

# Efek cengkih terhadap perubahan kadar GSH pada hati tikus wistar yang dipapar CCL4 = Effect of syzygyum aromaticum to the change of GSH levels in wistar rats CCL4 induced liver / Rori Alfath Brani Paalmas

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## Abstrak

### **ABSTRAK**

Pendahuluan: Radikal bebas dapat merusak sel melewati efek oksidan, terutama terhadap sel hati yang berfungsi sebagai organ detoksifikasi. Oleh karena itu, dibutuhkan suatu zat antioksidan yang dapat melawan efek tersebut. Beberapa indikator aktivitas antioksidan dapat menunjukkan keadaan radikal bebas, contohnya glutation (GSH). Cengkih (*Syzygyum aromaticum*) dipercaya memiliki efek antioksidan melalui kandungan eugenol yang dimilikinya. Pada penelitian ini akan dicari tahu tentang efek antioksidan cengkih terhadap kerusakan hati (kadar GSH) yang sudah dirusak oleh CCl<sub>4</sub> dan pengaruh lama pemberiannya terhadap efek antioksidan yang muncul. Metode: Digunakan studi eksperimental in vivo dengan 36 sampel tikus Wistar yang dibagi ke dalam 6 kelompok perlakuan, yaitu kontrol positif dengan α-tokoferol, kontrol negatif, serta pemberian ekstrak air cengkih selama 1 hari, 3 hari, 5 hari, dan 7 hari. Hasil: Kadar GSH lebih tinggi pada kontrol negatif daripada perlakuan 3 hari, 5 hari, dan 7 hari, namun lebih rendah daripada kontrol positif dan 1 hari ( $p > 0,05$ ). Terdapat kadar GSH yang lebih tinggi pada 1 hari daripada 3 hari dan 5 hari ( $p < 0,05$ ), serta kontrol negatif dan 7 hari ( $p > 0,05$ ). Kesimpulan: Cengkih tidak memiliki efek antioksidan terhadap kerusakan hati yang diinduksi oleh CCl<sub>4</sub> dan lama pemberian tidak berbanding lurus terhadap efek antioksidan yang muncul.

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### **ABSTRACT**

Background: Free radicals can damage cell through its oxidant effect, especially in the liver. Therefore, antioxidants are needed to counter that effect. Antioxidant activity can be measured by a few different indicators, such as glutathione (GSH). Cloves (*Syzygium aromaticum*) is believed to have antioxidant effects through its main chemical compound, eugenol. Methods: This research explores the antioxidant effects of cloves in CCl<sub>4</sub>-induced liver damage seen from GSH levels and the effect of differences in duration to the antioxidant properties. This is an in vivo experimental study with 36 Wistar rats as samples who were divided into six groups: rats who were given just CCl<sub>4</sub> (negative control), CCl<sub>4</sub> and alpha tocopherol (positive control), CCl<sub>4</sub> and clove extract for 1 day, 3 days, 5 days, and 7 days respectively. Results: GSH levels were higher in the negative control group compared to the groups who were given clove extract for 3 days, 5 days, and 7 days; but were lower than the positive control and the group who was given clove extract for one day ( $p > 0,05$ ). GSH levels in the group who was given one day of clove extract was higher when compared to the 3-days and 5-days group ( $p < 0.05$ ), and the negative control and the 7-days group ( $p > 0.05$ ). Conclusions: Clove doesn't exhibit antioxidant effects in CCl<sub>4</sub>- induced liver damage in Wistar rats and the duration of which the clove extract was given is not directly proportional to the antioxidant effects observed.