

Toksisitas toluena pada darah tikus wistar jantan dengan pemeriksaan malondialdehid plasma dan darah tepi = Toxicity male wistar rats in the blood examination malondialdehyde plasma and blood bank

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Abstrak

Toluena dijumpai tersebar di lingkungan kita. Manusia terpapar logam ini dari berbagai sumber seperti udara, air, tanah dan makanan yang terkontaminasi. Terdapat beberapa penelitian yang menunjukkan bahwa toluena menyebabkan stres oksidatif dengan meningkatkan pembentukan reactive oxygen species dan menurunkan sistem anti-oksidan. Peroksidasi lipid meningkat karena terganggunya keseimbangan oksidan dan anti-oksidan, yang diukur dengan kadar malondialdehyde. Penelitian ini bertujuan mengetahui pengaruh pemberian berbagai pajanan toluena terhadap peroksidasi lipid. Tiga puluh ekor tikus wistar jantan dengan berat badan 200-250 gram dibagi dalam lima kelompok. Kelompok I sebagai kontrol, kelompok II sampai V berturut-turut mendapat toluena secara inhalasi, dosis 12.5 ppm, 25 ppm, 50 ppm, dan 100 ppm, yang dipajan selama 4 jam/hari. Setelah 14 hari berturut-turut, dilakukan pengukuran kadar malondialdehyde plasma dan darah tepi. Peningkatan kadar malondialdehyde pada kelompok IV, secara statistik tidak bermakna ($p=0,118$). Peningkatan tersebut sejalan dengan peningkatan pajanan toluena yang diberikan, kecuali kelompok V. Beberapa hasil darah tepi, yang tidak bermakna secara statistik yaitu HB, Hematokrit, leukosit, neutrofil, limfosit dan monosit. Sedangkan eritrosit, VER, HER, KHER, trombosit, dan eosinofil secara statistic menunjukkan adanya perbedaan bermakna.

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Toulene can be found in our environment. Humans are exposed to these metal from various sources such as air, water, soil, and contaminated food. There are several studies that show that toluene causes oxidative stress by increasing the formation of reactive oxygen species and decreasing the anti-oxidant system. Increased lipid peroxidation are due to the disruption of the balance of oxidants and antioxidants, as measured by levels of malondialdehyde. This study aims to determine the effect of various exposure of toluene towards lipid peroxidation. Thirty male wistar rats weighing 200-250 grams are divided into five groups. Group I as a control variable, group II to group V each gets toluene through inhalaton, with 12.5 ppm, 25 ppm, 50 ppm, dan 100 ppm doses, which are exposed for 4 hours/day. After 14 consecutive days, a measurement of the levels of malondialdehyde plasma and peripheral blood is done. Increase in levels of malondialdehyde in group IV is not statistically significant ($p=0,118$). This increase is in line with the increase of given toluene exposure, except for group V. Some of the results of peripheral blood, which was not statistically significant HB, hematocrit, leukocytes, neutrophil, lymphocytes and monocytes. While erythrocytes, MCV, MCH, MCHC, platelets and eosinophils statically shows significant difference.