

Pengaruh Pemberian Produk Olahan Pangan Fungsional *Black Rice Crunch* terhadap Indeks Lee, Kadar Glukosa, SGPT, dan Bilirubin Darah Tikus Putih (*Rattus norvegicus* Berkenhout, 1769) Obesitas

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INTISARI

Produk olahan pangan fungsional *black rice crunch* (BRC) merupakan produk berbahan dasar beras hitam. Beras hitam sebagai pangan fungsional telah diteliti berkaitan dengan perannya dalam memperbaiki fungsi hati. Obesitas berkaitan erat dengan gangguan fungsi hati yang biasa disebut sebagai *Non-Alcoholic Fatty Liver Disease* (NAFLD). Kondisi obesitas dapat diketahui melalui pengukuran indeks Lee. Kondisi NAFLD menyebabkan diproduksi spesies oksigen reaktif (ROS) yang menyebabkan stres oksidatif seperti peroksidasi lipid hingga berujung pada nekrosis hepatosit dan mengeluarkan komponen intraselulernya. Penelitian ini dilakukan untuk mengetahui pengaruh BRC terhadap tikus obesitas berdasarkan parameter indeks Lee, kadar glukosa, SGPT, dan bilirubin darah. Sebanyak 25 ekor *Rattus norvegicus* Wistar jantan dibagi menjadi lima kelompok perlakuan berdasarkan perbandingan komposisi diet tinggi lemak (DTL) dan BRC. Pengukuran indeks Lee dan koleksi darah untuk analisis biokimia tiap kelompok dilakukan pada perlakuan preobesitas, perlakuan pascaobesitas, empat minggu pascaperlakuan BRC, dan delapan minggu pascaperlakuan BRC. Data indeks Lee dan hasil uji darah dianalisis dengan *one way ANOVA* ($p < 0.05$) dilanjutkan dengan *Tukey's comparison test* menggunakan program GraphPad Prism9. Hasil penelitian menyatakan kelompok dengan perlakuan pemberian DTL:BRC sebanyak 1:3 (BRC3) menunjukkan adanya perbaikan fungsi hati berdasarkan kadar parameter penelitian menuju pada kadar yang lebih normal/mendekati nilai kontrol. Hal ini disebabkan oleh kandungan antosianin yang tinggi pada BRC yang berperan sebagai senyawa hepatoprotektor.

Kata kunci: beras hitam, BRC, obesitas, fungsi hati, antosianin

Effect of Functional Processed Food Product *Black Rice Crunch* on Lee Index, Levels of Glucose, SGPT, and Blood Bilirubin of Obese Albino Rats (*Rattus norvegicus* Berkenhout, 1769)

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ABSTRACT

Processed functional food product black rice crunch (BRC) is a product made from black rice. Black rice as a functional food has been studied in relation to its role in improving liver function. Obesity is closely related to impaired liver function which is commonly referred to as Non-Alcoholic Fatty Liver Disease (NAFLD). The condition of obesity can be identified by measuring the Lee index. The condition of NAFLD causes the production of reactive oxygen species (ROS) which causes oxidative stress such as lipid peroxidation which leads to hepatocyte necrosis and release of its intracellular components. This study was conducted to determine the effect of BRC on obese rats based on Lee index parameters, glucose levels, SGPT, and blood bilirubin. A total of 25 male *Rattus norvegicus* Wistar were divided into five treatment groups based on a comparison of diet tinggi lemak (DTL) or high fat diet and BRC compositions. Measurement of Lee index and blood collection for biochemical analysis of each group was carried out in the preobesity treatment, postobesity treatment, four weeks postBRC treatment, and eight weeks postBRC treatment. Data on Lee index and blood test results were analyzed using one way ANOVA ($p < 0.05$) followed by Tukey's comparison test using the GraphPad Prism9 program. The results of the study stated that the group treated with DTL:BRC as much as 1:3 (BRC3) showed an improvement in liver function based on the levels of the research parameters towards more normal levels/equal to control. This is due to the high anthocyanin content in BRC which acts as a hepatoprotector compound.

Keywords: black rice, BRC, obesity, liver function, anthocyanins