

## **ABSTRACT**

**Introduction:** Orthodontic treatment with fixed appliance increases plaque retention and produces a greater difficulty in optimal oral hygiene maintenance which predisposes to enamel demineralization and white spot formation. The use of probiotics has taken giant leaps since the 20<sup>th</sup> century. Probiotics can create a biofilm, acting as a protective lining for oral tissues against oral diseases by keeping the bacterial pathogens off oral tissues.

**Aim and objectives:** The aim of the study was to compare the efficacy of three different probiotics in inhibition of *Streptococcus mutans* in plaque around orthodontic brackets. Objectives of the study were to evaluate the effects of probiotic on streptococcus mutans levels within the group and compare the efficacy of three groups in inhibition of *Streptococcus mutans* in plaque around orthodontic brackets.

**Materials and method:** A randomized control trial performed, consisted of 80 orthodontic patients of age group between 14 to 29 years, divided into 4 groups of 20 each. Group 1 was the Probiotic lozenges group. The patients in group 2 were given probiotic sachets, those in group 3 were given probiotic drink and group 4 was the control group. . Samples were collected at 2 times: before the study began and after 30 days. Plaque specimens were collected from the labial surfaces immediately surrounding the orthodontic brackets of the maxillary lateral incisors using a 4-pass technique. The presence of *S. mutans* was evaluated using microbiological test. Statistical analysis was performed, and comparisons were made using a paired t test within the group and one way ANOVA performed to compare the efficacy between three groups.

**Results:** At the end of the study, Paired t test showed, there was reduction in *S* mutants CFU counts after 30 days of consumption of probiotic formulations in group 1 Probiotic Lozenges, group 2 Probiotic sachet and group 3 Probiotic drink compare to baseline. While comparing the efficacy between the groups, one way ANOVA and Tukey Post hoc Test analysis confirmed the maximum reduction of *S. mutans* CFU in 1 Probiotic lozenges group followed by 3 Probiotic Drink group followed by 2 Probiotic Sachet group.

**Conclusion:** The consumption of probiotics cause a significant decrease in the *S. mutans* levels in the plaque around brackets in orthodontic patients.

**Key words:** Probiotics, White spot lesions, Orthodontic treatment