

INTISARI

Biji lada putih (*Piper nigrum L.*) memiliki senyawa alkaloid utama yaitu piperin. Piperin memiliki beberapa efek farmakologi yaitu meningkatkan enzim pencernaan pada pankreas (lipase, amilase dan protease), antidepresi, antiinflamasi, antiarthritis, antiasma, hepatoprotektif, antibakteri dan menstimulasi enzim pada usus. Penelitian ini bertujuan untuk mengetahui toksisitas subkronik piperin terhadap berat badan, skor ulkus lambung serta kerusakan mukosa pada histologi lambung mencit balb/c.

Metode penelitian ini adalah *post-only control group*. Biji lada putih diekstraksi menggunakan metode sokletasi. Uji toksisitas subkronik dilakukan pada 30 ekor mencit jantan, 35-45 gram, 2-3 bulan. Mencit dibagi menjadi 5 kelompok yakni 1 kelompok kontrol serta 4 kelompok perlakuan dosis 17,5 mg/KgBB, 35 mg/KgBB, 70 mg/KgBB dan 140 mg/KgBB yang diberi piperin secara peroral selama 21 hari. Berat badan mencit ditimbang tiap 1 minggu sekali. Organ lambung mencit dibedah dan dilakukan skoring jumlah serta keparahan ulkus. Lambung difiksasi dengan formalin 10% dan dilakukan pengecatan HE. Preparat lambung diamati dibawah mikroskop dengan perbesaran 10x dan 40x lalu dilakukan skoring kerusakan integritas mukosa. Data berat badan mencit dianalisis menggunakan uji *Oneway ANOVA* dan *Post-Hoc* sedangkan hasil skor ulkus dan kerusakan mukosa dianalisis menggunakan uji *Kruskal Wallis* dan *Mann-Whitney*.

Pemberian piperin selama 21 hari menyebabkan penurunan berat badan mencit dengan nilai $p > 0,05$ atau tidak ada perbedaan yang signifikan antar kelompok. Hasil pengamatan makroskopis yakni pemberian piperin dosis 17,5 mg/KgBB, 35 mg/KgBB, 70 mg/KgBB dan 140 mg/KgBB menyebabkan perubahan histopatologis lambung seperti timbul kemerahan, bintik perdarahan dan ulkus. Hasil statistik jumlah ulkus dan keparahan ulkus didapatkan nilai $p < 0,05$ atau terdapat perbedaan yang signifikan antara kelompok kontrol dan perlakuan. Secara mikroskopis (histologi) menunjukkan perubahan histopatologis lambung seperti deskuamasi, erosi dan ulserasi epitel. Tingkat keparahan semakin meningkat seiring tingginya tingkatan dosis yang diberikan. Hasil statistik didapatkan nilai $p < 0,05$ atau terdapat perbedaan yang signifikan antara kelompok kontrol dan perlakuan.

Kata kunci: uji toksisitas subkronik, piperin, *Piper nigrum L.*, ulkus, mukosa, histologi lambung

ABSTRACT

White pepper seeds (*Piper nigrum L.*) have main alkaloid compound, it is piperin. Piperin has several pharmacological effects such as enhancing the enzyme digestion in the pancreas (lipase, amylase and protease), antidepressants, anti-inflammatory, anti-arthritis, anti-inflammatory, hepatoprotective, antibacterial and stimulating enzymes in the intestine. This study aimed to determine the subchronic toxicity of piperine on body weight, gastric ulcer score and mucosal damage in gastric histology of mice balb/c.

This research used post-only control group method. White pepper seeds are extracted using the soxhlet method. This subchronic toxicity were carried out on 30 male mice, 35-45 grams, 2-3 months. Mice were divided into 5 groups consisting of 1 control group and 4 treatment groups with a doses of 17.5 mg/KgBB, 35 mg/KgBB, 70 mg/KgBB and 140 mg/KgBB which were given piperine orally for 21 days. Mice weighed once a week. Gaster organs of the mice were dissected and do scoring of the number and severity of the ulcer. Gaster was fixed with formalin 10% and HE staining. Gaster preparations were observed under microscope with 10x and 40x magnification and then do scoring damage to mucosal integrity. Data on body weight of mice were analyzed using the *Oneway ANOVA* and *Post-Hoc* test and the result of ulcer scores and mucosal damage were analyzed using the *Kruskal Wallis* and *Mann-Whitney* tests.

Giving piperine for 21 days caused a decrease in body weight of mice with a significance value $p > 0.05$ or no significant difference between groups. Macroscopic observations of piperine dosages 17.5 mg / KgBB, 35 mg / KgBB, 70 mg / KgBB and 140 mg / KgBB caused gastric histopathological changes such as redness, bleeding and ulcers. Statistic result of the number of ulcers and ulcer severity is $p < 0.05$ or included significant differences between the control and treatment groups. Microscopically (histology) shows gastric histopathological changes such as desquamation, erosion and epithelial ulceration. The severity increases with increasing dosage given. Statistic result of mucosal damage is $p < 0.05$ or there is a significant difference between the control and management groups.

Keywords: subchronic toxicity, piperine, *Piper nigrum L.*, ulcer, mucosal, gastric histology