

PENGARUH PEMBERIAN KECAMBAH KACANG HIJAU (*Phaseolus radiatus* (L.)) TERHADAP KADAR MALONDEALDEHID (MDA) PLASMA DAN JARINGAN HATI PADA TIKUS *SPRAGUE DAWLEY* YANG DIBERI PAKAN LEMAK TINGGI

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INTISARI

Latar Belakang: Hiperlipidemia merupakan faktor risiko terjadinya penyakit kardiovaskular seperti penyakit jantung koroner (PJK) dan stroke. Hiperlipidemia menyebabkan asam lemak tak jenuh ganda mudah teroksidasi dan menghasilkan senyawa malondealdehid (MDA). Malondealdehid bersifat toksik sehingga merusak membran plasma dan jaringan hati. Kecambah kacang hijau diketahui mengandung senyawa antioksidan yang dapat menghambat proses peroksidasi lipid.

Tujuan: Untuk mengetahui pengaruh pemberian kecambah kacang hijau terhadap kadar MDA plasma dan MDA jaringan hati tikus *Sprague Dawley* yang diberi pakan lemak tinggi.

Metode: Jenis penelitian eksperimental dengan *desain post-test only with control group*. Tikus *Sprague Dawley* jantan sebanyak 35 ekor dibagi menjadi 5 kelompok. Kelompok K1 diberi pakan standar. Kelompok K2 diberi pakan lemak tinggi tanpa kecambah kacang hijau. Kelompok P1 diberi pakan lemak tinggi dan kecambah kacang hijau dosis 0,5 mL/gBB. Kelompok P2 diberi pakan lemak tinggi dan kecambah kacang hijau dosis 1 mL/gBB. Kelompok P3 diberi pakan lemak tinggi dan vitamin E dosis 23 IU. Semua kelompok diberikan perlakuan selama 28 hari. Analisis kadar MDA plasma dan jaringan hati dilakukan setelah perlakuan.

Hasil: Rerata kadar MDA plasma tikus kelompok K2 ($3,97 \pm 0,19$ nmol/mL) lebih tinggi daripada tikus kelompok P1 ($2,94 \pm 0,09$ nmol/mL), tikus kelompok P2 ($1,73 \pm 0,08$ nmol/mL), dan tikus kelompok P3 ($1,53 \pm 0,07$ nmol/mL). Rerata kadar MDA jaringan hati tikus kelompok K2 ($4,90 \pm 0,29$ nmol/g) lebih tinggi daripada tikus kelompok tikus P1 ($3,68 \pm 0,45$ nmol/g), tikus kelompok P2 ($2,27 \pm 0,10$ nmol/g), dan tikus kelompok P3 ($2,01 \pm 0,11$ nmol/g).

Kesimpulan: Kadar MDA plasma dan jaringan hati tikus kelompok P1 dan P2 lebih rendah daripada kadar MDA plasma dan jaringan hati tikus pada kelompok K2, namun lebih tinggi daripada kadar MDA plasma dan jaringan hati tikus kelompok P3. Terdapat hubungan dengan kategori sangat kuat antara kadar MDA plasma dengan MDA jaringan hati tikus yang diberi kecambah kacang hijau dan pakan lemak tinggi.

Kata Kunci: kecambah kacang hijau, pakan lemak tinggi, MDA plasma, MDA jaringan hati, vitamin E

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THE EFFECT OF MUNG BEAN SPROUTS (*Phaseolus radiatus* (L)) TO LEVEL OF PLASMA MALONDEALDEHYDE (MDA) AND LIVER TISSUE OF *SPRAGUE DAWLEY* RATS HIGH FAT DIET

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ABSTRACT

Background: High fat diet increases the levels of fat, especially cholesterol and triglycerides that cause hyperlipidemia. Polyunsaturated fatty acids are very easily oxidized by free radicals reactive oxygen species (ROS) called lipid peroxidation, to produce compounds that malondialdehyde (MDA), is toxic and can damage plasma membrane and liver tissue. Mung bean sprouts are known to contain antioxidants which acts to inhibit lipid peroxidation process.

Objective: Determine the effect of mung bean sprouts to the level of plasma MDA and liver tissue of rats *Sprague Dawley* given fed high fat.

Methods: This research is an experimental study with only post-test design with control group. Thirty five male *Sprague Dawley* rats were divided into 5 groups. Group K1 received fed standard. K2 received high fat diet without mung bean sprouts. Group P1 received high fat diet and mung bean sprouts dose of 0.5 mL/gBW. Group P2 received high fat diet and mung bean sprouts dose of 1 mL/gBW. Group P3 received high fat diet and vitamin E doses of 23 IU. All groups were given treatment for 28 days. Analysis of plasma MDA and liver tissue performed after treatment.

Results: Mean MDA plasma level in the group K2 (3.97 ± 0.19 nmol/mL) was higher than the group of P1 (2.94 ± 0.09 nmol/mL), the group of P2 (1.73 ± 0.08 nmol/mL), and the group of P3 (1.53 ± 0.07 nmol/mL). Mean MDA liver tissue level in the group of K2 (4.90 ± 0.29 nmol/g) was higher than the group of P1 (3.68 ± 0.45 nmol/g), the group of P2 (2.27 ± 0.10 nmol/g), and the group of P3 (2.01 ± 0.11 nmol/g).

Conclusion: The level of MDA plasma and liver tissue of rat in the group of P1 and P2 lower than level of MDA plasma and liver tissue of rat in the group of K2, but higher than level of MDA plasma and liver tissue of rat in the group of P3. There was very strong correlation between level of MDA plasma and liver tissue of rat were given the mung bean sprouts and high fat diet.

Keyword: Mung bean sprouts, high fat diet, plasma MDA, liver tissue MDA, vitamin E

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