

ABSTRACT

Temu giring (*Curcuma heyneana* Val. & v.Zipp) contains essential oil known to have antifungal activity with the main content is 1,8-sineol. 1,8-sineol compound is known to cause hemolysis and light irritation. In its development, it is necessary to do toxicity evaluation to make sure the safety of its use and development product dosage, which is nanoemulsion of essential oil of temu giring. This research's aim is to evaluate the toxic effect of nanoemulsion and essential oil of temu giring against hemolysis and dermal acute irritation.

Nanoemulsion's formula consists of essential oil of temu giring (0,263 gram), VCO (0,087 gram), tween 80 (1,867 gram), PEG 400 (0,933 gram), and aquadest (6,85 gram) which taken from previous research. Dermal acute irritation test is done in vivo using albino rabbits based on dermal acute irritation test guidance on Peraturan Kepala BPOM RI No.7 2014 which refers to OECD No.404 2002. While for erythrocytes hemolysis test is done in vitro with adding test sample in human erythrocytes. Furthermore, hemolysis percentage is analyzed statistically with *Kruskal-Wallis* method at confidence level 95%.

The result of erythrocytes hemolysis test shows that nanoemulsion of essential oil of temu giring at level 2,63% makes erythrocytes hemolysis as much as 81,45%. While the essential oil of temu giring at level 2,63% makes erythrocytes hemolysis as much as 6,25%. Nanoemulsion of essential oil of temu giring and its essential oil at level 2,63% do not make dermal acute irritation.

Keywords : temu giring, nanoemulsion, essential oil, irritation, hemolysis

INTISARI

Temu giring (*Curcuma heyneana* Val. & v.Zipp) mengandung minyak atsiri yang diketahui memiliki aktivitas sebagai antijamur dengan kandungan utama 1,8-sineol. Senyawa 1,8-sineol diketahui berpotensi menyebabkan hemolisis dan iritasi ringan. Dalam pengembangannya, penting adanya evaluasi toksisitas untuk menjamin keamanan dari pemanfaatan dan pengembangan produk sediaannya yaitu nanoemulsi minyak atsiri temu giring. Penelitian ini bertujuan untuk mengevaluasi efek toksik dari nanoemulsi dan minyak atsiri temu giring terhadap hemolisis eritrosit dan iritasi akut dermal.

Formula nanoemulsi terdiri dari minyak atsiri temu giring (0,263 gram), VCO (0,087 gram), tween 80 (1,867 gram), PEG 400 (0,933 gram), dan akuades (6,85 gram) yang diambil dari penelitian sebelumnya. Uji iritasi akut dermal dilakukan secara *in vivo* dengan menggunakan kelinci albino berdasarkan pedoman uji iritasi akut dermal pada Peraturan Kepala BPOM RI No.7 tahun 2014 yang mengacu pada OECD No.404 tahun 2002, sedangkan uji hemolisis eritrosit dilakukan secara *in vitro* dengan menambahkan sampel uji pada eritrosit manusia. Persentase hemolisis selanjutnya dianalisis statistik menggunakan metode *Kruskal-Wallis* dengan taraf kepercayaan 95%.

Hasil uji hemolisis eritrosit menunjukkan bahwa nanoemulsi minyak atsiri temu giring kadar 2,63% dapat menyebabkan hemolisis eritrosit sebesar 81,45% sedangkan minyak atsiri temu giring kadar 2,63% menyebabkan hemolisis eritrosit sebesar 6,25%. Nanoemulsi minyak atsiri temu giring dan minyak atsiri temu giring kadar 2,63% tidak menyebabkan iritasi akut dermal.

Kata kunci : temu giring, nanoemulsi, minyak atsiri, iritasi, hemolisis