

ABSTRACT

THE EFFECT OF 96% ETHANOL EXTRACT OF BINAHONG LEAVES (*Anredera cordifolia*) ON CORONARY ARTERY WALL THICKNESS AND LUMEN DIAMETER IN HYPERLIPIDEMIC MALE Balb/C MICE (*Mus musculus*)

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Background: Hyperlipidemia contributes to atherosclerosis, which is characterized by increased arterial wall thickness and lumen narrowing. Binahong leaves (*Anredera cordifolia*) contain secondary metabolites with antioxidant and antihyperlipidemic activity. This study aims to evaluate the effect of 96% ethanol extract of binahong leaves on the wall thickness and lumen diameter of coronary arteries in hyperlipidemic male Balb/C mice.

Method: This research was a true experimental study using a post-test only control group design. A total of 30 mice were acclimatized for 7 days, then fed a high-fat diet for 14 days to induce hyperlipidemia (>130 mg/dL). The mice were divided into six groups: NC (standard diet), K⁻ (high-fat diet), K⁺ (vitamin C 90 mg/kgBW), and treatment groups P1, P2, and P3, which received binahong extract at doses of 500, 1,000, and 1,500 mg/kgBW for 14 days while continuing on the high-fat diet. Tissue samples were stained using Hematoxylin–Eosin (HE) and examined under 400x magnification. Statistical analysis was performed using One-Way ANOVA followed by the Post-Hoc Tukey HSD test..

Result: The binahong extract contains secondary metabolites that significantly reduced arterial wall thickness and increased lumen diameter at a dose of 1,000 mg/kg BW ($p < 0.05$) compared to the negative control group, which received only a high-fat diet.

Conclusion: The 96% ethanol extract of binahong leaves at a dose of 1,000 mg/kgBW demonstrated significant improvement in coronary artery wall thickness and lumen diameter in hyperlipidemic mice, with effectiveness comparable to vitamin C.

Keywords: *Anredera cordifolia*, hyperlipidemia, coronary artery, lumen diameter, arterial wall thickness, antioxidant.

ABSTRAK

PENGARUH EKSTRAK ETANOL 96% DAUN BINAHONG (*Anredera cordifolia*) TERHADAP KETEBALAN DINDING DAN DIAMETER LUMEN ARTERI KORONER PADA MENCIT PUTIH (*Mus musculus*) JANTAN GALUR Balb/C HIPERLIPIDEMIA

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Latar Belakang: Hiperlipidemia berkontribusi pada aterosklerosis yang ditandai dengan peningkatan ketebalan dinding arteri dan penyempitan lumen. Daun binahong (*Anredera cordifolia*) mengandung metabolit sekunder dengan aktivitas antioksidan dan antihiperlipidemia. Penelitian ini bertujuan mengevaluasi efek ekstrak etanol 96% daun binahong terhadap ketebalan dinding dan diameter lumen arteri koroner mencit jantan Balb/C hiperlipidemia.

Metode: Penelitian ini merupakan penelitian *true experimental* dengan desain *posttest only control group*. Sebanyak 30 mencit diaklimatisasi selama 7 hari, kemudian diberi pakan tinggi lemak selama 14 hari untuk menginduksi hiperlipidemia (>130 mg/dL). Mencit dibagi menjadi enam kelompok: KN (pakan standar), K⁻ (pakan tinggi lemak), K⁺ (vitamin C 90 mg/kgBB), serta P1, P2, dan P3 yang menerima ekstrak binahong dosis 500, 1.000, dan 1.500 mg/kgBB selama 14 hari dengan tetap diberikan pakan tinggi lemak. Jaringan diwarnai dengan HE dan diamati pada perbesaran 400x. Analisis statistik menggunakan *One-Way ANOVA* dan uji *Post-Hoc Tukey HSD*.

Hasil: Ekstrak binahong mengandung metabolit sekunder yang secara signifikan menurunkan ketebalan dinding arteri dan meningkatkan diameter lumen pada dosis 1.000 mg/kgBB ($p < 0,05$) dibandingkan kelompok kontrol negatif yang hanya diberikan diet tinggi lemak.

Kesimpulan: Ekstrak etanol 96% daun binahong dosis 1.000 mg/kgBB menunjukkan perbaikan signifikan pada ketebalan dinding dan diameter lumen arteri koroner mencit hiperlipidemia, dengan efektivitas yang sebanding dengan vitamin C.

Kata kunci: *Anredera cordifolia*, hiperlipidemia, arteri koroner, diameter lumen, ketebalan dinding arteri, antioksidan.