

## INTISARI

Relaps adalah hilangnya koreksi gigi yang terjadi karena posisi gigi tidak stabil. Pergerakan gigi ortodonti terjadi melalui proses resorpsi tulang di daerah tekanan dan aposisi tulang di daerah tarikan. *Cyanidin* mampu menghambat *fibroblast growth factor-2* (FGF-2) dapat menekan proliferasi fibroblas sehingga fungsi fibroblas turun dan dapat mencegah pergerakan gigi pasca ortodonti. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian ekstrak biji anggur yang mengandung *cyanidin* untuk mencegah relaps pasca perawatan ortodonti dengan menurunkan jumlah sel fibroblas.

Penelitian ini merupakan penelitian eksperimental laboratoris menggunakan 32 ekor tikus *Wistar* jantan berumur 2,5-3 bulan, dikelompokkan menjadi 4 kelompok kontrol dan 4 kelompok perlakuan. Setiap kelompok kontrol dan kelompok perlakuan dibedakan berdasarkan pada hari pengamatan yaitu hari ke-1, 3, 7, dan 14 setelah alat ortodonti dilepas. Ekstrak biji anggur yang mengandung *cyanidin* diberikan secara peroral dengan dosis 25 mg. Gigi tikus dipasang alat ortodonti menggunakan kawat *stainless steel* 0,014 U dengan panjang lengan kawat 5 mm dan diameter koil 2 mm kemudian disolder pada cincin *matrix band*. Sebelum dipasang di gigi incisivus rahang atas diaktivasi dengan gaya sebesar 30 gramforce. Hewan coba diaklimatisasi dan dilakukan pengecatan menggunakan hematoksilin eosin lalu diamati menggunakan mikroskop cahaya yang dilengkapi dengan USB camera (OPTILAB). Data dianalisis dengan *independent t-test*.

Hasil penelitian menunjukkan jumlah sel fibroblas pada kelompok perlakuan lebih sedikit dibandingkan kelompok kontrol ( $p < 0,05$ ). pemberian ekstrak biji anggur yang mengandung *cyanidin* dapat menurunkan jumlah sel fibroblas pasca perawatan ortodonti.

**Kata kunci-** *Cyanidin*, ekstrak biji anggur merah, fibroblas, relaps

### **ABSTRACT**

Relapse is when the teeth are no longer in the corrected position due to the unstable position of the teeth. Orthodontic tooth movement occurs through the process of bone resorption on the pressure side and bone apposition on the tension side. Cyanidin inhibits fibroblast growth factor-2 (FGF-2) and slows down the proliferation of fibroblast so that the fibroblast function is decreased and orthodontic tooth movement can be prevented. This research aims to know the effect of red grape seed extract that contains cyanidin in preventing post-orthodontic treatment relapse by lowering fibroblast cell number.

This study was an experimental laboratory research that involves 32 male *Wistar* rats (2,5-3 months old), which are grouped into control groups (n=4) and treatment groups (n=4). Each control and treatment group were distinguished based on the day the orthodontic appliance is removed, which were the 1st, 3rd, 7th, and 14th day. Red grape seed extract that contains cyanidin has given orally at a dose of 25 mg. The orthodontic appliance which made of a 5 mm 0,014 U stainless steel with a coil that has an inner diameter of 2 mm and attached matrix band ring was placed on rat teeth (with 30 gram force for appliances activation force). The rats were acclimatized and stained with hematoxylin-eosin, and then they were observed under a light microscope equipped with a USB camera (OPTILAB). The data was analyzed using independent t-test.

The result of the study shows that fibroblast cell number in treatment groups are lower than control groups ( $p < 0,05$ ). Red grape seed extract that contains cyanidin can lower fibroblast cell number in post-orthodontic treatment.

**Keywords** - Cyanidin, fibroblast, red grape extract, relapse