

INTISARI

Pentagamavunon-0 (PGV-0) merupakan senyawa turunan kurkumin yang memiliki efek sitotoksik, antiinflamasi dan antioksidan. PGV-0 bersifat sukar larut dalam air PGV-0 dalam beberapa penelitian telah diformulasikan menjadi sediaan *Self-Nanoemulsifying Drug Delivery System* (SNEDDS) dan menunjukkan aktivitas pada *brain disorder*. Hingga saat ini belum pernah dilakukan penelitian mengenai toksisitas dari sediaan SNEDDS PGV-0. Penelitian ini bertujuan untuk mengetahui potensi ketoksikan akut dan subkronis singkat 14 hari sediaan SNEDDS PGV-0 pada mencit.

Penelitian dilakukan dengan uji toksisitas akut dan uji toksisitas subkronis singkat 14 hari menggunakan mencit BALB/c usia 6-8 minggu dan berat badan 20-30 gram. Uji toksisitas akut terdiri dari kelompok kontrol dan kelompok perlakuan ($n=5$) untuk uji utama dan penentuan dosis ditentukan berdasarkan uji pendahuluan. Toksisitas subkronis terdiri dari kelompok kontrol, SNEDDS PGV-0 20, 50, 100 mg/kgBB, kontrol satelit dan satelit SNEDDS PGV-0 100 mg/kgBB ($n=5$). Penelitian uji toksisitas akut setelah pemberian SNEDDS PGV-0 300 mg/kgBB dengan dosis tunggal menunjukkan adanya kematian hewan uji hari ke-2, Purata kenaikan berat badan (PKBP) ($p>0,05$), dan rasio bobot organ ginjal ($p<0,05$), rasio bobot organ jantung, paru-paru, lambung, hepar dan limpa ($p>0,05$). Hasil penelitian uji toksisitas subkronis pemberian SNEDDS PGV-0 berulang ditemukan kematian 1 ekor mencit kelompok kontrol dan SNEDDS PGV-0 50 mg/kgBB, kematian 2 ekor mencit kelompok SNEDDS PGV-0 100mg/kgBB. PKBP ($p>0,05$) dan rasio bobot organ ginjal ($p<0,05$). Purata rasio bobot organ jantung, paru-paru, lambung, hepar dan limpa pada uji toksisitas subkronis ($p>0,05$). Pengamatan makroskopis tidak menunjukkan adanya perubahan pada bentuk permukaan dan warna organ vital.

Berdasarkan penelitian yang telah dilakukan dapat diketahui bahwa nilai *cut off* LD₅₀ yang ditentukan berdasarkan pengamatan uji toksisitas akut PGV-0 sebesar 300 mg/kgBB. Pemberian SNEDDS PGV-0 dosis tunggal dan berulang menunjukkan adanya perubahan bobot organ ginjal, tetapi tidak menunjukkan perubahan bobot organ jantung, paru-paru, lambung, hepar dan limpa.

Kata kunci: SNEDDS PGV-0, toksisitas akut oral, toksisitas subkronis oral

ABSTRACT

Pentagamavunon-0 (PGV-0) is a curcumin derivative compound with cytotoxic, anti-inflammatory, and antioxidant effects. PGV-0 is difficult to dissolve in water. In several studies, PGV-0 has been formulated into a Self-Nanoemulsifying Drug Delivery System (SNEDDS) preparation and has shown activity in brain disorders. Until now, no research has been conducted regarding the safety of the SNEDDS PGV-0 preparation. This study aims to determine the potential for acute and subchronic toxicity in a short 14-day SNEDDS PGV-0 preparation in mice.

The research was conducted with an acute toxicity test and a short 14-day subchronic toxicity test using BALB/c mice aged 6-8 weeks and weighing 20-30 grams. The acute toxicity test consisted of a control group and a treatment group (n=5) for the main test, and dose determination was determined based on the preliminary test. Subchronic toxicity consisted of the control group, SNEDDS PGV-0 20, 50, 100 mg/kgBW, satellite control and SNEDDS PGV-0 100 mg/kgBW satellite (n=5). Acute toxicity test research after administration of SNEDDS PGV-0 300 mg/kgBW with a single dose showed that there was the death of test animals on day 2, Average weight gain (PKBP) ($p>0.05$). And kidney organ weight ratio ($p<0.05$), heart, lung, stomach, liver and lymph organ weight ratio ($p>0.05$). The results of the subchronic toxicity test of repeated administration of SNEDDS PGV-0 found the death of 1 mouse in the control group and SNEDDS PGV-0 50 mg/kgBW, the death of 2 mice in the SNEDDS PGV-0 100mg/kgBW group. PKBP ($p>0.05$) and kidney organ weight ratio ($p<0.05$). The average organ weight ratio of the heart, lungs, stomach, liver and lymph in the subchronic toxicity test ($p>0.05$). Macroscopic observations did not show any changes in vital organs' surface shape and colour.

Based on the research that has been carried out, the LD50 cut-off value determined based on observations of the PGV-0 acute toxicity test is 300 mg/kgBW. The administration of single and repeated doses of SNEDDS PGV-0 showed changes in the weight of the kidneys but not in the weight of the heart, lungs, stomach, liver and lymph.

Keywords: SNEDDS PGV-0, oral acute toxicity, oral subchronic toxicity