ABSTRAK

PENGARUH PEMBERIAN EKSTRAK JAMUR MERANG (*Volvariella volvacea*) TERHADAP KADAR KOLESTEROL TOTAL, ENZIM LpPLA$_2$ DAN MDA DARAH
Studi pada *Rattus novergicus* galur Wistar yang diberi diet tinggi lemak

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Latar belakang: Konsumsi diet tinggi lemak (DTL) dapat meningkatkan kadar kolesterol total, enzim LpPLA$_2$ dan MDA darah yang merupakan penyebab aterosklerosis yang dapat dikendalikan oleh antioksidan. Ekstrak jamur merang (EJM) memiliki senyawa antioksidan. Penelitian ini membuktikan pengaruh pemberian ekstrak jamur merang terhadap kadar kolesterol total (TC), enzim LpPLA$_2$, MDA darah dan korelasi antara TC dengan enzim LpPLA$_2$, MDA darah.
Metode penelitian: *Randomized post test only control group* pada 24 ekor tikus Rattus novergicus galur Wistar jantan usia 8-10 minggu berat 180-200 gram, dibagi 4 kelompok yaitu K1 (kontrol negatif) dengan diet standar, K2 (kontrol positif) dengan DTL, X1 dan X2 masing-masing DTL+EJM dosis 500 mg/kgBB/hari dan dosis 1000 mg/kgBB/hari. Semua perlakuan dilakukan selama 56 hari. Kadar TC diperiksa dengan metode *enzymatic colorimetric test*, enzim LpPLA$_2$ dengan metode ELISA dan MDA dengan metode TBARS. Analisis data dengan *one way Anova, post hoc LSD* dan korelasi *Pearson.*
Hasil: Rerata kadar TC K1 (91,28±1,55 mg/dL), K2 (181,96±4,19 mg/dL), X1 (122,94±2,75 mg/dL) dan X2 (105,86±2,25 mg/dL); *p*=0,001. Rerata kadar enzim LpPLA$_2$ K1 (2,65±3,19 ng/mL), K2 (1,29±1,35 ng/mL), X1 (3,92±2,18 ng/mL) dan X2 (2,05±3,29 ng/mL); *p*=0,385. Rerata kadar MDA darah K1 (1,17±0,12 nmol/mL), K2 (5,75±0,21 nmol/mL), X1 (2,96±0,91 nmol/mL) dan X2 (1,77±0,92 nmol/mL); *p*=0,001. Korelasi antara TC dan enzim LpPLA$_2$ ditunjukkan oleh kelompok X1 dengan *p*=0,042 (r = - 0,827).
Simpulan: EJM menurunkan kadar kolesterol total dan MDA darah secara signifikan, namun tidak menurunkan kadar enzim LpPLA$_2$ darah secara signifikan. Terdapat korelasi antara kolesterol total dan enzim LpPLA$_2$ dan tidak terdapat korelasi antara kolesterol total dan MDA darah.

Kata Kunci: Diet tinggi lemak, kolesterol total, enzim LpPLA$_2$, MDA, ekstrak jamur merang

ABSTRACT

THE EFFECT OF PADDY STRAW MUSHROOM (Volvariella volvacea) EXTRACT ON BLOOD TOTAL CHOLESTEROL, LpPLA$_2$ ENZYME AND MDA LEVEL
Study on male Rattus novergicus Wistar strain with high fat diet

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Background: Consumption of high-fat diet (HFD) is increasing blood total cholesterol, LpPLA$_2$ enzyme and MDA level which is a cause of atherosclerosis that should be controlled by antioxidants. Paddy straw mushroom *(Volvariella v.)* extract has an antioxidant compounds. This research proves the effect of *Volvariella v.* extract on blood total cholesterol (TC), LpPLA$_2$ enzyme and MDA level, and proves correlation between TC with LpPLA$_2$ enzyme and MDA level.
Methods: A randomized post test only control group design to twenty four of 8-10 weeks old male Rattus novergicus Wistar strain with 180-200 gram were divided into four group; K1 with standard diet, K2 with HFD, each X1 and X2 with HFD+*Volvariella v.* extract 500 mg/kg.bwt/day and 1000 mg/kg.bwt/day. All treatments for 56 days. TC levels assesed by enzymatic colorimetric test method, LpPLA$_2$ enzyme with ELISA method and MDA with TBARs method. Data were analyzed by one way Anova, LSD post hoc and Pearson's correlation.
Results: TC mean of K1 (91,28±1,55 mg/dL), K2 (181,96±4,19 mg/dL), X1 (122,94±2,75 mg/dL) and X2 (105,86±2,25 mg/dL); p=0,001. Enzyme LpPLA$_2$ mean of K1 (2,65±3,19 ng/mL), K2 (1,29±1,35 ng/mL), X1 (3,92±2,18 ng/mL), X2 (2,05±3,29 ng/mL); p=0,385 and blood MDA mean of K1 (1,17±0,12 nmol/mL), K2 (5,75±0,21 nmol/mL), X1 (2,96±0,91 nmol/mL) and X2 (1,77±0,92 nmol/mL); p=0,001. Correlation between TC and LpPLA$_2$ enzyme was shown by X1 group (p=0,042; r = - 0,827).
Conclusion: *Volvariella v*. extract decreased blood total cholesterol and MDA level significantly, did not significant to LpPLA$_2$ enzyme. There wss a correlation between TC and LpPLA$_2$ enzyme but was not to TC and blood MDA.

Key: High fat diet, total kolesterol, LpPLA$_2$ enzymes, MDA, *Volvariella v.* extract