

INTISARI

Ekstrak daun jambu biji memiliki kandungan tanin sebagai zat inhibitor korosi terhadap laju korosi kawat ortodonti *stainless steel*. Penelitian mengenai pengaruh perbedaan konsentrasi ekstrak daun jambu biji dalam menghambat laju korosi kawat ortodonti *stainless steel* diperlukan sebagai langkah pengembangan bahan alam sebagai inhibitor korosi. Tujuan penelitian ini adalah untuk mengetahui pengaruh perbedaan konsentrasi ekstrak daun jambu biji terhadap laju korosi kawat ortodonti *stainless steel*.

Pada penelitian ini, 27 kawat ortodonti *stainless steel* diameter 0,7 mm dipotong sepanjang 10 cm dan dibengkokkan seperti huruf U kemudian dibagi 3 kelompok secara acak. Setiap kawat diukur berat awalnya menggunakan timbangan analitik digital kemudian direndam dalam saliva buatan selama 21 hari. Setelah direndam saliva buatan, sampel kelompok perlakuan direndam pada ekstrak daun jambu biji konsentrasi 0,5% dan ekstrak daun jambu biji konsentrasi 1% selama 57 menit 4 detik setiap hari selama 7 hari. Kelompok kontrol tetap dibiarkan dalam saliva buatan. Pada akhir penelitian, kawat ortodonti *stainless steel* ditimbang berat akhirnya untuk mengetahui laju korosi. Data yang diperoleh dianalisis menggunakan uji normalitas *Shapiro Wilk*, uji homogenitas *Lavene Statistic*, *one-way ANOVA*, dan *Post Hoc LSD*.

Hasil penelitian menunjukkan konsentrasi ekstrak yang lebih besar menghasilkan penurunan laju korosi yang signifikan ($p < 0,05$). Kesimpulan penelitian adalah konsentrasi ekstrak yang lebih besar dapat menurunkan laju korosi kawat ortodonti *stainless steel*.

Kata kunci: daun jambu biji, inhibitor korosi, laju korosi, konsentrasi, kawat *stainless steel*

ABSTRACT

Guava leaf extract contains tannin as a corrosion inhibitor against the corrosion rate of stainless steel orthodontic wire. Research about the effect of different concentrations of guava leaf extract in inhibiting the corrosion rate of stainless steel orthodontic wire is needed as a step to develop natural materials as corrosion inhibitors. The purpose of this study was to determine the effect of different concentrations of guava leaf extract on the corrosion rate of stainless steel orthodontic wire.

In this study, 27 stainless steel orthodontic wires of 0.7 mm diameter were cut along 10 cm and bent like U-shape and divided into 3 groups randomly. Each wire were measured initially using digital analytical scales and then soaked in artificial saliva for 21 days. After soaking in artificial saliva, the treatment group's samples were soaked in guava leaf extract concentration of 0.5% and 1% for 57 minutes 4 seconds every day for 7 days. The control group was still left in artificial saliva. At the end of the study, stainless steel orthodontic wire was weighed to determine the corrosion rate. The data obtained were analyzed using Shapiro Wilk's normality test, Lavene Statistics homogeneity test, one-way ANOVA, and Post Hoc LSD.

The results showed a greater extract concentration resulted in a significant decrease in the corrosion rate ($p < 0.05$). The study concluded that the greater concentration of the extract can reduce the corrosion rate of stainless steel orthodontic wire.

Keyword : guava leaf extract, corrosion inhibitors, corrosion rate, concentration, stainless steel wire