

**SKRIPSI SARJANA FARMASI**

**PENGARUH PEMBERIAN FITOFARMAKA SEBAGAI TERAPI  
ADJUVAN KAPTOPRIL TERHADAP KADAR ALT DAN ALP MENCIT  
PUTIH JANTAN (*Mus musculus L.*)**



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## ABSTRAK

### PENGARUH PEMBERIAN FITOFARMAKA SEBAGAI TERAPI ADJUVAN KAPTOPRIL TERHADAP KADAR ALT DAN ALP MENCIT PUTIH JANTAN (*Mus musculus L.*)

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Hipertensi merupakan faktor risiko utama penyakit kardiovaskular dan salah satu penyebab kematian tertinggi di Indonesia. Kaptopril merupakan terapi lini pertama pengobatan penyakit kardiovaskular. Tensigard® merupakan fitofarmaka yang dapat menurunkan tekanan darah. Penelitian ini bertujuan melihat pengaruh kombinasi kaptopril dan tensigard® terhadap kadar ALT dan ALP mencit putih jantan. Sebanyak 15 ekor mencit dibagi menjadi 5 kelompok, semua kelompok kecuali kontrol diinduksi larutan NaCl 8% untuk mendapatkan hewan uji hipertensi. Kelompok I diberi kaptopril dosis 3,25 mg/kgbb, kelompok II tensigard® dosis 15,6 mg/kgbb, kelompok III (Kombinasi 1) kaptopril dan tensigard® secara bersamaan dan kelompok IV (Kombinasi 2) kaptopril dan tensigard® dengan pemberian di jarak 60 menit. Pada hari ke-15 dilakukan pengukuran aktivitas enzim ALT dan ALP. Hasil analisis statistik *one-way* ANOVA dan uji lanjut LSD (*Least Significant Difference*) menunjukkan perbedaan bermakna aktivitas enzim ALT dan ALP antar kelompok perlakuan ( $p < 0,05$ ). Berdasarkan hasil penelitian didapatkan bahwa kelompok kombinasi memiliki kadar ALT yang lebih tinggi dibandingkan kelompok lainnya. Namun, kelompok kombinasi dengan pemberian jarak waktu memiliki aktivitas enzim ALT yang lebih rendah dibandingkan kelompok kombinasi pada waktu bersamaan. Kelompok perlakuan yang diberikan kaptopril memiliki kadar ALP lima kali lipat lebih tinggi dibandingkan normal. Berdasarkan hasil tersebut, disimpulkan bahwa penggunaan senyawa kombinasi dapat menimbulkan penumpukan zat *xenobiotic* di sitoplasma hati sehingga meningkatkan aktivitas enzim ALT dan pemberian jarak waktu dapat mengurangi risiko hepatotoksisitas sehingga memiliki aktivitas enzim ALT lebih rendah. Penggunaan kaptopril dapat menimbulkan kerusakan pada membran kanalikular hati, akibatnya aktivitas enzim ALP meningkat.

Kata kunci: hipertensi, kaptopril, tensigard®, obat sintetik, obat tradisional, kadar ALT dan ALP

## ABSTRACT

### THE EFFECT OF PHYTOPHARMACEUTICALS AS ADJUVANT CAPTOPRIL THERAPY ON ALT AND ALP LEVELS OF MALE WHITE MICE (*Mus musculus* L.).

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Hypertension is a major risk factor for cardiovascular disease and one of the leading causes of death in Indonesia. Captopril is the first line therapy for the treatment of cardiovascular disease. Tensigard® is a phytopharmaceutical that can lower blood pressure. This study aimed to examine the effect of the combination of captopril and tensigard® on ALT and ALP levels in male white mice. A total of 15 mice were divided into 5 groups. All groups except the control were induced by an 8% NaCl solution to obtain hypertension test animals. Group I received captopril at a dose of 3.25 mg/kgbw, group II received tensigard® at a dose of 15.6 mg/kgbw, group III (a combination of 1) captopril and tensigard® was administered simultaneously, and group IV (a combination of 2) captopril and tensigard® was administered 60 minutes apart. On the 15th day, ALT and ALP enzyme activities were measured. The results of one-way ANOVA statistical analysis and the LSD (Least Significant Difference) follow-up test showed significant differences in ALT and ALP enzyme activities between treatment groups ( $p < 0.05$ ). Based on the results of the study, it was found that the combination group had higher ALT levels than the other groups. However, the combination group with time intervals had lower ALT enzyme activity than the concurrent time combination. The treatment group that was given captopril had ALP levels five times higher than normal. Based on these results, the use of combined compounds can cause xenobiotic accumulation in the liver, thereby increasing ALT enzyme activity, and giving time intervals can reduce the risk of hepatotoxicity so it has lower ALT enzyme activity. The use of captopril can cause damage to the liver canalicular membrane, resulting in increased ALP enzyme activity.

Keywords: hypertension, captopril, tensigard®, synthetic drugs, traditional medicines, ALT and ALP levels.