

ABSTRAK

Kadmium banyak digunakan dalam kehidupan sehari-hari. Namun, kadmium dapat terakumulasi di berbagai organ tubuh, terutama di ginjal. Karena efek antioksidan, kelopak mawar dapat melindungi beberapa organ dalam tubuh dari berbagai radikal bebas seperti kadmium. Maka, penelitian ini bertujuan untuk mengetahui efek nefroprotektor dari kelopak mawar terhadap toksisitas kadmium. Penelitian ini merupakan penelitian eksperimen dengan menggunakan 25 ekor tikus putih jantan Wistar yang dibagi menjadi lima kelompok yaitu. kontrol (Na-CMC), Standar (Quercetin), Ekstrak Metanol Kelopak Mawar-I (400 mg/kg BB), II (800 mg/kg BB), dan III (1,2g/kg BB). Semua tikus menerima kadmium sulfat 7 mg/kg BB melalui peroral sekitar 30 menit setelah tikus menerima ekstrak quercetin atau ekstrak methanol kelopak mawar. Setelah empat minggu perlakuan, semua tikus dikorbankan untuk diambil darah dan jaringan ginjalnya. Darah dan jaringan ginjal masing-masing digunakan untuk pemeriksaan fungsi ginjal dan histologi. Hasil penelitian menunjukkan bahwa kadar urea tertinggi dan terendah terdapat pada kelompok kontrol ($106,00 \pm 35,66$ mg/dl) dan kelompok standar ($47,40 \pm 3,911$ mg/dl). Sedangkan kreatinin tidak berbeda nyata pada semua kelompok (P-value = 0,286). Gambaran histologi ginjal dari seluruh kelompok perlakuan, kelompok kontrol menunjukkan gambaran kerusakan jaringan ginjal yang paling berat. Sementara itu, kelompok tikus yang mendapat dosis lainnya (Ekstrak metanol bunga Mawar-II dan III) gambaran kerusakan ginjal cenderung minimal seperti pada kelompok standard. Oleh karena itu, dapat disimpulkan bahwa ekstrak kelopak bunga mawar memiliki efek nefroprotektif terhadap toksisitas kadmium.

Kata kunci: Kelopak mawar, kadmium, nefroprotektif, quercetin

ABSTRACT

Cadmium, a metal, is widely used in everyday life. However, it can accumulate in various organs in the body, especially in the kidney. Due to the antioxidant effect, the rose petal can protect several organs in the body against various free radicals like cadmium. Hence, this study was aimed to investigate the kidney protection effect from the rose petal against the toxicity of cadmium. This study was an experimental study that used 25 Male Wistar rats which divided into five different groups viz. control (Na-CMC), Standard (Quercetin), Rose Petal Methanol Extract-I (400 mg/kg BW), II (800 mg/kg BW), and III (1.2g/kg BW). All rats received 7 mg/kg BW cadmium sulfate via peroral about 30 minutes after the rats received either quercetin extract or rose petal methanol extract.. After four weeks of treatment, all rats were sacrificed to collect the blood and kidney tissue. The blood and kidney tissue were used for renal function tests and histology study, respectively. This study showed that the highest levels and lowest urea levels were found in the control group (106.00 ± 35.66 mg/dl) and standard group (47.40 ± 3.911 mg/dl), respectively. Meanwhile, the creatinine did not significantly differ in all groups (P -value = 0.286). Histology of the kidneys from all treatment groups, the control group showed the most severe damage to kidney tissue. Meanwhile, the group of rats that received other doses (Rose flower methanol extract-II and III) showed minimal kidney damage as in the standard group. Therefore, it can be concluded that rose petal extract has a nephroprotective effect against cadmium toxicity. Hence, it can be concluded that the rose petals extract has a nephroprotective against cadmium toxicity.

Keywords: Rose petals, cadmium, nephroprotective, quercetin