Pengaruh pemberian monosodium glutamat (MSG) terhadap stres oksidatif pada hati tikus rattus norvegicus = The effect of monosodium glutamate (MSG) on oxidative stress in rats liver rattus norvegicus

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Abstrak

Monosodium glutamat (MSG) adalah garam natrium glutamat yang merupakan asam amino nonessensial yang dapat bersifat eksitotoksik. Terdapat dugaan bahwa glutamat berpotensi menyebabkan peningkatan stres oksidatif di hati dengan mekanisme yang sama dengan eksitotoksisitas karena reseptor glutamat juga ditemukan di hati.

Penelitian ini bertujuan untuk mengetahui pengaruh MSG terhadap peningkatan stres oksidatif pada hati tikus (Rattus norvegicus) jantan. Parameter yang diukur adalah kadar MDA, GSH, dan aktivitas spesifik katalase sebagai penanda adanya stres oksidatif. Sebanyak 27 ekor tikus putih (Rattus norvegicus) jantan dibagi dalam 3 kelompok: kelompok kontrol (diberi akuades), kelompok P1A (diberi MSG 4g/KgBB), dan kelompok P2A (diberi MSG 6g/KgBB). Perlakuan diberikan melalui sonde selama 30 hari. Pengambilan sampel hati dilakukan pada hari ke-31.

Hasil penelitian menunjukkan terdapat peningkatan kadar MDA pada kelompok perlakuan yang berbeda bermakna dengan kelompok kontrol, p0,05, tetapi pada kadar GSH terjadi penurunan yang tidak berbeda bermakna dibandingkan kelompok kontrol, (p0,05). Aktivitas spesifik katalase, juga terjadi penurunan yang tidak berbeda bermakna dibandingkan dengan kelompok kontrol, p0,05.

Penelitian ini menunjukan bahwa pemberian MSG dengan dosis 4g/KgBB dan 6g/KgBB selama 30 hari menyebabkan terjadinya peningkatan stres oksidatif pada hati tikus (Rattus norvegicus) jantan yang ditunjukkan dengan peningkatan kadar MDA.

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Monosodium glutamate (MSG) is the sodium salt of glutamate which is a nonessential amino acid that may cause exicytotoxicity. There are allegations that glutamate could potentially increase an oxidative stress in the rat's liver by the same mechanism with exicytotoxicity because of glutamate receptors are also found in the liver.

This study aims to determine the effect of MSG on oxidative stress in the rat's liver. The level of MDA and GSH were measured as the marker of oxidative stress, and also specific activity of catalase. 27 albino rat's (Rattus norvegicus) were divided into 3 groups: control group (distilled water), and 2 treatment groups, P1A (treated with MSG 4g / KgBW), and P2A (treated with MSG 6g / KgBW). The treatment was carried out for 30 days. On day 31 the liver were collected after euthanasia of the rats.

The results showed there were increased levels of MDA in the treatment groups compare to control significantly, p0,05, but the decreased of GSH levels were not significantly different than the control group, (p0,05). The specific activity of catalase, also a decreasing but not significantly different compared to control group, p0,05.

This study showed that the administration of MSG with a dose of 4g / KgBW and 6g / KgBW for 30 days led to an increased in oxidative stress on the liver of rats (Rattus norvegicus) which is indicated by elevated levels of MDA.