SDM
College of Dental Sciences & Hospital
Dhavalnagar, Sattur, Dharwad - 580009, Karnataka, INDIA
Recognised by Dental Council of India, New Delhi

SHRI
DHARMASTHALA
MANJUNATHESHWARA
UNIVERSITY

EVALUATION OF EFFICACY OF ANTIFUNGAL ACTIVITY OF *MELALEUCA ALTERNIFOLIA* (TEA TREE) OIL, *OLEA EUROPAEA L.* (OLIVE OIL) AND *COCOS NUCIFERA* (COCONUT OIL) WHEN INCORPORATED IN DENTURE ADHESIVES.

By

Dr. GARIMA MAKHIJA

Dissertation Submitted to the

Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka,

In partial fulfilment of the requirements for the degree of

Master of Dental Surgery (M.D.S)

in

PROSTHODONTICS, CROWN, AND BRIDGE

Under the guidance of

Dr. RAMESH K NADIGER

Professor

Department of Prosthodontics, Crown, and Bridge

Shri Dharmasthala Manjunatheshawara College of Dental Sciences and Hospital Sattur, Dharwad

2021-2024

Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka

ABSTRACT

Background: Candida species, particularly Candida albicans, are opportunistic fungal organisms that are commonly found in the human oral cavity. While they are usually harmless, certain conditions can lead to their overgrowth, resulting in infections such as oral candidiasis. Denture wearers are particularly susceptible to this condition due to factors related to denture use and oral hygiene practices. Candida growth in denture adhesives is a common issue that can lead to discomfort and oral health problems. Emerging antifungal resistance is an increasingly significant concern in medicine, as it limits treatment options for fungal infections. Proper hygiene practices, regular dental check-ups, and appropriate use of denture adhesives are essential in preventing and managing this condition.

Objectives: To compare the antifungal efficiency of all three *Melaleuca alternifolia* (tea tree) oil, *Olea europaea L*. organic olive oil and *Cocos nucifera* cold pressed extra virgin coconut oil.

Methods: This study was conducted in the Department of Prosthodontics, Shri Dharmasthala Manjunatheshwara College of dental sciences and hospital, Dharwad and Department of Microbiology, Shri Dharmasthala Manjunatheshwara College of medical sciences and hospital. Thirty specimens will be fabricated (10mm diameter) using heat cure acrylic resin (Dentsply heat cure Lucitone resin). The thirty specimens were divided into three groups of ten specimens each of Tea tree oil, Olive oil and Coconut oil.

Results and interpretation: There was significant statistical difference between the antifungal activity of three groups i.e. Tea tree oil, Olive oil and Coconut oil respectively. The CFU counts in Group 1, Group 2 and Group 3 by Shapiro-Wilk test follow normal distribution. Therefore, the parametric one-way ANOVA was applied. *Cocos nucifera* (coconut oil) was found to have

the highest antifungal efficiency when compared to *Olea europaea L.* (organic olive oil) and *Melaleuca alternifolia* (tea tree oil).

Conclusion: Coconut oil is a natural remedy with antifungal properties that can help manage and prevent Candida infections in the oral cavity, particularly for denture wearers. Its use, whether through oil pulling or direct application, can be an effective complementary approach to maintaining oral health. However, it should be part of a broader oral hygiene routine that includes regular cleaning of dentures and dental check-ups.

Keywords: Antifungal efficacy, Tea tree oil, Olive oil, Coconut oil, Denture adhesives, denture wearers

TABLE OF CONTENTS