

Efek Hepatoprotektif Pemberian Formula Enteral Hepatomocine *Enriched* BCAA dan β -Karoten Terhadap Kadar *Alanine Aminotransferase* (ALT) Pada Tikus *Sprague Dawley* Induksi *Thioacetamide*

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ABSTRAK

Latar Belakang: *Chronic liver disease* (CLD) merupakan kondisi terjadinya penurunan fungsi hati yang progresif selama lebih dari enam bulan. Tanpa pengobatan yang efektif, CLD dapat berkembang menjadi sirosis hingga kanker hati. Selain itu pasien CLD juga berisiko mengalami malnutrisi. Formula enteral Hepatomocine yang berbasis tepung ubi jalar kuning dan isolat protein kedelai berpotensi menurunkan kadar *alanin aminotransferase* (ALT) yang merupakan biomarker untuk melihat fungsi hati karena mengandung BCAA (*Branched-chain amino acids*) dan β -karoten.

Tujuan: Untuk menguji pengaruh pemberian formula enteral Hepatomocine berbasis tepung ubi jalar kuning dan isolat protein kedelai terhadap kadar ALT pada tikus *Sprague dawley* dengan induksi *thioacetamide* (TAA).

Metode: Penelitian *true experimental pre-post test with randomized control group design* menggunakan 24 tikus jantan *Sprague dawley* yang dibagi menjadi 4 kelompok. Kelompok K- (tikus sehat) serta kelompok K+, P1 dan P2 (diinduksi TAA 400 mg/kgBB). Kelompok P1 mendapat formula enteral Hepatomocine standar dengan dosis 5,04 gr/200gBB dan P2 mendapat formula enteral Hepatomocine *enriched* BCAA dan β -karoten dengan dosis 5,04 g/200gBB selama 28 hari. Kadar ALT diukur menggunakan metode spektrofotometri. Data dianalisis menggunakan *Paired T-Test*, ANOVA, *Independent t test*, dan *Kruskal wallis* dengan uji lanjut *Tukey* dan *Mann whitney*.

Hasil: Terdapat perbedaan yang signifikan terhadap kadar ALT setelah intervensi antar kelompok ($p < 0,05$), dengan kelompok kontrol mengalami peningkatan kadar ALT sedangkan kelompok perlakuan mengalami penurunan kadar ALT. Perbaikan kadar ALT yang paling signifikan yaitu pada kelompok P2 dengan penurunan kadar ALT sebesar $14,81 \pm 1,14$ U/L.

Simpulan: Formula enteral Hepatomocine berbasis tepung ubi jalar kuning dan isolat protein kedelai dapat menurunkan kadar ALT pada tikus *Sprague dawley* dengan induksi TAA.

Kata Kunci: *Alanine aminotrasferase*, Beta-karoten, *Branched-chain amino acids*, Formula enteral Hepatomocine, *Liver disease*

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Hepatoprotective Effect Of Hepatomocine Enteral Formula Enriched with BCAA and β -Carotene On Alanine Aminotransferase Levels In Thioacetamide-Induced Sprague Dawley Rats

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ABSTRACT

Background: Chronic liver disease (CLD) was a progressive deterioration of liver functions for more than six months. Without effective treatment, CLD could progress to liver cirrhosis and hepatocellular carcinoma. In addition, CLD patients had malnutrition risk. Hepatomocine enteral formula based on sweet potato flour and soy protein isolate had a potential to reduce alanine aminotransferase (ALT) levels which was a biomarker for liver function because it contains BCAAs (Branched-chain amino acids) and β -carotene.

Objective: To analyzed the effect of Hepatomocine enteral formula based on sweet potato flour and soy protein isolate on ALT levels in Sprague dawley rats induced thioacetamide (TAA).

Methods: True experimental study with pre-post test randomized control design used 24 male Sprague dawley rats in 4 groups. K- group (healthy rats), K+, P1, P2 (induced by TAA 400 g/kgBW). P1 group was given standard Hepatomocine enteral formula at a dose 5.04 g/200gBW and P2 group was given Hepatomocine enteral formula enriched BCAA and β -carotene at a dose 5.04 g/200gBW for 28 days. ALT levels were determined using spectrophotometry. The data were analyzed using Paired T-Test, ANOVA, Independent t test, and Kruskal wallis with Tukey dan Mann whitney as follow-up test.

Result: There were significant differences against groups ($p < 0.05$) with control group with control groups were increases while experiment groups were decreased ALT levels. The most significant improvement in ALT level was in P2 group with a decreased ALT level by 14.81 ± 1.14 U/L.

Conclusion: Hepatomocine ennteral formula based on sweet potato flour and soy protein isolate could reduce ALT level in Sprague dawley rats induced TAA.

Keywords: Alanine aminotrasferase, Beta-carotene, Branched-chain amino acids, Hepatomocine enteral formula, Liver disease

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