ABSTRAK

Pemasangan braket logam *stainless steel* pada gigi pasien dalam jangka waktu yang lama akan menyebabkan logam berinteraksi dengan lingkungan di dalam rongga mulut yang menyebabkan ion terlepas seperti ion Fe dan Cr. Pelepasan ion pada braket logam dapat memberikan dampak bagi tubuh yaitu reaksi hipersensitivitas dan dampak bagi braket yaitu perubahan permukaan braket yang ditunjukkan dengan celah pada braket. Perubahan tersebut dapat menyebabkan berkurangnya efektifitas perawatan ortodonti, estetik, kualitas, kekuatan braket, dan menyebabkan melekatnya bakteri *Streptococcus mutans*. Penelitian ini bertujuan untuk mengetahui hubungan pelepasan ion *Ferrum* (Fe) dan *Chromium* (Cr) pada permukaan braket metal *stainless steel* dan yang dilepaskan pada larutan.

Penelitian deskriptif ini menggunakan sampel penelitian braket metal *stainless steel* dengan slot 0,22" premolar rahang bawah dengan merek *American Orthodontic* (AO) yang sudah mengalami pelepasan ion. Pengamatan pelepasan ion pada braket dilakukan dengan menggunakan alat *Scanning Electron Microscope-Energy Dispersive X-Ray Spectroscopy* (SEM-EDX). Hasil penelitian pada braket menunjukkan rata-rata nilai ion Fe adalah -0,36% dan ion Cr sebesar -0,84%.

Dari hasil penelitian dapat disimpulkan bahwa terdapat pelepasan ion Fe dan Cr pada permukaan braket metal *stainless steel*. Terlepasnya ion Fe dan Cr ditunjukkan dengan adanya celah mikroskopik akibat dari korosi *pitting*.

Kata kunci: Braket Metal *Stainless Steel*, Korosi *Pitting*, Pelepasan Ion, SEM-EDX.

ABSTRACT

The installation of stainless steel metal brackets on the patient's teeth in a long phase will interact with the oral cavity environment which causes the release of ions such as Fe and Cr ions. Their release in the metal in the metal bracket can impact the body that can be in the form of hipersensitivity reactions and impact on the bracket is the bracket surface changes shown by the gap in it. These changes can reduce the effectivennes of orthodontic, aestethics, quality, strength of the bracket, and can provide an attachment place of strestococcus mutans microbe. This study was aimed to determine the relationship of the Fe and Cr ions released on the stainless steel metal bracket surface and which were release in solution.

This study was descriptive with sample used a stainless steel metal bracket with 0.22" lower jaw premolar slots which was marked by American Orthodontic (AO) brand which experienced the ions release. The observation of ions release on the bracket was carried out by using a Scanning Electron Microscope-Energy Dyspersive X-Ray Spectroscopy's tool (SEM-EDX). The result showed that average values of Fe ions in the bracket were -0,36% and Cr ions are -0,84%.

According to the result of the study, it could be concluded that there was have different of Fe and Cr ion release on the stainless steel metal bracket surface. Their release was demonstrated by the presence of microscopic gaps due pitting corrosion.

Keywords: *Stainless Steel Metal Bracket, Pitting Corrosion, Ion Removal, SEM.*