Pengaruh Ekstrak Etanol Buah Dewa (Phaleria Macrocarpa) Terhadap Renal Hemosiderosis Pada Tikus Model Besi Berlebih = Effect Of Ethanolic Phaleria Macrocarpa (Mahkota Dewa) Fruit Extrac To Renal Hemosiderosis Of Iron Overload Rat Model

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Abstrak

Latar Belakang: Phaleria macrocarpa (PM) mengandung mangiferin yang memiliki kemampuan sebagai kelator besi dengan membentuk kompleks. Kompleks dapat menekan akumulasi besi pada pasien talasemia yang rutin transfusi. Kondisi besi berlebih dapat mempengaruhi terjadinya cedera organ ginjal. Penelitian bertujuan untuk mengetahui efektivitas ekstrak etanol buah PM sebagai agen kelator besi diamati pada organ ginjal tikus model besi berlebih.
Metode: 30 tikus Sprague-Dawley dibagi acak 6 kelompok: normal (N), besi berlebih (KN), besi berlebih diobati Deferiprone dosis 462,5 mg/kgBB (D), besi berlebih diobati mangiferin dosis 50mg /kgBB (M), besi berlebih diobati ekstrak PM dosis 100mg/kgBB (PM100), besi berlebih diobati ekstrak PM dosis 200mg/kgBB (PM200). Injeksi besi diberikan 2kali/minggu selama 3 minggu dilanjutkan 8 minggu bersama pengobatan. Kadar besi ginjal diukur menggunakan AAS. Kadar urea dan kreatinin plasma serta TNF-Î± ginjal diukur menggunakan kit.
Hasil: Mangiferin dari ekstrak terdeteksi pada ginjal tikus model besi berlebih diukur dengan HPLC. Mangiferin dan PM tidak dapat menurunkan kadar besi di organ ginjal dan kadar ureum plasma signifikan. Pengaruh mangiferin dan PM pada kadar kreatinin plasma tidak linier. Mangiferin dan PM dapat menurunkan kadar TNF-Î± ginjal signifikan dengan KN dan D.
Kesimpulan: Mangiferin dan PM memiliki potensi kelator besi dan menurunkan respon inflamasi pada kondisi besi berlebih.
.....Background: Mangiferin, active compound in Phaleria macrocarpa (PM), has been shown as an iron chelating agent by forming complexes. The complex can reduce iron accumulation in thalassemia patients receive transfusions. Renal organ failure can be impacted by the high iron. This study aims to determine the effectiveness of ethanolic extract of PM fruit as iron chelating agent observed in the kidney of iron overload rat.
Methods: 30 Sprague-Dawley divided randomly six groups: normal (N), iron-overload (KN), iron-overload treated Deferiprone dosage 462,5 mg/kgBW (D), iron-overload treated mangiferin dosage 50mg/kgBW (M), iron-overload treated PM extract dosage 100mg/kgBW (PM100) and iron-overload treated with PM extract dosage 200mg/kgBW (PM200). Iron injection was administered twice/week for 3 weeks, continued 8 weeks with treatment. Kidney iron levels of rats measured using AAS. Plasma urea and creatinine levels as well as renal TNF-Î± measured using kit.
Results: Mangiferin from extract was detected in the kidney of rat iron overload models which measured using HPLC. Mangiferin and PM cannot significantly reduce plasma urea and kidney iron levels. Effect of mangiferin and PM on plasma creatinine levels not linearly. Mangiferin and PM can reduce renal TNF-Î± levels significantly.
Conclusion: Mangiferin and PM have ability as iron chelator and reduce inflammatory response caused iron

overload.