“Comparison of the efficacy of mouth rinses camellia sinensis extract, guava leaves extract and sodium fluoride solution, on Streptococcus Mutans and Lactobacillus in children: In vivo and In vitro study”

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Abbreviation	Full term
defs	Decayed, extracted, filled, and deciduous.
S.	Streptococcus.
IPSs	Intracellular glycogen-like polysaccharides.
L.	Lactobacillus
MS	Mutans streptococci
FHAP	Flourohydroxyapatite
HAP	Hydroxyapatite
F-	Fluoride ion
OH-	Hydroxyl group
EGCG	Epigallocatechin-3-gallate
GTC	Green tea catechins
LPS	Lipopolysaccharides
MIC	Minimum inhibitory concentration
MBC	Minimum bactericidal concentration
DMSO	Dimethyl sulphoxide
CHX	Chlorohexidine
CFU	Colony forming units
GvEx	Guava extract
Spp.	Species
SD	Standard deviation
Kg	Kilogram
ml	Milliliter
hrs	Hours
Lab	Laboratory
Gms	Grams
lbs	Pounds “unit of pressure”
MSB	Mittis salivarius bacitracin
cm	Centimeters
C.sinesis	Camellia sinesis

INTRODUCTION

Most of mouth rinses are generally used for their analgesic, anti-microbial, anti-inflammatory, and anti-cariogenic activities. Nowadays, a wide range of mouth rinses such as chlorhexidine, sodium fluoride, and essential oils are available in market. The American Dental Association recommends that mouth rinses must be effective at modifying the micro-biota by selectively eliminating pathogens without negatively affecting the normal commensals of oral cavity. (1)

The most common plaque-mediated disease in children is dental caries. It is one of the most common chronic diseases among children. It is a preventable, localized infectious, multi-factorial disease resulting from the interaction among host, diet, and microflora on the tooth surface over a period of time, resulting in localized de-mineralization of hard tissues.(2)

The main bacterial agents in caries development are *Streptococcus mutans* for their initiation and *Lactobacillus spp.* for their progression. So decreasing these micro-organisms cause a significant decrease in dental caries. (3)

Local use of antimicrobial agents is more efficient than their systemic use, because plaque induced caries is a local disease. (4)

Most of the studies demonstrated that using mouth washes in children provided a significant decrease in the decayed extracted filled surface (defs) index. [5]

Gingival and periodontal disease have been recognized as a major health problems worldwide. They are infectious diseases caused by bacteria present in dental plaque. [6] There is a direct relationship present between the presence of dental plaque and development of gingivitis. [7]

The treatment of gingival and periodontal disease is to cure the inflamed tissues, by reducing the number of periodontal pathogens and alter the host response. [8]

Several studies have indicated that green tea is able to decrease the process of caries formation through several different mechanisms. [9-10]

Green tea is reported to be very rich in fluoride and catechin, a bioactive component, which has an anti-cariogenic efficacy. [11] Green tea mouth wash was also proved to be equally effective compared to chlorhexidine which is considered as gold standard. [12]

Guava is also shown to have high antibacterial activity against Gram-negative and Gram- positive bacteria [13].

Guava extract has demonstrated *in vitro* antiplaque actions by inhibiting growth, adherence and co-aggregation of dental plaque bacteria [14].

Fluoride is an established antimicrobial agent. Because of its anti-cariogenic and remineralization properties, it is extensively used in the prevention of dental caries. However, due to risk of ingestion and fluoride toxicity, it is not recommended in children less than 6 years old. Sodium fluoride is regarded as a gold standard of caries prevention. [15]

This study is conducted to come up with novel and cost-effective mouth washes that can be used by human for reducing the oral diseases.