Dextrose Starch Agar

M183

Dextrose Starch Agar is used for propagating pure cultures of *Neisseria gonorrhoeae* and other fastidious organisms.

Composition**

Ingredients	Gms / Litre
Proteose peptone	15.000
Dextrose	2.000
Starch, soluble	10.000
Sodium chloride	5.000
Disodium phosphate	3.000
Gelatin	20.000
Agar	10.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 65 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense in tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubed medium in a slanted position.

Principle And Interpretation

Neisseria is a large group of gram-negative proteobacteria. *Neisseria meningitides* , the causative agent of meningitis, is responsible for a large amount of morbidity and mortality throughout the world while *Neisseria gonorrhoeae* is the causative agent of the sexually transmitted disease gonorrhea that is second in cases reported only to chlamydia (CDC). These fastidious organisms can be cultivated on Dextrose Starch Agar. The medium is highly nutritious and supports the luxuriant growth of various fastidious organisms like *N. meningitidis, Streptococcus pyogenes* and *Streptococcus pneumoniae* without the need of supplementation with additives. Organisms lacking the ability of starch hydrolysis can be maintained on this medium. However when used as a stock culture agar for maintenance, the medium should be taken in half concentrations. Organism capable of hydrolyzing starch will create acidic conditions thereby making it unsuitable for maintenance. Dextrose Starch Agar was used to test the activity of various antibiotics against *Neisseria* species by the agar dilution technique as demonstrated by Wilkins, Lewis and Barbiers (1). *N. meningitides* grow luxuriantly on this medium, when the plates are kept in 4-6% CO2 environment or in the presence of abundant moisture. Swancara (2) has described a method of obtaining partial carbon-dioxide tension and this can be used for incubation of Dextrose Starch Agar plates inoculated with *N. meningitides* .

Proteose peptone and gelatin serve as sources of nitrogen and carbon essential for microbial growth. Dextrose serves as the energy source. Starch neutralizes toxic fatty acids that may be present in the agar. Sodium chloride maintains the osmotic balance and buffering is achieved by inclusion of disodium phosphate.

Dextrose Starch Agar prepared in half strength is a good medium for maintaining stock cultures of gonococci. The medium normally contains a flocculent precipitate, which does not affect the nutritive value of the medium. It is necessary to have the incubation atmosphere saturated with moisture while cultivating gonococci. Suitable conditions can be achieved, if the plates are incubated in a closed container containing cotton or towel saturated with water. Best results are obtained on a solid medium with a moist surface.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.0% Agar gel and 2.0% gelatin.

Colour and Clarity of prepared medium

Light amber coloured, opalescent gel with flocculent precipitate forms in tubes as slants

Reaction
Reaction of 6.5% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH
7.10-7.50

Cultural Response
M183: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours in an anaerobic conditions.

Organism	Inoculum (CFU)	Growth
Cultural Response		
Neisseria gonorrhoeae ATCC 19424	50-100	luxuriant
Neisseria meningitidis ATCC 13090	50-100	luxuriant
Streptococcus pneumoniae ATCC 6303	50-100	luxuriant
Streptococcus pyogenes ATCC 19615	50-100	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. Wilkins, Lewis and Barbiers, 1956, Antibiot. Chemother., 6:149.
2. Swancara, 1948, Am. J. Med. Tech., 14:214.

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