SUB-ACUTE TOXICITY TEST OF *CURCUMA HEYNEANA* INFUSION ON DDY (DEUTSCHLAND-DENKEN-YOKEN) MICE: AN EVALUATION ON HISTOPATHOLOGICAL FINDING ON LIVER AND KIDNEY

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ABSTRACT

Background. *Curcuma heyneana* is already used as traditional medicine and cosmetics in Indonesia. However, its toxicological profile in sub-acute period hasn't been understood.
Objectives. This study objective is to describe the histopathological finding of liver and kidney after sub-acute administration of *C. heyneana* rhizome infusion of various concentrations compared to control.
Methods. This study use Quasi-experimental nonequivalent control group design with posttest only. The study was done on 30 mice which divided into 6 groups based on different concentration (0, 100, 200, 300, 400, and 500 mg/kg) of *C. heyneana* infusion administered for 28 days with 5 mice each. At the end of treatment, mice were sacrificed for liver and kidney collection and routine histopathological was performed using Haematoxylin-eosin staining. Histopathological parameter of sub-acute toxicity in liver (sinusoidal congestion, perivenular necrosis, loss of lobular architecture, nuclear change, and fatty change) and kidney (congestion, swelling of endothelium, interstitial inflammation, and tubular necrosis) were recorded and reported descriptively.
Results. The liver and kidney sections of 29 mice were examined, 1 mouse excluded as it died from technical error during study. The observed histopathological findings of liver were sinusoidal congestion (100-500 mg/kg), perivenural necrosis (100&500 mg/kg), nuclear changes (200-500 mg/kg), fatty changes (300-400 mg/kg) and no loss of tubular architecture in all groups. The observed histopathological findings of kidney were interstitial inflammation (100-500 mg/kg), tubular necrosis (500 mg/kg), no congestion and endothelial swelling found in all groups.
Conclusion. The histopathological findings of liver in study were sinusoidal congestion, perivenural necrosis, nuclear changes and fatty changes in treated group with no loss of tubular architecture found in all group whereas in kidney were interstitial inflammation and tubular necrosis

in treated group with no congestion and endothelial swelling found in all group.
Keywords: Sub-acute toxicity test; *Curcuma heyneana* rhizome; histopathological finding; DDY mice; Liver; Kidney

UJI TOKSISITAS SUB-AKUT INFUSAL *CURCUMA HEYNEANA* PADA MECIT DDY (DEUTSCHLAND-DENKEN-YOKEN): EVALUASI GAMBARAN HISTOPATOLOGIK PADA HATI DAN GINJAL

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INTISARI

Latar Belakang. *Curcuma heyneana* telah lama digunakan sebagai obat tradisional dan kosmetik di Indonesia. Namun, profil toksikologi dalam periode sub-akut belum pernah diuji sebelumnya.
Tujuan. Tujuan penelitian ini adalah menggambarkan gambaran histopatologik hati dan ginjal setelah pemberian sub-akut infusal rimpang *C. heyneana* dalam berbagai konsentrasi dibandingkan dengan kontrol.
Metode. Penelitian ini memakai metode kuasi-eksperimental kelompok kontrol tidak setara dengan *posttest only* pada 30 mencit. Mencit dibagi menjadi 6 kelompok berdasarkan variasi konsentrasi infusal *C. heyneana*, (0, 100, 200, 300, 400, dan 500 mg/kg) selama 28 hari dengan 5 mencit tiap kelompok. Pada akhir perlakuan, mencit dikorbankan untuk pemeriksaan hati dan ginjal kemudian dilakukan histopatologi rutin dengan *Haematoxylin-eosin*. Parameter histopatologik pada toksisitas sub akut pada hati (kongesti sinusoid, nekrosis perivenular, hilangnya arsitektur lobular, perubahan nukleus, dan perubahan lemak) dan ginjal (kongesti, pembengkakan endotel, peradangan interstisial dan kerusakan tubular) dicatat dan dilaporkan secara deskriptif.
Hasil. Hati dan ginjal dari 29 mencit diperiksa, 1 mencit mati kerena kesalahan teksnis saat penelitian. Temuan histopatologik hati dalam penelitian adalah pelebaran sinusoidal (100-500 mg/kg), nekrosis perivenural (100 & 500 mg/kg), perubahan nucleus (100 & 500 mg/kg), perubahan lemak (300-400 mg/kg) dan tidak ada kehilangan arsitektur tubular. Temuan histopatologik ginjal dalam penelitian adalah peradangan interstisial (100-500 mg/kg) dan nekrosis tubular pada (500 mg/kg) dan tidak ada temuan kongesti dan pembengkakan endotel.
Kesimpulan. Temuan histopatologi hati dalam penelitian adalah kongesti sinusoid, nekrosis perivenural, perubahan inti sel dan perubahan lemak pada kelompok perlakuan tanpa kehilangan arsitektur tubular pada semua kelompok sedangkan pada ginjal berupa peradangan interstisial dan nekrosis

tubular pada kelompok perlakuan tanpa kongesti dan pembengkakan endotel pada semua kelompok.

Kata kunci: Uji Toksisitas Sub akut; rimpang *Curcuma heyneana;* penemuan histopathology; mencit DDY; Hati; Ginjal