

## ABSTRAK

### THE EFFECT LEAVES *Rhizophora apiculata* ETHANOL EXTRACT ADMINISTRATION OF 95% ON HISTOPATOLOGY OF CORONARY ARTERIES OF MALE WHITE RATS (*Rattus norvegicus*) INDUCED HIGH-FAT DIET

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**Background:** Atherosclerosis is a disease caused by an inflammatory process accompanied by an accumulation of lipids in the walls of the arteries. A common cause of atherosclerosis is dyslipidemia. Leaves *Rhizophora apiculata* contains alkaloids, flavonoids, triterpenoids, steroids, saponins and tannins which function as antidyslipidemic and antioxidant. The purpose of this study was to determine the effect of 95% ethanol extract leaves *Rhizophora apiculata* on the microscopic appearance of the coronary arteries of male white rats (*Rattus norvegicus*) induced by a high-fat diet.

**Method:** This research was an experimental study with a posttest only control group design carried out for 30 days using 30 experimental animals, *Rattus norvegicus* Sprague dawley strain. There were 6 treatment groups, namely KN given standard feed only, K+ were given quail egg yolk induction and simvastatin 10 mg/day, K- was given quail egg yolk induction, P1, P2, and P3 were given quail egg yolk induction and leaf extract, respectively. Leaves *Rhizophora apiculata* doses of 56 mg/KgBW, 28 mg/KgBW, and 14 mg/KgBW. The results of this study were analyzed using one-way ANOVA and followed by a post-hoc test.

**Result:** The results of the saphiro-wilk normality and levene homogeneity test results were  $p > 0.05$ . In the one-way ANOVA test, the diameter and thickness obtained  $p < 0.05$ , which indicates that there are significant differences between groups. The results of the post-hoc LSD test on K- diameter had a significant difference with P1, P2 and P3 and K- artery thickness had a significant difference with P1 and P2 ( $p < 0.05$ ).

**Conclusion:** Administration of 95% ethanol extract *Rhizophora apiculata* had a protective effect on the microscopic appearance of the coronary arteries in male white rats (*Rattus norvegicus*) Sprague Dawley strain induced by a high-fat diet with an effective dose 28 mg/kgBW.

**Keyword:** Coronary arteries, dyslipidemia, and *Rhizophora apiculata*.

## ABSTRAK

### EFEK PEMBERIAN EKSTRAK ETANOL 95% DAUN (*Rhizophora apiculata*) TERHADAP GAMBARAN MIKROSKOPIS ARTERI KORONARIA TIKUS PUTIH JANTAN (*Rattus norvegicus*) YANG DIINDUKSI DIET TINGGI LEMAK

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**Latar Belakang:** Aterosklerosis merupakan suatu penyakit disebabkan oleh proses inflamasi yang disertai dengan adanya penimbunan pada lipid dinding arteri. Penyebab umum dari aterosklerosis adalah dislipidemia. Daun (*Rhizophora apiculata*) mengandung alkaloid, flavonoid, triterpenoid, steroid, saponin dan tannin yang berfungsi sebagai antidislipidemia dan antioksidan. Tujuan penelitian ini untuk mengetahui efek ekstrak etanol 95% daun (*Rhizophora apiculata*) terhadap gambaran mikroskopis arteri koronaria tikus putih jantan (*Rattus norvegicus*) yang diinduksi diet tinggi lemak.

**Metode:** Penelitian ini berupa eksperimental dengan *posttest only control group design* dilakukan selama 30 hari menggunakan hewan coba *Rattus norvegicus* galur *Sprague dawley* berjumlah 30 ekor. Terdapat 6 kelompok perlakuan, yaitu KN hanya diberikan pakan standar, K+ diberi induksi kuning telur puyuh dan simvastatin 10 mg/hari, K- diberi induksi kuning telur puyuh, P1, P2, dan P3 berturut-turut diberi induksi kuning telur puyuh dan ekstrak daun *Rhizophora apiculata* dosis 56 mg/KgBB, 28 mg/KgBB, dan 14 mg/KgBB. Hasil penelitian ini di analisis menggunakan *one-way ANOVA* dan dilanjutkan dengan uji *post-hoc*.

**Hasil:** Hasil uji normalitas *saphiro-wilk* dan homogenitas *levene* mendapatkan hasil  $p > 0,05$ . Pada uji *one-way anova* diameter dan tebal arteri koronaria mendapatkan hasil  $p < 0,05$  yang menunjukkan terdapat perbedaan bermakna antar kelompok. Hasil uji *post-hoc LSD* pada diameter K- memiliki perbedaan bermakna dengan P1, P2 dan P3 dan tebal arteri K- memiliki perbedaan bermakna dengan P1 dan P2 ( $p < 0,05$ ).

**Kesimpulan:** Pemberian ekstrak etanol 95% daun (*Rhizophora apiculata*) memiliki efek protektif terhadap gambaran mikroskopis arteri koronaria pada tikus putih jantan (*Rattus norvegicus*) galur *Sprague Dawley* yang diinduksi diet tinggi lemak dengan dosis efektif 28 mg/kgBB.

**Kata Kunci:** Arteri koronaria, Dislipidemia, dan *Rhizophora apiculata*