Mutans-Sanguis Agar

M977

Intended Use:

Recommended for differentiation of *Streptococcus mutans* and *Streptococcus sanguinis* associated with oral microflora.

Composition**

Ingredients	g/ L
Tryptone	15.000
Yeast extract	5.000
L-Cystine	0.200
Sodium sulphite	0.100
Sodium chloride	1.000
Disodium hydrogen phosphate	0.800
Sodium bicarbonate	2.000
Sodium acetate	12.000
Saccharose (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 purified/distilled water. Heat to boiling to dissolve the 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

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*.

Tryptone, 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.

Type of specimen

Clinical samples : throat swab, saliva secretions, etc.

Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (3,4).
After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic Use only. For professional use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1.Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2.Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
3.Further biochemical and serological tests must be carried out for further identification.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

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.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
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 between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

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.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

Revision : 05/2024

HiMedia Laboratories Pvt. Limited,
Plot No.C-40, Road No.21Y,
MIDC, Wagle Industrial Area,
Thane (W) -400604, MS, India

IVD ***In vitro* diagnostic medical device**

10°C 30°C **Storage temperature**

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CEpartner4U, Esdoornlaan 13,
3951DB Maarn, NL
www.cepartner4u.eu

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