

INTISARI

Hepar merupakan organ vital yang berfungsi untuk metabolisme, biotransformasi, dan detoksifikasi. Saat ini banyak senyawa kimia dan obat sintetik yang mampu mengakibatkan hepatotoksik. Temulawak (*Curcuma xanthorrhiza* Roxb.) merupakan salah satu tanaman obat yang secara empiris digunakan untuk obat penyakit hati. Komponen utama temulawak adalah kurkuminoid dan minyak atsiri. Penelitian ini bertujuan untuk mengevaluasi efek rebusan rimpang segar, rebusan rimpang kering, minyak atsiri, dan kurkumin *Curcuma xanthorrhiza* Roxb. terhadap kerusakan hepar akibat induksi parasetamol yang dikorelasikan terhadap profil fitokimia.

Tikus *Wistar* jantan dikelompokkan menjadi 10 kelompok, meliputi kelompok I dan II masing-masing kontrol normal dan kontrol negatif, kelompok III, IV, dan V yaitu praperlakuan rebusan rimpang segar 0,75 g/kgBB, 2,25 g/kgBB, dan 6,75 g/kgBB, masing-masing selama 9 hari, kelompok VI, VII, dan VIII yaitu praperlakuan rebusan rimpang kering 0,45 g/kgBB, 1,35 g/kgBB, dan 4,05 g/kgBB, masing-masing selama 9 hari, kelompok IX yaitu praperlakuan minyak atsiri 1,01 µl/kgBB selama 9 hari, dan kelompok X yaitu praperlakuan kurkumin 75 µg/kgBB selama 9 hari. Kelompok II, III, IV, V, VI, VII, VIII, IX, dan X pada hari ke-7, 8, dan 9 diinduksi parasetamol 3 g/kgBB. Darah diambil pada hari ke-0 dan 4 setelah induksi parasetamol kemudian diukur kadar SGPT dan SGOT. Hepar diambil untuk pengamatan makroskopi dan kajian histopatologi. Profil fitokimia yang diteliti adalah kadar kurkumin, kadar dan profil fitokimia minyak atsiri, dan profil fitokimia flavonoid. Data dianalisis secara statistik menggunakan uji *Kruskal Wallis* dilanjutkan uji *Mann-Whitney* dengan taraf kepercayaan 95% serta uji *Pearson Correlation* untuk mengetahui korelasi senyawa aktif utama terhadap persen daya protektif parameter SGPT dan SGOT.

Hasil penelitian menunjukkan bahwa praperlakuan rebusan rimpang segar 6,75 g/kgBB memiliki efek terbaik dalam proteksi kerusakan hati akibat induksi parasetamol secara signifikan ($p < 0,05$) menurunkan kadar SGPT dan SGOT dengan persentase daya proteksi masing-masing 99,45% dan 98,86%, memperbaiki profil makroskopi hepar, serta mengurangi kerusakan hepar secara histopatologi seperti inflamasi ringan, nekrosis sedang, kongesti sedang, hemoragi ringan, dan steatosis ringan. Rebusan rimpang segar dan rebusan rimpang kering memiliki perbedaan kadar kurkumin, kadar dan profil fitokimia minyak atsiri, dan profil fitokimia flavonoid. Minyak atsiri memiliki korelasi yang lebih kuat terhadap parameter SGPT dan SGOT dibandingkan kurkumin serta komponen dalam temulawak memiliki efek sinergisme. Hal ini dapat disimpulkan bahwa temulawak memiliki potensi sebagai obat untuk mencegah dan meringankan kerusakan hepar.

Kata kunci : *Curcuma xanthorrhiza* (Roxb.), Rebusan, Minyak Atsiri, Kurkumin, Kerusakan Hepar, Parasetamol

ABSTRACT

Liver is a vital organ that serves to metabolism, biotransformation, and detoxification. Currently many chemical compounds and synthetic drug that induces hepatotoxicity. Javanese turmeric (*Curcuma xanthorrhiza* Roxb.) is one of medicinal plant that empirically used to treat liver disease. Major compounds of javanese turmeric are curcuminoids and essential oils. The aim of this study is to evaluate the decoction of fresh rhizome, decoction of dried rhizome, essential oils, and curcumin of *Curcuma xanthorrhiza* Roxb. against paracetamol-induced liver damage.

Male Wistar rats were divided into 10 groups including group I and II were normal control and negative control, groups III, IV, and V received pretreatment of decoction of fresh rhizome 0,75 g/kgBW, 2,25 g/kgBW, and 6,75 g/kgBW, respectively for 9 days, Groups VI, VII, and VIII received pretreatment of decoction of dried rhizome 0,45 g/kgBW, 1,35 g/kgBW, and 4,05 g/kgBW, respectively for 9 days, group IX received pretreatment of essential oils 1,01 µl/kgBW for 9 days, group X received pretreatment of curcumin 75 µg/kgBW for 9 days. Groups II, III, IV, V, VI, VII, VIII, IX, and X on days 7, 8, and 9 induced paracetamol 3 g/kgBW. The blood was drained on days 0 and 4 after induction of paracetamol for SGPT and SGOT parameters study. The liver was isolated for macroscopic observation and histopathological studies. Phytochemicals profile which were evaluated the levels of curcumin, the levels and phytochemical profile of essential oils, and phytochemical profile of flavonoids. Data were analyzed statistically using Kruskal Wallis test followed by Mann-Whitney test with a 95% confidence level and Pearson Correlation test to find out correlation of major active compounds against the percentage of protection of SGPT and SGOT parameters study.

The results showed that pretreatment of decoction of fresh rhizome 6,75 g/kgBW was the best effect of protection against paracetamol-induced liver damage significantly ($p < 0,05$) decreased the levels of SGPT and SGOT with the percentage of protection 99,45% and 98,86%, respectively, repair of liver macroscopic profil, and decrease histopathological liver damage such as mild inflammatory, moderate necrosis, moderate congestion, mild haemorrhage, and mild steatosis. Decoction of fresh rhizome and decoction of dried rhizome had difference levels of curcumin, the levels and phytochemical profile of essential oils, and phytochemical profile of flavonoids. Essential oils had stronger correlation against SGPT and SGOT parameter study than curcumin and compounds in the javanese turmeric have a synergistic effect. It can be concluded that javanese turmeric has the potential as a medicine to prevent and treat liver damage.

Keywords : *Curcuma xanthorrhiza* (Roxb.), Decoction, Essential Oils, Curcumin, Liver Damage, Paracetamol