

## ABSTRAK

### Efek Anti Inflamasi Minyak Zaitun Ekstra Virgin (*extra virgin olive oil*) Pada Tikus Putih Jantan (*Rattus norvegicus*) Yang Dipapar Karagenin

Andina Putri Aulia

**Latar Belakang :** Inflamasi merupakan respon tubuh terhadap adanya kerusakan dalam jaringan. Minyak zaitun *extra virgin* merupakan suatu minyak yang berasal dari ekstrak buah zaitun yang dapat digunakan sebagai antiinflamasi. Penelitian ini bertujuan untuk menganalisa pengaruh pemberian minyak zaitun *extra virgin* terhadap volume edema kaki tikus dan kadar TNF- $\alpha$  plasma pada tikus putih jantan galur wistar (*Rattus norvegicus*) yang diinjeksi karagenin.

**Metode :** Penelitian ini termasuk penelitian eksperimental murni dengan rancangan *the post test only control group design*. Dua puluh delapan ekor tikus putih jantan (*Rattus norvegicus*) galur wistardibagi secara acak menjadi empat kelompok. Kelompok I diberikan pakan standar, kelompok II, III dan IV diberikan minyak zaitun *extra virgin* dosis tunggal 0,9 ; 1,8 dan 2,7 mL/hari secara oral. Edema pada kaki tikus diukur 1 jam sebelum induksi karagenin dan tiap jam selama empat jam setelah tikus terinduksi karagenin 2% secara subplantar sedangkan kadar TNF- $\alpha$  plasma diukur pada jam ke empat. Pengukuran volume edema menggunakan platismometer. Analisis hasil dilakukan dengan menghitung presentase inhibisi edema pada masing-masing kelompok. Secara statistic, data yang diperoleh dianalisis dengan uji *Saphiro wilk* ( $p > 0.05$ ) dan homogenitas *Varians Levene's* ( $p > 0,05$ ) dilanjutkan dengan analisis ANOVA, REPEATED ANOVA serta uji LSD taraf kepercayaan 95%.

**Hasil :** Hasil penelitian menunjukkan bahwa minyak zaitun *extra virgin* memiliki efek antiinflamasi. Persentase penurunan volume edema terbesar terdapat pada kelompok P3 sebesar 14,21 %. Hasil analisa LSD uji minyak zaitun terhadap volume edema menunjukkan perbedaan bermakna antar kelompok kontrol dan kelompok perlakuan dosis 0,9 mL serta antar kelompok control dan kelompok perlakuan dosis 1,8 mL. Sedangkan kadar TNF- $\alpha$  berturut-turut  $1.902,0 \pm 972,8$  ;  $1.042,13 \pm 792,2$  ;  $380,64 \pm 90,0$  pg/mL. Dari uji statistic didapatkan  $p = 0,000$  ( $p < 0,05$ ) yang berarti terdapat perbedaan bermakna antara minyak zaitun *extra virgin* dengan kadar TNF $\alpha$ .

**Simpulan :** 1) Pemberian minyak zaitun extra virgin dapat menurunkan volume edema kaki tikus pada tikus putih jantan (*Rattus norvegicus*) galur wistar yang diinduksi karagenin sesuai dengan peningkatan dosis. 2) Pemberian minyak zaitun extra virgin dapat menurunkan kadar TNF- $\alpha$  pada tikus putih jantan (*Rattus norvegicus*) galur wistar yang diinduksi karagenin sesuai dengan peningkatan dosis.

**Kata kunci :** Antiinflamasi, Minyak zaitun *extra virgin*, Volume Edema, TNF- $\alpha$ , Karagenin.

## ABSTRACT

### **Anti-inflammatory Effects Extra Virgin Olive Oil (*extra virgin olive oil*) In Male Rats (*Rattus norvegicus*) Exposed Carrageenin**

**Andina Putri Aulia**

**Background:** Inflammation is a body response to substance interference or damage body tissue. Extra virgin Olive oil is one of oil from extract of fruit that can be used as anti-inflammatory agents. This research aimed to analyze effect of extra virgin *Olive oil* in reducing volume edema and TNF- $\alpha$  plasma in carrageenan induced hind paw edema.

**Methods :** This research was purely experimental research with the post test only control group design. A total twenty eight Wistar rat (*Rattus norvegicus*) were divided randomly into four treatment groups. Group one was given standard food as control negative group, and group II, III, and IV were given extra virgin *Olive oil* dosed of 0.9 ; 1.8 ; 2.7 mL/day orally. Hind paw oedem was measured one hour before rat were induced carrageenan and every hour until four hours after rat were induced carrageenan 2% and then TNF- $\alpha$  plasma was measured in four hour.

**Results :** Analysis of the data had done by calculating the presentation of oedema inhibition every group, then the data had been statistically analyzed by *Saphiro wilk* ( $p > 0.05$ ) and *Varians Levene's test* ( $p > 0.05$ ) continued by using the analysis of ANOVA, REPEATED ANOVA and LSD test with the 95% trust scale.

The result of this research showed that extra virgin *Olive oil* had an anti-inflammatory effect. The largest decreasing volume edema percentage in P3 groups amount to 14.21 %. LSD analyze of edema volume showed that there is significant difference between control group and group 1 with extra virgin Olive oil 0.9 mL/day, between control group and group 2 with extra virgin Olive oil 1.8 mL/day .Then TNF- $\alpha$  were  $1902.0 \pm 972.8$  ;  $1042.13 \pm 792.2$  ;  $380.64 \pm 90.0$  pg/mL. Statistic analyzed showed that  $p = 0.001$  ( $p < 0.05$ ) means there is significant difference between extra virgin Olive oil and TNF- $\alpha$  value.

**Conclusion :** 1) Provision of extra virgin olive oil can lower the volume edema of hind paw wistar rat (*Rattus norvegicus*) induced carrageenin in accordance with the increase in dose. 2) Provision of extra virgin olive oil can reduce the levels of TNF- $\alpha$  in male wistar rats (*Rattus norvegicus*) induced carrageenin in accordance with the increase in dose.

**Keywords :** Antiinflammation, Extra Virgin Olive oil, Edema Volume, TNF- $\alpha$ , Carraagenin