Pengaruh Ekstrak Etanol Buah Mahkota Dewa (Phaleria macrocarpa) sebagai Pengkelat Besi pada Limpa Tikus Model Hemosiderosis = Effect of Phaleria macrocarpa's Fruit Ethanol Extract as Iron Chelator in Hemosiderosis-Modeled Rats'Spleen

Brilliant Beauty Artika Putri, author

Abstrak

Kelebihan besi dapat terjadi akibat transfusi berulang dan peningkatan absorpsi besi pada pasien talasemia. Talasemia dapat menyebabkan splenomegali dan hiperaktivitas limpa, sedangkan kelebihan besi menyebabkan kerusakan DNA dan stress oksidatif. Mangiferin dalam buah Phaleria macrocarpa memiliki potensi sebagai agen pengkelat besi dan antioksidan. Penelitian ini bertujuan untuk menguji ekstrak etanol buah Mahkota Dewa dalam menurunkan kadar besi organ limpa tikus yang mengalami iron overload. Tikus Sprague-Dawley 30 ekor dikelompokkan menjadi normal, kontrol negatif, deferiprone 462,5 mg/kgBB, mangiferin 50 mg/kgBB, Phaleria macrocarpa 100 mg/kgBB (PM1), dan Phaleria macrocarpa 200 mg/kgBB (PM2). Setiap kelompok, kecuali normal, diinjeksikan iron sucrose 15 mg sebanyak 2 kali seminggu secara intraperitoneal. Pada minggu ke-7, dilakukan pengambilan organ limpa untuk dibuatkan homogenat. Homogenat direaksikan dengan HNO3 dan asam perklorat, kemudian ditambahkan aquades dan disaring sebelum kadar besi diukur menggunakan Atomic Absorption Spectrometry (AAS). Kadar besi dimasukkan ke dalam rumus dan dianalisis dengan Kruskall-Wallis. Seluruh kelompok yang diinduksi besi memiliki kadar besi lebih tinggi dibandingkan kelompok normal. Kelompok deferiprone, mangferin, dan PM1 memiliki kadar besi cenderung lebih tinggi daripada kelompok negatif, sedangkan kadar besi PM2 cenderung lebih rendah. Kelompok PM2 menurunkan kadar besi lebih besar daripada PM1, mangiferin, dan deferiprone.

.....Iron overload can happen due to repeated transfusion and increased iron absorption in thalassemia patients. Thalassemia can cause splenomegaly and hypersplenism, while iron overload causes DNA’s damage and oxidative stress. Mangiferin from Phaleria macrocarpa’s fruit has potential as iron chelator and antioxidant. This study intends to evaluate ethanol extract of Phaleria macrocarpa’s fruit in reducing iron value in spleen from iron overloaded rats. A total of 30 Sprague-Dawley rats were sorted into normal group, negative control, deferiprone 462,5 mg/kgBW, mangiferin 50 mg/kgBW, Phaleria macrocarpa 100 mg/kgBW (PM1), and Phaleria macrocarpa 200 mg/kgBW (PM2). Every group, except normal, was administered with iron sucrose 15 mg twice a week through intraperitoneal. At week 7th, spleen organs were taken to create homogenates. Homogenates were reacted with HNO3 and perchlorate acid, then added with aquades and filtered before iron levels were measured by Atomic Absorption Spectrometry (AAS). Iron levels were inputted in the formula and analyzed using Kruskall-Wallis. All induced groups have higher iron levels compared to the normal group. Deferiprone, mangiferin, and PM1 tended to have higher iron levels compared to negative control, while iron levels of PM2 tended to be lower. PM2 group reduced iron levels more than PM1, mangiferin, and deferiprone.