

**Aim** – Determine the dental caries susceptibility.

**Principle** - Dental caries or decay is initiated due to the decalcification and some tanning of dental enamel. It is generally believed that is initiated by lactic acid and organic acids. This acid production is a result of bacterial fermentation of carbohydrates on tooth surface. Determination of susceptibility to dental caries is performed in the laboratory by the Synder test. It is a measure of the rate of the acid production from the metabolism of glucose by the lactobacilli. This method employs Synder agar (pH4.7) that contains glucose as the carbohydrate and bromocresol green as the pH indicator. As the lactobacilli present in the saliva grow in the Synder test agar, they utilize glucose of the medium, converting it to organic acids and thereby lowering the ph, to 4.4 or lower which the caries process begins. At this pH bromocresol green turns yellow. The susceptibility of an individual to dental caries is determined by the time it takes for change of colour from green to yellow. The medium turns yellow within 24-48 hours, the individual is said to susceptibility to dental caries.

**Requirments-**

- Saliva of an individual
- Synder test agar deep tubes
  - Tryptone .....20.0g
  - Sodium chloride.....5.0g
  - Dextrose.....20.0g
  - Bromocresol green.....0.02g
  - Agar.....20.0g
  - Distilled Water.....1000ml
- Sterile test tubes
- One-inch square block of paraffin
- Sterile 1ml pipettes
- Ice-water bath
- Bunsen burner

**Procedure –**

1. Chew one square of paraffin for 3 minutes.
2. Collect the saliva in a sterile test tube.
3. Melt the Synder agar tubes and cool to 45°C.

4. Shake the saliva sample vigorously for 30 second to disperse the organisms evenly.
5. Aseptically pipette 0.2ml of saliva into one tube of the Synder medium.
6. Mix the contents of the tube by gently tapping the tube with fingers.
7. Immediately cool the inoculated tube in an ice-water bath.
8. Repeat steps 4 through 6 using the other Synder tubes.
9. Incubate the tubes at 37°C for 72 hours.

### Observation -

Examine the tubes every 24 hours to see if the indicator has changed to yellow.

Caries Susceptibility	Colour	Hour of Incubation		
		24 hour	48 hours	72hours
Marked	Yellow	Positive	.....	....
Moderate	Greenish yellow	Negative	Positive	....
Slight	Yellowish green	Negative	Negative	Positive
Negative	-	Negative	Negative	Negative

Table: Standardized table to determine dental caries susceptibility.

Positive: Medium colour changes from green to yellow.

Negative: No Colour change or slight colour change.

**Result -** No colour change observe in the Synder tube.

### Precautions-

1. Do not swallow your saliva during chewing of paraffin.
2. Before chewing of paraffin keep it under tongue for softening.
3. Vigorously stir the saliva sample with the Synder medium for the uniform distribution of organism.