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# *Evaluation of Ion Release from Two Brands of Brackets in Three Types of Mouthwashes*

*A Thesis*
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# Abstract

Mouthwashes used widely as ancillary to mechanical oral hygiene methods. Little information provided about the effect of mouthwashes on ions released from orthodontic brackets. Therefore, the present study has been established to evaluate the effect of different mouthwashes on the corrosion resistance and the biocompatibility of two brands of brackets.

Eighty premolar stainless steel brackets were used (40 brackets from each brand). They were subdivided into four subgroups (n=10) according to immersion media (deionized distilled water, Corsodyl, Listerine and Silca herb mouthwashes). Each bracket was stored in a closely packed glass tube filled with 15ml of the immersion media and incubated for 45 days at 37ºC. Then chromium, nickel, copper and manganese ions release were measured using Atomic absorption spectrophotometer, while iron ions release were measured by using Iron kit and spectrophotometer. For statistical analysis, t-test, analysis of variance (ANOVA) and least significant difference (LSD) were used.

The results revealed that the ions released from Dentaurum brackets were significantly higher than that from OrthoTechnology brackets in all type of immersion media except for Chromium ions in Corsodyl mouthwash. The release of copper and chromium ions was significantly higher in Listerine and Corsodyl mouthwashes than in deionized distilled water being related to the pH of the immersion media. While, the release of iron, nickel and manganese ions in the three mouthwashes was comparable to that in deionized distilled water.

In conclusion, the amounts of released ions were below toxic levels and did not exceed the daily dietary intake, but it may be recommended to avoid prolonged use of Listerine and Corsodyl mouthwashes in patients allergic to chromium.