STUDENT PROJECT REPORT

Antibacterial effects of *Camellia Sinensis* L; *Azadirachta indica* A. Juss; *Piper betle* Linn And *Mangifera indica* L. on *Streptococcus mutans*; an oral bacteria

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1. File no: 20/SPS 61/2017 KSCSTE
2. Broad area of research : Micro Biology
3. Specific area: Antibacterial study
4. Date of start: 28/06/2017
5. Total cost of the project:8294.00
6. Approved objectives of the proposal

Oral infections and dental caries are common oral bacterial pathology caused by a bio film consisting of oral micro biota present on the tooth surface and inflict a costly burden to health care services around the world. Dental plaque is formed by the colonization and accumulation of oral Micro organisms such as *Streptococcus mutans, Streptococcus Anguis* and *Actinomycetes viscosus* on teeth surface. The undesirable side effects and resistance against the antiseptic agents and antibiotics have limited the preventive measures against these bacteria. As a result, this situation has forced scientists to look for new natural antimicrobial substances from various sources such as medicinal plants. *Camellia Sinensis, Azadirachta Indica, Piper betle, Mangifera Indica* are four plants native to our place and have been used as Indian traditional medicines as antiseptic and antimicrobial remedies and various health problems. The present study focuses on comparative study of the various plant parts of the above mentioned plants on the growth of *Streptococcus mutans* a major oral bacteria.

7. Methodology

Experimental design

- Study area
- Collection of plant materials
- Extract preparation
- Ethanolic extract of plant materials
- Purification of fresh extracts
- Purification of dried extracts

In vitro antimicrobial screening

- Disc diffusion method
- Well diffusion method
- Measuring the inhibition zone
- Tabulating the results
- Comparison of the results

8. Salient research achievements:

a) New observations: The analysis of disc diffusion method of both fresh and dried extracts of the above mentioned plants helped to understand the fresh methanol extracts of *Mangifera indica leaf showed the* maximum zone of inhibition against *Streptococcus mutans*.

- Fresh extracts are more active than dried samples.
- Methanol extracts shows high antibacterial effects than water samples

b) Innovations/ Technologies generated: Preparation of herbal mouthwash using the above mentioned plants

c) Application potential: Herbal products are safer, , ecofriendly, biodegradable, non toxic and affordable to laymen against various diseases. Herbal medicines possess medicinal values and its harmless products make them desirable to humans.