

Technical Information

B.C.G.-Dextrose Agar (Snyder test Agar)

Product Code: DM 1106

Application: B.C.G. Dextrose Agar (Snyder Test Agar) is recommended for the estimation of Lactobacilli and indication of dental caries activity.

Composition**

| Ingredients | Gms / Litre |
|--------------------------------|-------------|
| Peptic digest of animal tissue | 20.000 |
| Dextrose | 20.000 |
| Sodium chloride | 5.000 |
| Bromocresol green | 0.020 |
| Agar | 20.000 |
| Final pH (at 25°C) | 4.8±0.2 |

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Dental Caries follow plaque because the later it collects acid forming bacteria on the tooth surface, provide an anaerobic environment for fermentation, traps the acids and deduces the protective action saliva. Caries lesions are basically the outcome of chemical attack on the enamel and dentin of tooth. Demineralization of the tooth alternates with periods of re-mineralization. If demineralization exceeds re-mineralization, a subsurface carious lesion turns into a clinical cavity with extension of the decay into the dentine ⁽¹⁾. For determining the rate and amount of acid produced by microorganisms in saliva, Snyder ^(2, 3) described a colorimetric method. The procedure makes use of an agar medium that is known as Snyder Test Agar. Later on Alban ⁽⁴⁾ modified the procedure which was found to be more accurate than the original procedure. This is a differential medium based on the rate of acid production from dextrose, by oral acidogenic microorganisms from buccal cavity and is indicated by a change in colour of the indicator - bromo cresol green from blue-green to yellow ⁽³⁾. Peptic digest of animal tissue provides carbon, nitrogen, vitamins and minerals. Dextrose is the carbohydrate source and bromo cresol green is the pH indicator. Snyder Test Procedure: Collect specimens of saliva before breakfast, before brushing the teeth or just before lunch or dinner. Collect specimen of saliva in a sterile tube or bottle after patient chews paraffin for 3 minutes. Shake the specimen thoroughly and transfer 0.2 ml of this to a sterile Snyder Test Agar tube melted and cooled to 45°C. Mix the inoculum by rotating the inoculated tubes and incubate at 37°C for 72 hours in an upright position. The rate of acid production is graded as, marked for 24 hours, moderate and slight if colour changes within 48 and 72 hours respectively ⁽⁵⁾.

| Incubation hours | Colour | Caries activity |
|------------------|-----------------|-----------------|
| 24 | yellow | marked |
| 48 | greenish yellow | moderate |
| 72 | yellowish green | slight |

Alban Modified Test Procedure:

Collect the saliva specimen (unstimulated) to just cover the medium in the tube. When specimen collection is difficult, dip a sterile cotton swab into the saliva under the tongue or rub on tooth surfaces and place the swab just below the surface of the medium. Incubate the tubes at 35°C along with uninoculated control. Examine tubes daily for 4 days and compare the colour change with the control tube.

Record the results as:

| | | |
|--------------------------------------|---|------|
| No colour change as negative | : | - |
| Colour beginning to change to yellow | : | + |
| Half medium yellow | : | ++ |
| Three fourths of medium yellow | : | +++ |
| Total medium yellow | : | ++++ |

The daily readings indicate the rapidity and amount of acid production. To establish a reference point at least two specimens collected within 2-4 days must be obtained.

Methodology



Dehydrated Culture Media
Bases / Media Supplements

Suspend 65.02 grams of powder media in 1000 ml distilled water. Heat to dissolve the medium completely. Dispense in 10 ml amounts into test tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Allow the tubes to cool in an upright position. DO NOT OVERHEAT the medium.

Quality Control

Physical Appearance

Light yellow to greenish yellow homogeneous free flowing powder

Gelling

Firm, comparable with 2.0% Agar gel.

Colour and Clarity of prepared medium

Emerald green coloured, clear to slightly opalescent gel forms in tubes.

Reaction

Reaction of 6.5% w/v aqueous solution at 25°C. pH : 4.8±0.2

pH range 4.60-5.00

Cultural Response/Characteristics

DM 1106: Cultural characteristics observed after an incubation at 35-37°C for 24-72 hours.

| Cultural Response Organism | Inoculum (CFU) | Growth | Motility |
|--|----------------|----------------|-------------------------------------|
| <i>Lactobacillus acidophilus</i> ATCC 314 | 50-100 | good-luxuriant | Positive reaction, yellow colour |
| <i>Lactobacillus casei</i> ATCC 9595 | 50-100 | good-luxuriant | Positive reaction, yellow colour |
| <i>Lactobacillus fermentum</i> ATCC 9338 | 50-100 | good-luxuriant | Positive reaction, yellow colour |
| <i>Staphylococcus aureus</i> ATCC 25923 | 50-100 | None-poor | Negative reaction, no colour change |

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8^o in sealable plastic bags for 2-5 days.

Further Reading

1. Lewis and Ismail, 1995, Can. Med. Assoc. J., 152:836.

2. Snyder, 1941, J. Dent. Res., 20:189.

3. Snyder, 1941, J. Am. Dent. Assoc., 28:44.

4. Alban, 1970, J. Dent. Res., 49:641.

MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams & Wilkins, Baltimore, Md

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