

Efek induksi besi berlebih dan ekstrak daun mangifera foetida L. bersamaan terhadap kadar besi, ferritin, dan aktivitas antioksidan pada tikus spraque dawley = The effect of excess iron induction and leaves extract mangifera foetida L. given simultaneously to the levels of iron, ferritin, and anti oxidant activity in the spraque dawley rats

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Abstrak

Latar Belakang: Sampai saat ini belum ada terapi yang digunakan untuk mencegah iron overload pada pasien talasemia. Studi terdahulu menunjukkan bahwa ekstrak daun Mangifera foetida L. dapat menurunkan kadar besi pada model iron overload in vitro dan in vivo. Penelitian ini bertujuan untuk mengetahui efikasi ekstrak daun Mangifera foetida L. dalam mencegah terjadinya iron overload pada tikus yang diinduksi besi.

Metode: Tiga puluh tikus Sprague-Dawley jantan dibagi menjadi 5 kelompok yaitu kelompok normal (tidak diberi perlakuan), kelompok iron overload (IO) dan kelompok dosis setara mangiferin (DSM) 50,100, dan 200 mg/kg BB. Kelompok IO, DSM 50, DSM 100, dan DSM 200 diberikan bersama dengan induksi Fe dekstran secara intraperitoneal 15 mg seminggu dua kali selama 4 minggu. Sebelum dan sesudah 4 minggu percobaan hewan coba diambil darah dan urinnya. Setelah 4 minggu hewan coba diterminasi dan diambil organ limpa, hati, dan jantung. Pemeriksaan yang dilakukan adalah aktivitas SOD plasma, Fe urin, Fe limpa, Fe plasma, kadar mangiferin darah, dan kadar ferritin darah.

Hasil: Ekstrak daun Mangifera foetida L. tidak dapat mencegah kenaikan Fe di plasma, dan limpa. Terjadi penurunan aktivitas SOD, yang disertai dengan peningkatan konsentrasi ferritin.

Kesimpulan: Ekstrak daun Mangifera foetida L. tidak terbukti dapat mencegah peningkatan kadar besi, ferritin dan penurunan aktivitas antioksidan pada tikus yang diinduksi besi.

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Introduction: Presently, there is no available agent for the prevention of iron overload in thalassemia patients. Previous studies had shown that Mangifera foetida L. leaves extract reduced the levels of iron in iron overload in vitro and in vivo models. The present study aimed to determine the efficacy of Mangifera foetida L. leaves extract in the prevention of iron overload in the rats induced with iron.

Methods: Thirty male Sprague-Dawley rats were divided into 5 groups treated with: none (untreated), iron overload (IO), equivalent dose group mangiferin (DSM) 50, DSM 100 and DSM 200 mg / kg BB. Fe dextran 15 mg intraperitoneal twice weekly for 4 weeks were given together with IO group, DSM 50, DSM 100 and DSM 200. Urine and blood samples were taken before and after treatments. After 4 weeks of treatment, rats were terminated and samples of spleen, liver, and heart were taken. SOD activities were done in plasma, Levels of Fe were determined in plasma, urine and spleen, while Ferritin and mangiferin levels were determined from plasma.

Results: *Mangifera foetida* L. leaves extract did not prevent the increase of Fe plasma, and spleen. SOD activities were shown to decrease, along with the increase of ferritin concentrations.

Conclusion: *Mangifera foetida* L. leaves extract could not prevent the increased levels of iron, ferritin and decreased antioxidant activity in rats induced by iron.