

Efek Hepatoprotektif Pemberian Formula Enteral *Hepatomocine* Supelementasi BCAA dan β -Karoten Terhadap Kadar *Alkaline Phosphatase* (ALP) Pada Tikus *Sprague-Dawley* Dengan Induksi *Thioacetamide*

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ABSTRAK

Latar Belakang: *Chronic Liver Disease* (CLD) adalah kondisi penurunan fungsi hati yang progresif akibat inflamasi dan kerusakan pada sel hati. Hal ini menyebabkan pelepasan enzim *Alkaline Phosphatase* (ALP) yang berlebih sehingga kadarnya meningkat dalam darah. Selain itu, penderita CLD rentan mengalami malnutrisi. Formula enteral *Hepatomocine* berbasis tepung ubi jalar kuning dan isolat protein kedelai berpotensi menurunkan kadar ALP karena mengandung BCAA dan β -Karoten yang direkomendasikan untuk penderita CLD.

Tujuan: Menguji pengaruh pemberian formula enteral *Hepatomocine* terhadap kadar ALP pada tikus *Sprague-Dawley* yang diinduksi dengan *Thioacetamide*.

Metode: Penelitian *true experimental pre-post test with randomized control group* dengan menggunakan 24 ekor tikus jantan dewasa *Sprague-Dawley* yang dibagi dalam 4 kelompok. Kelompok K- (sehat), serta kelompok K+, P1, dan P2 diinduksi dengan 400 mg/kgBB *Thioacetamide*. Kelompok P1 diberikan formula enteral *Hepatomocine* standar dan kelompok P2 diberikan formula enteral *Hepatomocine enriched* BCAA dan β -Karoten dengan dosis yang sama yaitu 5,04 g/200 grBB selama 28 hari. Kadar ALP diukur menggunakan spektrofotometri. Analisis data menggunakan *Paired T-Test*, Uji *Oneway Anova* dengan uji lanjutan *Tukey*, *Independent t test*, dan Uji *Kruskal Wallis* dengan uji lanjutan *Mann Whitney*.

Hasil: Kadar ALP memiliki perbedaan yang signifikan ($p < 0,05$) pada kelompok P1 dan P2 terhadap kelompok K- dan K+. Kelompok kontrol mengalami peningkatan kadar ALP sementara kelompok perlakuan (diberikan formula enteral *Hepatomocine*) mengalami penurunan kadar ALP. Penurunan kadar ALP tertinggi terjadi pada kelompok P2 yaitu rerata sebesar $35,84 \pm 2,31$.

Simpulan: Pemberian formula enteral *Hepatomocine* dapat menurunkan kadar ALP pada tikus *Sprague-Dawley* yang diinduksi dengan *Thioacetamide*.

Kata Kunci: *Alkaline Phosphatase*, β -Karoten, *Branched-chain amino acids*, Formula enteral *Hepatomocine*, *Chronic Liver Disease*

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Hepatoprotective Effect of Hepatomocine Enteral Formula Supplemented BCAA and β -Carotene on Alkaline Phosphatase Levels in Thioacetamide-Induced Sprague-Dawley Rats

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ABSTRACT

Background: Chronic Liver Disease is a condition of progressive liver function decline due to inflammation and damage to liver cells. This causes the release of excess Alkaline Phosphatase enzymes so that their levels increase in the blood. In addition, CLD sufferers are susceptible to malnutrition. Enteral formula Hepatomocine based on yellow sweet potato flour and soy protein isolate has the potential to reduce ALP levels because it contains BCAA and β -Carotene which are recommended for CLD sufferers.

Objective: To test the effect of Hepatomocine enteral formula on ALP levels in Thioacetamide-induced Sprague-Dawley rats

Method: True experimental study with pre-post test randomized control group using 24 adult male Sprague-Dawley rats in 4 groups. Group K- (healthy), groups K+, P1, and P2 were induced with 400 mg/kgBW of Thioacetamide. Group P1 was given standard Hepatomocine enteral formula and group P2 was given Hepatomocine enteral formula enriched BCAA and β -Carotene with the same dose of 5.04 g/200 gBW for 28 days. ALP levels were measured using spectrophotometry. Data analysis used Paired T-Test, Oneway Anova Test with Tukey's follow-up test, Independent t test, and Kruskal Wallis Test with Mann Whitney follow-up test.

Results: ALP levels had significant differences ($p < 0.05$) in groups P1 and P2 compared to groups K- and K+. The control group experienced an increase in ALP levels while the treatment group (given Hepatomocine enteral formula) experienced a decrease in ALP levels. The highest decrease in ALP levels occurred in group P2, which was an average of 35.84 ± 2.31 .

Conclusion: Hepatomocine enteral formula could reduce ALP levels in Thioacetamide-induced Sprague-Dawley rats.

Keywords: Alkaline Phosphatase, β -Carotene, Branched-chain amino acids, Hepatomocine enteral formula, Chronic Liver Disease

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