

**Pengaruh Pemberian Ekstrak Daun Sukun (*Artocarpus altilis*) terhadap
Kadar Insulin pada Tikus Putih (*Rattus norvegicus*) Model Tinggi Lemak**

ABSTRAK

Latar Belakang : Konsumsi tinggi lemak berkontribusi terhadap gangguan metabolik, termasuk disfungsi sel beta pankreas yang ditandai penurunan sekresi insulin akibat peningkatan stres oksidatif. Metformin diketahui memiliki efek protektif terhadap sel beta pankreas, tetapi dapat menimbulkan efek samping. Daun sukun (*Artocarpus altilis*) mengandung flavonoid, tanin, dan saponin yang bersifat antioksidan dan berpotensi melindungi sel beta pankreas, tetapi pengaruhnya terhadap kadar insulin pada model diet tinggi lemak masih terbatas.

Metode : Penelitian ini merupakan studi analitik dengan desain kausal komparatif menggunakan data sekunder dari penelitian eksperimental sebelumnya. Subjek terdiri dari 30 ekor tikus putih jantan galur *Sprague-Dawley* yang dibagi menjadi lima kelompok, yakni kontrol negatif, kontrol positif (metformin), serta tiga kelompok perlakuan ekstrak daun sukun dosis 200, 300, dan 400 mg/kgBB. Seluruh tikus diinduksi diet tinggi lemak sebelum pemberian perlakuan. Kadar insulin diukur dari serum menggunakan metode ELISA. Analisis data dilakukan menggunakan uji *One-Way ANOVA* yang dilanjutkan dengan uji *post hoc Tukey HSD*.

Hasil : Hasil uji *One-Way ANOVA* menunjukkan adanya perbedaan kadar insulin yang bermakna antar kelompok ($p < 0,05$). Pemberian ekstrak daun sukun meningkatkan kadar insulin dengan pola dosis – respons. Uji *post hoc Tukey HSD* menunjukkan bahwa dosis 400 mg/kgBB meningkatkan kadar insulin secara signifikan dibandingkan kontrol dan menunjukkan efek yang sebanding dengan metformin.

Kesimpulan : Ekstrak daun sukun berpengaruh meningkatkan kadar insulin pada tikus diet tinggi lemak dengan dosis 400 mg/kgBB memberikan efek tertinggi dan mendekati kelompok metformin.

Kata Kunci : Ekstrak daun sukun, *Artocarpus altilis*, insulin, diet tinggi lemak, tikus *Sprague-Dawley*

The Effect of Breadfruit Leaf (*Artocarpus altilis*) Extract on Insulin Levels in High-Fat Diet Induced White Rats (*Rattus norvegicus*)

ABSTRACT

Background : High-fat consumption contributes to metabolic disorders, including pancreatic beta-cell dysfunction characterized by decreased insulin secretion due to increased oxidative stress. Metformin is known to have protective effects on pancreatic beta cells; however, its use may cause adverse effects. Breadfruit leaves (*Artocarpus altilis*) contain flavonoids, tannins, and saponins with antioxidant properties and potential protective effects on pancreatic beta cells. Nevertheless, evidence regarding the effect of breadfruit leaf extract on insulin levels in high-fat diet models remains limited.

Methods : This study was an analytic study with a causal-comparative design using secondary data derived from a previous experimental study. The subjects consisted of 30 male Sprague-Dawley rats divided into five groups: negative control, positive control (metformin), and three treatment groups receiving breadfruit leaf extract at doses of 200, 300, and 400 mg/kg body weight. All rats were induced with a high-fat diet prior to treatment. Serum insulin levels were measured using the ELISA method. Data analysis was performed using One-Way ANOVA followed by Tukey HSD post hoc test.

Results : One-Way ANOVA analysis demonstrated a statistically significant difference in insulin levels among groups ($p < 0.05$). Administration of breadfruit leaf extract increased insulin levels in a dose-response manner. Tukey HSD post hoc analysis showed that the 400 mg/kg body weight dose significantly increased insulin levels compared to the negative control and exhibited an effect comparable to metformin.

Conclusion : Breadfruit leaf extract increases insulin levels in high-fat diet-induced rats, with a dose of 400 mg/kg body weight showing the highest effect and approaching that of metformin

Keywords : Breadfruit leaf extract, *Artocarpus altilis*, insulin, high-fat diet, Sprague-Dawley rats