

**TITLE:** FUNGI ADHESION IN AFTER ADDITION OF SILICON DIOXIDE OR ALUMINUM OXIDE ABOUT METHYL (POLYMETHYL METHACRYLATE)

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**ABSTRACT:**

There are no reports of the effect of the addition of silicon dioxide or aluminum oxide on the bacterial adhesion about methyl (polymethyl methacrylate). Silicon dioxide or silica, To investigated the effects of addition of alumina and silica in early *C. albicans* adherence on heat-polymerized acrylic resin. Thirty polymethyl methacrylate specimens were made from heat-polymerized acrylic resin base material. Specimens were prepared as square shaped with a width of 10 mm and 4 mm thickness. All pieces were polished in the upper portion, in low rotation with felt disc. For treatment with plasma application, Teflon tube with a mixture gas of argon (98%) and oxygen (2%) was used at a flow rate of 5L/min. Distance between the tip of plasma jet and the specimen was 10 mm. Specimens were grouped as follows: Group A - fifteen specimens were non-treated; Group B - specimens treated with silicon dioxide; Group C- specimens treated with alumina. A *C. albicans* (ATCC 90028) was used for fungal adherence studies. Immediately after the plasma treatment, all specimens were inoculated with a suspension standardized to a concentration of  $1 \times 10^6$  CFU/mL. After 24 hours of incubation, the amount of the yeasts adhering to specimen surfaces was evaluated by CFU. : In Group A (control group), was observed mean of fungal adhesion equal to 4.84 (2.0-8.1  $\pm$  1.81). In Group B and Group C, an average of adhered microorganisms was 0.28 (0.12-0.6  $\pm$  0.10) and 0,40 (0,10-0,8  $\pm$  0.12). When Group A was compared to Group B and Group C, there was a significant difference at early adherence of *C. albicans* ( $P < 0,0001$ ). When Group B and C was compared, no significant difference at early adherence of *C. albicans* ( $P < 0,2$ ). Use of silicon dioxide or alumina seems to be

a promising and convenient strategy to prevent the adhesion of *C. albicans* to acrylic resins.

**KEYWORDS:** Acrylic Resins, Silica, Alumine Oxide, Cell Adhesion

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