



**“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”**

Thesis Submitted to Faculty of Dentistry,

Ain Shams University

In

Partial Fulfillment of the Requirements for the Master
Degree

In

Pediatric Dentistry

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(2018)**

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سورة الاسراء الآية (58)

ACKNOWLEDGMENT

In the name of ALLAH the Most Gracious, the Most Merciful the All-Knowing I started and thanks to ALLAH I finished, thank the Lord for granting me the knowledge and wellbeing that have helped carry me throughout this journey to fulfil my work at the best of my ability.

I would also like to express my sincerest gratitude to **Prof. Dr. Nadia EzzEldin Metwalli**; Professor of Pediatric Dentistry at Ain Shams University for the continuous support of Masters study and research, for her patience, motivation, enthusiasm, and immense knowledge. It was the steady upbeat confidence that she planted inside me and helped me continue this thesis till the end.

I would like to extend my deepest recognition to **Dr. Gehan Gaber Allam**; Lecturer, at the Department of Pediatric Dentistry at Ain Shams University, for the patient guidance, encouragement and advice she has provided throughout my time as her student. She always cared so much about my work, and responded to my questions and queries so promptly without any reservations or complaints

I wish to express my sincere thanks to **Prof. Dr. Moustafa Abdelnasser Aly**; Professor of Microbiology and Immunology department, Faculty of medicine Al Azhar University, to whom I am extremely thankful and indebted for sharing his experience, sincere and valuable guidance as well as his encouragement during the course of this research.

I would also like to thank all the staff members of Pediatric Dentistry Department at Ain Shams University who helped me continuously throughout my thesis.

I also would like to thank ***Prof. Dr. Kamel Aly El Gharib;*** Professor of Microbiology and Immunology Department, Faculty of pharmacy Al Azhar University and ***Prof. Dr. Ezzat Genady;*** Professor of Pharmacognosy Department, Faculty of Pharmacy Al Azhar University for their remarkable suggestions they made that helped contribute to the better layout of content in my thesis.

Special thanks and great appreciation go to the staff members of the pharmacognosy Department, Faculty of Pharmacy, Al Azhar University, for their cooperation and support.

DEDICATIONS

*Every challenging work needs self-efforts as well as guidance of elders,
especially those who are very close to our heart.*

I would like to dedicate my humble thesis to my sweet and loving **Mother and Father**, whose affection, love, encouragement, prayers day and night and the fact that they always loved me unconditionally and their good examples have taught me to work hard for the things that I aspire to achieve made me able to reach such success and allowed my continuous progress. My Brothers (*Ahmed, Mohammed and Youssef*) as well were an undeniable part of this endless cycle of support.

I can't forget my best friend *Marwa Mohammed* who has always been a constant source of support and encouragement during the challenges of my whole college life. She's a huge contributor to the person I am now.

I also want to express my gratitude to my dearest friends (*Hoda, Bardis and Aya*) for being a part of this achievement for the care and valuable encouragement they always provided me with.

Finally, I would like to thank my cousin *Esraa* for helping and supporting me with my thesis.

A special extension of gratitude is dedicated to Misr International University for being a part of this achievement for the care and valuable knowledge it always provided me with.

I never could have finished off without their presence in my life, all of them.

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List of abbreviations

Abbreviation	Full term
defs	Decayed, extracted, filled, and deciduous.
S.	Streptococcus.
IPs	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 sinensis

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.