Streptococcus mutans form biofilms on polymeric surfaces of appliances introduced into the oral cavity. In this study the effect of *Zingiber officinale* essential oil on biofilm that was produced by *S. mutans* on polymethylmethacrylate (PMMA) blocks was investigated.

Heat-cured PMMA blocks were conditioned with 500ml of saliva at 37 °C for 60 min, and then washed twice with PBS. PMMA blocks were placed in a 12-well polystyrene culture plate and inoculated with *S. mutans* (106 cells/ml) and one of the two protocols were applied.

In the first protocol, the PMMA blocks were incubated for 24 hours (37°C) after bacterial contamination. Then, 20 ml *Z. officinale* essential oil was added to media that containing the blocks. In the second protocol, PMMA Blocks were contaminated with bacteria and 20 ml *Z. officinale* essential oil were added at the same time. In both protocols, after 24 hours (37°C) incubation of the plates, at the end of the incubation growth medium was removed and PMMA blocks were washed twice with PBS to remove non-adherent cells. PMMA blocks were evaluated by spectrophotometry (OD 620 nm) and number of bacteria was counted. PMMA blocks were examined with scanning electron microscopy.