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**A COMPARATIVE STUDY TO EVALUATE THE ANTIFUNGAL EFFICACY OF  
NANO GRAPHENE OXIDE MATERIAL AND CLOTRIMAZOLE INCORPORATED  
IN SOFT LINERS IN COMPLETE DENTURES –AN INVITRO STUDY**

By

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## ABSTRACT

**Title:** A comparative study to evaluate the antifungal efficacy of nano graphene oxide material and clotrimazole incorporated in soft liners in complete dentures- an in vitro study.

**Background and Objectives:** Prosthetic rehabilitation of edentulous patients with complete denture is considered more than satisfactory by most patients due to their effects on mastication, phonetics and aesthetics. Inevitably, there are certain post insertion problems like inability to chew, persistent pain and discomfort. To overcome these problems, soft denture lining materials have been used for decades. *Candida albicans* are more commonly estimated 50% of all candidiasis cases. An important feature of *candida albicans* in causing infection is their ability to adhere and form biofilms on host surfaces leads to subsequent degradation of the material and infection of surrounding tissues. To overcome the above drawback, use of Graphene oxide combined with a solvents Chloroform and another antifungal agent Clotrimazole with antifungal properties in conjunction with soft liners may offer promising results. This study is aimed to determine the antifungal properties of Graphene oxide with Chloroform and Clotrimazole by incorporating them with denture soft liners.

**Methods:** 30 samples were prepared out of which 15 were coated with nano graphene oxide of 20 nm size and 5% solution combined with chloroform. The remaining 15 discs were incorporated with Clotrimazole. The above discs were placed on the flat bottom of well cell culture plates. Hundred microlitre of initial suspension in sabouraud's broth was inoculated to each well and incubated at 37 degree celsius. After incubation for 24 hours and 72 hours for extended contact period, suspension was withdrawn. Viable cells in the suspension were determined by using the spread plate method at the level of detection. The data obtained was subjected to statistical analysis.

**Results:** Results of the study showed that, 1% Clotrimazole showed a larger zone of inhibition when compared to that of Graphene oxide combined with Chloroform.

Thus, confirming the antifungal efficacy of soft liners containing graphene oxide and clotrimazole against candida species.

**Conclusion:** Antifungal efficacy of 1% Clotrimazole was found to be better than Graphene oxide with Chloroform against Candida albicans.

**Keywords:** Graphene Oxide, Chloroform, Candida Albicans, antifungal efficacy and clotrimazole.