

PENGARUH PEMBERIAN BISKUIT DAUN KELOR, UBI UNGU, DAN IKAN TERI TERHADAP KADAR KOLESTEROL TOTAL DAN TRIGLISERIDA TIKUS YANG DIINDUKSI DENGAN DIET TINGGI LEMAK

Erinda Nurrahma¹, Fatma Zuhrotun Nisa¹, Lily Arsanti Lestari¹

INTISARI

Latar Belakang: Penyakit kardiovaskular menjadi penyebab kematian tertinggi di tingkat global, maupun nasional. Studi membuktikan bahwa penurunan kadar kolesterol total dan trigliserida dapat mengurangi risiko penyakit ini. Meskipun Indonesia memiliki keanekaragaman pangan yang luar biasa, banyak potensi pangan yang belum dimanfaatkan secara optimal seperti kelor, ubi jalar ungu, dan ikan teri. Masing-masing bahan pangan tersebut diketahui memiliki efek penurunan kadar kolesterol total dan trigliserida. Oleh karena itu, dikembangkanlah pangan fungsional kombinasi daun kelor, ubi ungu, dan ikan teri dalam bentuk biskuit sebagai alternatif untuk menurunkan kadar kolesterol total dan trigliserida.

Tujuan: Mengetahui pengaruh pemberian biskuit daun kelor, ubi ungu, dan ikan teri terhadap penurunan kadar kolesterol total dan trigliserida tikus yang diinduksi dengan diet tinggi lemak

Metode Penelitian: Sebanyak 24 ekor tikus *Sprague Dawley* dibagi menjadi empat kelompok perlakuan, yaitu kelompok STD (kontrol normal dengan pakan standar), kelompok DTL (kontrol dengan pakan tinggi lemak), kelompok P1 (perlakuan dosis 0,9g/200gBB/hari), dan kelompok P2 (perlakuan dosis 1,8g/200gBB/hari). Setelah 2 minggu diberi diet tinggi lemak, tikus diberi intervensi biskuit selama 4 minggu. Pengambilan sampel darah untuk analisis kadar kolesterol total dan trigliserida dilakukan sebanyak dua kali, yaitu setelah intervensi diet tinggi lemak (*pre test*) dan setelah intervensi biskuit (*post test*).

Hasil: Penurunan kadar kolesterol total dan trigliserida yang signifikan ($P < 0,05$) ditemukan pada kelompok P1 dan P2 setelah mendapat biskuit daun kelor, ubi ungu, dan ikan teri. Penurunan terbesar kadar kolesterol total ($-107,55 \pm 4,049$) dan trigliserida ($-60,61 \pm 3,902$) diperoleh kelompok P2. Kadar kolesterol total kelompok P1 ($108,52 \pm 11,154$) dan P2 ($94,16 \pm 2,883$) secara signifikan lebih rendah dibandingkan kelompok DTL ($208,27 \pm 2,679$), tetapi juga lebih tinggi dari kelompok STD ($88,20 \pm 2,417$). Hasil yang sama juga ditemukan pada kadar trigliserida. Kelompok P1 ($96,87 \pm 4,017$) dan P2 ($81,33 \pm 2,830$) memiliki kadar trigliserida yang secara signifikan lebih rendah dibandingkan kelompok DTL ($147,24 \pm 2,830$), tetapi juga lebih tinggi dibandingkan dengan kelompok STD ($81,33 \pm 2,830$).

Kesimpulan: Penurunan kadar kolesterol total dan trigliserida terjadi pada kelompok yang diberi biskuit daun kelor, ubi ungu, dan ikan teri dalam dosis 0,9g/200gBB/hari dan 1,8g/200gBB/hari. Penurunan kadar kolesterol total dan trigliserida pada kelompok yang diberi biskuit daun kelor, ubi ungu, dan ikan teri dosis 1,8g/200gBB/hari lebih besar dibandingkan dengan dosis 0,9g/200gBB/hari.

Kata Kunci: daun kelor, ubi ungu, ikan teri, kolesterol, trigliserida

¹Program Studi Gizi Kesehatan Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan UGM

EFFECT OF MORINGA OLEIFERA L. LEAF, PURPLE SWEET POTATO TUBER AND ANCHOVY BISCUITS ON TOTAL CHOLESTEROL AND TRIGLYCERIDE LEVEL IN HIGH FAT DIET FED RATS

Erinda Nurrahma¹, Fatma Zuhrotun Nisa¹, Lily Arsanti Lestari¹

ABSTRACT

Background: Cardiovascular disease is the first cause of death at global and national level. Studies prove that decreasing total cholesterol and triglyceride level can lower the risk of cardiovascular disease. Despite Indonesia has a tremendous food diversity, many potential foods have not been optimally utilized such as moringa leaf, purple sweet potato, and anchovy. Each of them is known to have some effects on decreasing total cholesterol and triglyceride level. Therefore, a functional food from a combination of moringa leaves, purple sweet potatoes and anchovies is developed in the form of biscuits as an alternative to lower total cholesterol and triglyceride level.

Objective: To determine the effect of moringa leaf, purple sweet potato and anchovy biscuit on total cholesterol and triglyceride in high-fat diet induced rats.

Method: A total of 24 Sprague Dawley rats were divided into four treatment groups, namely STD group (normal control with standard feed), DTL group (control with high fat feed), P1 group (treatment with dose 0.9g/200gBW/day) and P2 group (treatment with dose 1.8g/200gBW/day). After 2 weeks of being given the high-fat diet, the rats were given a biscuit intervention for 4 weeks. Blood sampling for the analysis of total cholesterol and triglyceride levels was conducted twice, after receiving the high-fat diet intervention (pretest) and after receiving the biscuit intervention (posttest).

Result: A significant decrease in total cholesterol and triglyceride levels ($P < 0.05$) was found in the P1 and P2 groups after receiving moringa leaf, purple sweet potato, and anchovy biscuits. The biggest decrease in total cholesterol (-107.55 ± 4.049) and triglyceride level (-60.61 ± 3.902) were obtained in the P2 group. The total cholesterol level of the P1 (108.52 ± 11.154) and P2 (94.16 ± 2.883) groups were significantly lower than the DTL group (208.27 ± 2.679), but also still higher than the STD group (88.20 ± 2.417). Similar results were also found in triglyceride levels. The P1 (96.87 ± 4.017) and P2 (81.33 ± 2.830) groups had significantly lower triglyceride level than the DTL group (147.24 ± 2.830), but were also still higher than the STD group (81.33 ± 2.830).

Conclusion: Decreased levels of total cholesterol and triglycerides occurs in the group given moringa leaf, purple sweet potato, and anchovies biscuits in doses of 0.9g/200gBW/day and 1.8g/200gBW/day. The decrease in total cholesterol and triglyceride levels in the group given moringa leaf, purple sweet potato, and anchovies biscuits dose 1.8g/200gBW/day is greater than the dose of 0.9g/200gBW/day.

Keywords: moringa leaf, purple sweet potato, anchovy, cholesterol, triglyceride

¹Department of Nutrition and Health, Faculty of Medicine, Public Health and Nursing
Universitas Gadjah Mada, Yogyakarta