural Response
Cultural characteristics observed in presence of 10% CO2 + 90% H2, after an incubation at 35-37°C for 18-24 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response				
Streptococcus mutans ATCC 25175	50-100	good-luxuriant	>=50%	grayish yellow
Streptococcus sanguinis ATCC 10556	50-100	good-luxuriant	>=50%	white, grey or colourless

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. Loesche W. J., 1996, Microbiology of Dental Decay and Periodontal Disease. In: Barons Medical Microbiology (Baron S et al, eds.), 4th Ed., University of Texas Medical Branch
2. Hardie J. M., Whiley R. A., 1992, The genus Streptococcus in : Balows A., Truper H. G., Dworkin M., Harder W., Schleifer K. H., (Ed.),1992, The Prokaryotes, A Handbook on the Biology of Bacteria : Ecophysiology, Isolation, Identification, Applications, 2nd Ed., Vol.II, Springer-Verlag, New York Inc.

Revision : 1 / 2011

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