

EFEK PEMBERIAN BISKUIT DAUN KELOR, UBI UNGU, DAN IKAN TERI TERHADAP KADAR LDL DAN HDL TIKUS YANG DIBERI DIET TINGGI LEMAK

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INTISARI

Latar Belakang : Penyakit kardiovaskular merupakan penyakit berupa gangguan pada sistem jantung dan pembuluh darah manusia yang menjadi salah satu penyebab kematian tertinggi. Pencegahan penyakit kardiovaskular dapat dilakukan dengan mengontrol profil lipid darah, terutama kadar LDL dan HDL. Konsumsi makanan fungsional dapat memberikan manfaat kesehatan dalam pencegahan penyakit kardiovaskular. Makanan fungsional yang dikembangkan pada penelitian ini adalah biskuit daun kelor, ubi ungu, dan ikan teri yang diteliti efeknya terhadap kadar LDL dan HDL tikus yang diinduksi diet tinggi lemak.

Tujuan Penelitian : Mengetahui pengaruh pemberian biskuit daun kelor, ubi ungu, dan ikan teri terhadap kadar LDL-kolesterol dan HDL-kolesterol.

Metode : Penelitian ini merupakan penelitian *quasi experimental* pada hewan coba tikus putih galur *Sprague Dawley* yang dibagi menjadi empat kelompok yaitu kontrol positif, kontrol negatif, perlakuan dosis 0,9gram/200g/kgBB (P1), dan perlakuan dosis 1,8gram/200g/kgBB (P2). Kelompok kontrol negatif dan perlakuan dosis diinduksi diet tinggi lemak selama 14 hari. Setelah itu, intervensi berupa biskuit daun kelor, ubi ungu, dan ikan teri diberikan selama 28 hari untuk kemudian dilakukan analisis kadar LDL dan HDL sebelum dan setelah intervensi. Data asupan pakan dan berat badan dikumpulkan setiap hari untuk mengamati pengaruh lain dari intervensi.

Hasil : Terdapat perbedaan yang signifikan pada data *pre-test* dan *post-test* kadar LDL-kolesterol seluruh kelompok perlakuan ($p < 0,05$). Kadar LDL kelompok perlakuan dosis 1 dan 2 mengalami penurunan sebesar $42,15 \pm 1,855$ mg/dL dan $46,39 \pm 2,019$ mg/dL secara berurutan. Selain itu, kadar HDL *pre-test* dan *post-test* juga terdapat perbedaan yang signifikan ($p < 0,05$). Kadar HDL kelompok perlakuan dosis 1 dan 2 mengalami penurunan sebesar $26,62 \pm 2,110$ mg/dL dan $39,21 \pm 3,333$ mg/dL. Berdasarkan rujukan, kadar LDL dan HDL mengalami penurunan pada rentang normal. Rasio kadar LDL/HDL menunjukkan penurunan yang signifikan ($p < 0,05$) dan berada pada rentang normal untuk mencegah penyakit kardiovaskular.

Kesimpulan : Biskuit daun kelor, ubi ungu, dan ikan teri memiliki efek terhadap penurunan kadar LDL-kolesterol dan peningkatan kadar HDL-kolesterol pada tikus yang diberi diet tinggi lemak. Dosis 1,8 g/200g/BBhari lebih efektif dalam menurunkan kadar LDL-kolesterol dan meningkatkan kadar HDL-kolesterol.

Kata Kunci : Penyakit Kardiovaskular, Dislipidemia, Daun Kelor, Ubi Ungu, Ikan Teri, Biskuit, LDL, HDL

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ABSTRACT

Effect of *Moringa oleifera* L. Leaf, Purple Sweet Potato Tuber, and Anchovy Biscuits on LDL and HDL Levels in High-Fat Diet-Induced Rats

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Background : Cardiovascular disease is a disorder of the human heart and blood vessel systems which is one of the highest causes of death. Prevention of cardiovascular disease can be done by controlling blood lipid profile, especially LDL and HDL levels. Consumption of functional foods can provide health benefits and prevent cardiovascular disease. The functional foods developed in this study were Moringa leaf, purple sweet potato, and anchovies biscuits which effects were investigated on LDL and HDL levels of high-fat diet induced rats.

Objectives : To analyze the effect of *Moringa oleifera* L. leaf, purple sweet potato tuber, and anchovy biscuits on LDL-cholesterol and HDL-cholesterol levels.

Methods : This study is a quasi-experimental study on white rats Sprague Dawley strain which was divided into four groups, which are positive control, negative control, dose of 0.9gram/200g/kgBW (P1), and dose 1.8gram/200g/kgBB (P2). The negative control group and the dose treatment were induced by a high-fat diet for 14 days. After that, the intervention of *Moringa oleifera* L. leaf, purple sweet potato tuber, and anchovy biscuits was given for 28 days and then measured LDL and HDL levels before and after the intervention. Data on feed intake and body weight were collected daily to observe other effects of the intervention.

Results : There was a significant difference in the pre-test and post-test data of LDL-cholesterol levels in all treatment groups ($p < 0.05$). LDL levels in the treatment groups at doses 1 and 2 decreased by 42.15 ± 1.855 mg/dL and 46.39 ± 2.019 mg/dL, respectively. In addition, there were significant differences between pre-test and post-test HDL levels ($p < 0.05$). HDL levels in the treatment groups at doses 1 and 2 decreased by 26.62 ± 2.110 mg/dL and 39.21 ± 3.333 mg/dL. Based on the reference, LDL and HDL levels were in the normal range. The ratio of LDL/HDL levels showed significant decrease ($p < 0.05$) and was in the normal range for preventing cardiovascular disease.

Conclusions : *Moringa oleifera* L. leaf, purple sweet potato tuber, and anchovy biscuits have an effect on reducing LDL-cholesterol levels and increasing HDL-cholesterol levels in rats fed a high-fat diet.

Keywords : Cardiovascular disease, Dislipidemia, *Moringa oleifera* L. leaf, purple sweet potato tuber, anchovy, biscuits, LDL, HDL

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