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RESEARCH Effectiveness of Purple Leaf Extract as Denture Cleanser Towards *S. Mutans* Growth on Flexible Denture

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Abstract

Introduction: Flexible denture that are metal-free and transparent are capable of mimicking natural gums, strong enough, lighter and biocompatible for oral tissue. The use of the denture should be accompanied by good denture cleansing to prevent denture damage and oral disease due to bacterial on the denture. Cleaning can be done by disinfectant known as denture cleanser. Research on purple leaves (*Graptophyllum pictum*), showed that purple leaves have antibacterial and antimicrobial activity. So it is important to study the effectiveness of purple leaves as denture cleanser, towards the growth of *S. mutans* on flexible denture plates. **Method:** This in vitro study used *S. mutans* from microbiological laboratory of medical faculty of Udayana University, incubated for 24 hours, 37°C on the surface of 27 plates (10x10x2) mm. The concentration of purple leaf extract was 1.25%; 2.5%; 10% and 40%. The effectiveness of purple leaf extract towards the growth of *S. mutans* can be seen from the number of *S. mutans* colonies on flexible denture base plate (cfu/ml). **Results:** One-Way Anova test showed that there were significant differences between concentrations of extracts towards bacterial growth. The result of LSD-multi comparisons test on PostHoc analysis showed significant difference between extract concentration of 1.25% to 10%, and extract 2.5% to 10% and 40%. The 10% extract differed significantly from the extracts of 1.25% and 2.5%, but did not differ significantly with the 40% extract. **Conclusion:** all extract concentrations are effective in suppressing bacterial growth, but the optimum effect is extract with 10% concentration.

Keywords: *Graptophyllum Pictum*, *S. mutans*, denture cleanser

Introduction

Tooth loss is a common thing in society, due to accidents, illnesses or natural aging processes. If not treated immediately will be able to produce anatomical, physiological and functional changes can even lead to psychological trauma. The use of dentures can help restore phonetic or speech functions, mastication, aesthetic or beauty functions, and preservation of oral tissues. Dentures should be made similar to the original teeth, so there is no real change in facial appearance and patient smile. Currently, there are various materials for denture bases, such as acrylic, metal frame, and nylon thermoplastic which is often called a flexible denture.

Denture always come into contact with saliva, beverages and food so it is a place of accumulation of stain, plaque and calculus. It is very important to prevent denture damage and to minimize the formation of bacterial colonies and candida on the surface of denture which can cause dental and oral problems such as halitosis, caries, stomatitis, periodontal disease, inflammation of the palatal mucosa and denture stomatitis.¹ The causes of denture stomatitis include *C. albicans*, bacterial infections, allergies, psychological factors, lack of denture hygiene, salivary flow and nutrients.² *C. albicans* can release endotoxins that damage the oral mucosa and cause denture stomatitis, whereas oral bacteria such as *S. mutans*, *S. sanguis* and *A. viscosus*, can cause dental caries, gingivitis and inflammation of periodontal tissue.

Denture cleansing can be done mechanically with a soft toothbrush, or by chemical means using a disinfectant. Denture cleansers should preferably be bactericidal and fungicidal,