

INTISARI

Korosi merupakan peristiwa penurunan kualitas suatu aloi karena adanya reaksi elektrokimia antara aloi dengan lingkungannya yang mengakibatkan aloi menjadi rapuh dan mudah hancur. Lingkungan rongga mulut manusia dapat membuat kawat ortodonti mengalami kerusakan akibat paparan dari beberapa faktor seperti temperatur, kualitas dan kuantitas saliva, plak, pH, protein dan makanan atau minuman.

Tujuan dari penelitian ini adalah untuk mengetahui pengaruh temperatur ekstrak daun jambu biji terhadap laju korosi kawat ortodonti *stainless steel*. Sampel yang digunakan dalam penelitian ini sebanyak 27 kawat ortodonti *stainless steel* diameter 0,7 mm dan panjang 10 cm yang dibentuk menjadi *U loop* kemudian dibagi menjadi 3 kelompok secara acak, yaitu kelompok 1 (kontrol) direndam didalam saliva buatan dengan suhu 37°C, kelompok 2 (perlakuan 1) perendaman pada ekstrak daun jambu biji dengan suhu 45°C, kelompok 3 (perlakuan 2) perendaman pada ekstrak daun jambu biji dengan suhu 4°C. Sebelum sampel diberi perlakuan, terlebih dahulu dilakukan pengukuran berat awal dengan menggunakan timbangan analitik digital kemudian seluruh sampel direndam dalam saliva buatan selama 21 hari kemudian sampel diberi perlakuan selama 57 menit 4 detik. Setelah selesai maka dilakukan penimbangan berat akhir kawat untuk menghitung laju korosi.

Data dianalisis dengan menggunakan uji *one way* ANOVA. Hasil uji statistic *one way* ANOVA menunjukkan nilai yang signifikan ($p < 0,05$). Kesimpulan penelitian adalah temperatur ekstrak yang lebih tinggi dapat meningkatkan laju korosi kawat ortodonti *stainless steel*.

Kata kunci : laju korosi, temperatur, kawat ortodonti *stainless steel*

ABSTRACT

Corrosion is an event which there was a declining in the quality of an alloy due to electrochemical reaction between the alloy and its environment which results in the alloy becoming fragile and easily destroyed. The environment of oral cavity can make orthodontic wires to be damaged due to exposure to several factors such as temperature, quality and quantity of saliva, plaque, pH, protein, food or drink.

The aim of this study is to analyze the effect of temperature of guava leaf extract on the corrosion rate of stainless steel orthodontic wire. Samples used in this study were 27 stainless steel orthodontic wires with a diameter of 0.7 mm and a length of 10 cm formed into U loops and then divided into 3 groups randomly. Group 1 (control) was immersed in artificial saliva at 37°C, group 2 (treatment 1) was soaked in guava leaf extract with a temperature of 45 ° C, group 3 (treatment 2) was soaked in guava leaf extract with a temperature of 4 ° C. Before the samples were treated, first the initial weight measurements were taken using a digital analytical balance and then the whole sample was immersed in artificial saliva for 21 days. After soaking into the artificial saliva the sample was treated by soaking it to the guava leaf extract for 57 minutes 4 seconds for 7 days. At the end of the study, weighing the final weight of the wire was determined to calculate the corrosion rate.

The data is being analyzed by using one way ANOVA test. One way ANOVA statistical test results showed a significant value ($p < 0.05$). The conclusion of the study is that the higher temperature of the extract can increase the corrosion rate of the stainless steel orthodontic wires.

Keywords : corrosion rate, temperature, stainless steel orthodontic wire