

ABSTRACT

THE EFFECT OF ETHANOLIC EXTRACT OF CORIANDER SEEDS (*Coriandrum sativum* L.) ON THE HISTOPATHOLOGY AND SPLEEN WEIGHT OF WHITE RATS (*Rattus norvegicus*) SPRAGUE DAWLEY STRAIN INDUCED BY PARACETAMOL

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Background: Paracetamol overdose may induce oxidative stress and damage lymphoid organs, including the spleen. Coriander seed extract (*Coriandrum sativum* L.) contains antioxidant compounds that potentially protect lymphoid tissue from paracetamol-induced toxicity.

Methods: This experimental study used 25 male *Rattus norvegicus* Sprague Dawley rats divided into five groups ($n=5$): normal control (KN), negative control (K⁻; paracetamol 0.36 mg/gBW), and three treatment groups receiving paracetamol plus coriander seed extract at doses of 62.5 (P1), 125 (P2), and 250 mg/kgBW (P3) for 10 days. After termination, spleens were weighed and prepared for histopathological examination (score 0–3). Data were analyzed using the Kruskal–Wallis and Mann–Whitney tests for histopathological scores, and One-Way ANOVA with Tukey HSD for spleen weight.

Results: Significant differences were found among groups for histopathological scores ($p=0.002$) and spleen weight (ANOVA $F = 9.412$; $p<0.001$). Group P2 showed no significant difference from the normal control ($p=0.230$), indicating near-normal histological recovery, while the negative control differed significantly from all other groups. The highest mean spleen weight was observed in P3 (2.113 g), significantly higher than K⁻ ($p=0.001$) and P1 ($p<0.001$), and approaching KN ($p=0.057$).

Conclusions: Ethanolic extract of coriander seeds demonstrated protective effects against histological alterations and spleen weight reduction induced by paracetamol, with the most pronounced efficacy observed at medium to high doses (125–250 mg/kgBW).

Keywords: *Coriandrum sativum*, histopathology, organ weight, paracetamol, spleen

ABSTRAK

PENGARUH PEMBERIAN EKSTRAK ETANOL BIJI KETUMBAR (*Coriandrum sativum* L.) TERHADAP HISTOPATOLOGI DAN BERAT ORGAN LIMPA TIKUS PUTIH (*Rattus norvegicus*) GALUR SPRAGUE DAWLEY YANG DIINDUKSI PARASETAMOL

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Latar Belakang: Overdosis parasetamol dapat menimbulkan stres oksidatif dan kerusakan organ limfoid, termasuk limpa. Ekstrak biji ketumbar (*Coriandrum sativum* L.) mengandung senyawa antioksidan yang berpotensi melindungi jaringan limfoid dari toksisitas.

Metode: Penelitian eksperimental menggunakan 25 tikus jantan *Rattus norvegicus* galur Sprague Dawley dibagi menjadi 5 kelompok ($n=5$): kontrol normal (KN), kontrol negatif (K⁻; parasetamol 0,36 mg/gBB), dan tiga kelompok perlakuan yang diberi parasetamol plus ekstrak biji ketumbar dosis 62,5 (P1), 125 (P2) dan 250 mg/kgBB (P3) selama 10 hari. Setelah terminasi, limpa ditimbang dan dibuat preparat histopatologi (skor 0–3). Analisis statistik: Kruskal–Wallis dan Mann–Whitney untuk skor histopatologi; *One-Way* ANOVA dan Tukey HSD untuk berat limpa.

Hasil: Terdapat perbedaan bermakna antar kelompok pada skor histopatologi ($p=0,002$) dan berat limpa (ANOVA $F=9,412$; $p<0,001$). Pada penilaian histopatologi, P2 tidak berbeda signifikan dibanding KN ($p=0,230$) menunjukkan perbaikan mendekati normal; K⁻ berbeda signifikan dengan kelompok lain. Untuk berat limpa, kelompok P3 memiliki rerata tertinggi (2,113 g) dan berbeda signifikan terhadap K⁻ ($p=0,001$) dan P1 ($p<0,001$); P3 mendekati KN secara statistik ($p=0,057$).

Kesimpulan: Ekstrak etanol biji ketumbar menunjukkan efek protektif terhadap perubahan histologis dan penurunan berat limpa akibat induksi parasetamol, dengan efektivitas klinis paling menonjol pada dosis menengah–tinggi (125–250 mg/kgBB).

Kata Kunci: berat organ, *Coriandrum sativum*, histopatologi, limpa, parasetamol