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Comparative evaluation of antifungal property of Triphala and Oregano against Candida albicans- An in-vitro study

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ABSTRACT

Introduction: Candida albicans is one of the predominate microorganisms which resides in the acrylic dentures. Maintaining denture hygiene is a significant challenge, especially in the geriatric population. There is a need to explore the antifungal nature of naturally existing herbal products. Triphala and Oregano are two simple Ancient Indian herbal plants with the wider range of antimicrobial property.

Aim and objective: The aim of the present study is to determine and compare the anti-candidal effect of Triphala and Oregano against Candida albicans and their synergistic anti-candidal effect, for using it efficiently as a denture cleansing agent.

Materials and methods: Swab from the tissue surface of 20 complete acrylic denture wearers were collected and cultured to isolate the Candida albicans. The plant materials were soaked in 99.9 % ethanol and pure extracts were made by the cold maceration method. Later, various concentrations of Triphala, Oregano and

combined mixture of Triphala-Oregano of 1 %, 2 %, 4 %, 8 % and 16 % dilutions were done using 1 % DMSO solution. Fluconazole 150 mg was taken as a control to compare with the plant products and it was serially diluted to various concentrations of 1 %, 2 %, 4 %, 8 % and 16 %. The Disc diffusion method was done to find the zone of inhibition by pre-treating the discs with herbal extracts. The zone of inhibition was measured in millimetres.

Results: The mean value of zone of inhibition in Triphala was 3.1 mm, 2 mm, 4.9 mm, 4.9 mm and 6.2 mm, in Oregano was 0.1 mm, 0.6 mm, 0.4 mm, 0.3 mm and 0.1 mm, in Triphala-Oregano mixture was 0.9 mm, 2.4 mm. 3.1mm, 3.0mm and 3.7 mm and Fluconazole 150mg was 10mm, 12mm, 13.5mm, 14mm and 16mm, at 1 %, 2 %, 4 %, 8% and 16% respectively. Triphala showed increased zone of inhibition than that of Oregano and combined mixture Triphala-Oregano ($P<0.01$) at the same concentration. The differences between two groups were analyzed using one way ANOVA followed by a post hock test.

Conclusion: Triphala at higher concentration can provide a beneficial effect on eliminating Candida. Oregano showed least anti-candidal effect when compared to Triphala. When Triphala and Oregano were mixed there was no synergistic effect against Candida albicans rather an inhibitory activity was found between Triphala and Oregano.

Keywords: Triphala, oregano, zone of inhibition, candida albicans, denture cleanser

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