ABSTRACT

COMPARATIVE EFFECTS OF ROBUSTA AND ARABICA LAMPUNG COFFEE ON CORONARY ARTERY HISTOLOGY IN MALE *Sprague dawley* RATS (*Rattus norvegicus*)

By

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Background: Coffee consumption in Indonesia continues to rise, particularly for robusta and arabica varieties that differ in their caffeine and chlorogenic acid content. These variations can produce distinct biological responses in the cardiovascular system, including alterations in the structure of the coronary arteries. However, comparative studies examining the effects of robusta and arabica on the histological features of coronary arteries remain limited and therefore warrant further investigation.
Methods: This study employed an experimental design using a randomized controlled setup with a post-test only control group model. A total of 27 white rats aged 8–12 weeks were used as the study population and assigned to three treatment groups. The study consisted of a negative control group (K−) that received only standard feed, treatment group 1 (P1) that was administered Lampung robusta coffee at a dose of 1.38 grams/ 2 mL of water, and treatment group 2 (P2) that was administered Lampung arabica coffee at a dose of 1.38 grams/ 2 mL of water. Data were analyzed using the parametric one-way ANOVA followed by a post-hoc HSD test to determine differences between groups.
Results: The K(−) group exhibited a relatively thinner coronary artery wall compared to the treatment groups. The histological structure of the coronary artery wall in the P1 and P2 groups showed noticeable thickening. There was a significant difference between the normal and treatment groups; however, no significant difference was observed between the P1 and P2 groups.
Conclusions: : There was no significant difference in the average coronary artery wall thickness of male *Sprague dawley* rats (*Rattus norvegicus*) administered Lampung robusta compared with those given Lampung arabica.

Keywords: coronary artery, coronary artery histology, Lampung arabica coffee, Lampung robusta coffee, *Sprague dawley*

ABSTRAK

PERBANDINGAN EFEK PEMBERIAN KOPI ROBUSTA DAN ARABIKA LAMPUNG TERHADAP GAMBARAN HISTOLOGI ARTERI KORONARIA TIKUS PUTIH (*Rattus norvegicus*) JANTAN GALUR *Sprague dawley*

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Latar Belakang: Konsumsi kopi di Indonesia terus meningkat, terutama pada jenis robusta dan arabika yang memiliki perbedaan kandungan kafein dan asam klorogenat. Variasi kandungan tersebut dapat menimbulkan respons biologis yang berbeda pada sistem kardiovaskular, termasuk pada struktur arteri koronaria. Namun, perbandingan efek robusta dan arabika terhadap gambaran histologi arteri koronaria belum banyak diteliti sehingga perlu dikaji lebih lanjut.
Metode: Penelitian ini menerapkan desain eksperimental dengan menggunakan rancangan acak terkontrol dan model *post-test only control group*. Sebanyak 30 ekor tikus putih berusia 8–12 minggu digunakan sebagai populasi dan dibagi ke dalam tiga kelompok perlakuan, yaitu kelompok kontrol negatif (K-) yang hanya diberi pakan standar, kelompok perlakuan 1 (P1) yang diberi kopi robusta Lampung 1,38 gram/ 2 mL air, dan kelompok perlakuan 2 (P2) yang diberi kopi arabika Lampung 1,38 gram/ 2 mL. Selanjutnya dilakukan analisis data menggunakan uji parametrik *ONE-WAY ANOVA* dan *Post-hoc HSD* untuk melihat perbedaan antar kelompok.
Hasil: Kelompok K(-) memiliki dinding arteri koronaria yang cenderung tipis dibandingkan dengan kelompok perlakuan. Susunan histologi dinding arteri koronaria pada kelompok P1 dan P2 mengalami penebalan. Terdapat perbedaan yang signifikan antara kelompok normal dan perlakuan. Namun tidak ada perbedaan yang signifikan antara kelompok P1 dan P2.
Kesimpulan: Tidak terdapat perbedaan yang bermakna pada rata-rata ketebalan dinding arteri koronaria tikus putih (*Rattus norvegicus*) jantan galur *Sprague dawley* yang diberi kopi robusta dengan arabika Lampung.

Kata Kunci: arteri koronaria, histologis arteri koronaria, kopi arabika Lampung, kopi robusta Lampung, *Sprague dawley*