

EFEK PEMBERIAN KEFIR SUSU KAMBING BERBAGAI DOSIS TERHADAP KADAR MALONDIALDEHID (MDA) TIKUS PUTIH GALUR WISTAR MODEL DIABETES MELITUS TIPE 2

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ABSTRAK

Pendahuluan: Diabetes melitus tipe 2 memicu kondisi hiperglikemia sehingga menyebabkan stres oksidatif. Kondisi stres oksidatif ditandai dengan peningkatan produksi *reactive oxygen species* (ROS) yang mengoksidasi *polyunsaturated fatty acid* (PUFA) di membran sel dan menghasilkan hidroperoksida. Hidroperoksida ini dapat dipecahkan, menghasilkan zat reaktif seperti malondialdehid (MDA). Tujuan penelitian ini untuk mengetahui efek pemberian kefir susu kambing berbagai dosis terhadap kadar MDA tikus putih galur Wistar model diabetes melitus tipe 2.

Metode: Penelitian ini menggunakan metode *true experimental* dengan pendekatan *posttest only with control group design*. Tiga puluh ekor tikus dibagi ke dalam lima kelompok secara acak. Kelompok A sebagai kontrol sehat, kelompok B sebagai kontrol sakit yang induksi HFD-STZ-DM tipe 2, kelompok perlakuan C, D, E yang diinduksi HFD-STZ-DMT2 dan diberi kefir susu kambing selama 28 hari dengan dosis berturut turut, yaitu 1,05, 2,1, dan 4,2 mL/200gBB/hari.

Hasil: Secara statistik, rerata kadar MDA (nmol) pada setiap kelompok tikus, yaitu kelompok A = $1,58 \pm 0,74$; kelompok B = $1,85 \pm 0,71$; kelompok C = $2,89 \pm 0,74$; kelompok D = $2,50 \pm 0,83$; kelompok E = $2,28 \pm 0,75$. Hasil uji non parametrik *Kruskal-Wallis* menunjukkan nilai $p = 0,145$ yang berarti tidak terdapat perbedaan rerata kadar MDA yang signifikan antar kelompok.

Kesimpulan: Kefir susu kambing berbagai dosis tidak berpengaruh signifikan terhadap kadar MDA tikus putih (*Rattus norvegicus*) model DM tipe 2.

Kata Kunci: DM tipe 2, Kefir Susu Kambing, Malondialdehid

EFFECTS OF GIVING VARIOUS DOSES OF GOAT'S MILK KEFIR ON MALONDIALDEHYDE (MDA) LEVELS OF WHITE RATS OF WISTAR STRAIN IN TYPE 2 DIABETES MELLITUS MODEL

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ABSTRACT

Introduction: Type 2 diabetes mellitus triggers hyperglycemia, resulting in an imbalance in the number of free radicals and antioxidants in the body, causing oxidative stress. Oxidative stress conditions are characterized by increased production of reactive oxygen species (ROS) which oxidize polyunsaturated fatty acids (PUFA) in cell membranes and produce hydroperoxides. These hydroperoxides can be broken down, producing reactive substances such as Malondialdehyde (MDA). The aim of this study was to determine the effect of giving various doses of goat's milk kefir on the MDA levels of Wistar white rats, a model of type 2 diabetes mellitus.

Method: This research uses a true experimental method with a posttest only approach with control group design. Thirty mice were divided into five groups randomly. Group A was a healthy control, group B was a diseased control that was induced by HFD-STZ-DM type 2, treatment groups C, D, E were induced by HFD-STZ-DMT2 and were given goat's milk kefir for 28 days with successive doses, namely 1.05, 2.1, and 4.2 mL/200gBW/day.

Results: Statistically, the average MDA level (nmol) in each group of mice, namely group A = 1.58 ± 0.74 ; group B = 1.85 ± 0.71 ; group C = 2.89 ± 0.74 ; group D = 2.50 ± 0.83 ; group E = 2.28 ± 0.75 . The results of the non-parametric Kruskal-Wallis test showed a p value = 0.145, which means there was no significant difference in mean MDA levels between groups.

Conclusion: Goat's milk kefir at various doses did not have a significant effect on MDA levels in white rats (*Rattus norvegicus*) with type 2 DM.

Keywords: DM type 2, Goat's Milk Kefir, Malondialdehyde