ABSTRAK

Penelitian ini bertujuan untuk mengevaluasi potensi ekstrak etanol dari jahe merah (Zingiber officinale var. rubrum) dalam memberikan efek perlindungan terhadap kerusakan ginjal (nefroprotektif) yang diinduksi oleh paparan etilen glikol pada hewan model tikus putih jantan (Rattus norvegicus) strain Sprague-Dawley. Studi ini dilaksanakan melalui pendekatan eksperimental dengan rancangan acak lengkap serta menggunakan metode post-test only control group design. Sebanyak 25 ekor tikus dibagi secara merata ke dalam lima kelompok, yaitu kelompok kontrol normal yang hanya diberikan aquades, kelompok kontrol negatif yang menerima etilen glikol 0,75%, dan tiga kelompok perlakuan yang diberi kombinasi etilen glikol dengan ekstrak etanol jahe merah masing-masing pada dosis 100 mg/kgBB, 200 mg/kgBB, dan 300 mg/kgBB setiap hari. Parameter yang dianalisis meliputi konsentrasi kreatinin serum serta gambaran histopatologi ginjal. Hasil penelitian menunjukkan bahwa pemberian ekstrak jahe merah mampu menurunkan kadar kreatinin darah secara signifikan dan memperbaiki struktur jaringan ginjal yang mengalami kerusakan, seperti berkurangnya tingkat nekrosis, degenerasi sel, serta infiltrasi sel inflamasi. Efek perlindungan paling optimal tercapai pada kelompok yang menerima dosis 300 mg/kgBB per hari. Berdasarkan temuan ini, ekstrak etanol jahe merah memiliki prospek sebagai agen nefroprotektif terhadap cedera ginjal akibat paparan etilen glikol.

Kata kunci: Zingiber officinale var. rubrum, nefroprotektif, cedera ginjal, etilen glikol, histopatologi ginjal, kreatinin serum.

ABSTRACT

This study aims to assess the protective effect of ethanol extract from red ginger (Zingiber officinale var. rubrum) against kidney damage (nephroprotection) induced by ethylene glycol exposure in male white rats (Rattus norvegicus) of the Sprague-Dawley strain. The experiment was conducted using a completely randomized design with a post-test only control group approach. A total of 25 rats were randomly assigned to five groups: a normal control group given distilled water, a negative control group administered 0.75% ethylene glycol, and three treatment groups receiving ethylene glycol combined with red ginger extract at doses of 100 mg/kgBW, 200 mg/kgBW, and 300 mg/kgBW per day. The primary parameters observed were serum creatinine levels and renal histopathological features. The findings revealed that red ginger extract significantly reduced blood creatinine concentrations and improved kidney tissue structure, including a reduction in necrosis, cellular degeneration, and inflammatory cell infiltration. The most pronounced nephroprotective effect was observed at the dose of 300 mg/kgBW per day. These results suggest that ethanol extract of red ginger has potential as a nephroprotective agent against kidney injury induced by ethylene glycol exposure.

Keywords*: Zingiber officinale var. rubrum, nephroprotection, kidney damage, ethylene glycol, renal histology, serum creatinine.*