

INTISARI

Telah dilaksanakan penelitian toksisitas akut propil *p*-benzoiloksibenzoat dengan *The Acute Toxic Class (ATC) Method* secara oral pada mencit betina. Penelitian ini bertujuan menetapkan besarnya potensi ketoksikan akut propil *p*-benzoiloksibenzoat pada mencit betina berdasarkan kategori ketoksikan dalam *Globally Harmonised System (GHS)* dan nilai LD_{50} *cut-off*-nya, untuk mengetahui gejala toksik yang timbul, untuk mendapatkan spektrum efek toksik, dan untuk mengetahui mekanisme efek toksik yang memperantarai kematian hewan uji.

Jenis penelitian ini adalah eksperimental murni yang dilaksanakan menurut rancangan penelitian acak lengkap pola searah. Studi dilaksanakan sesuai prosedur *The ATC Method*. Ada empat dosis pasti, yaitu 5; 50; 300; 2000 mg/kg BB dan kelompok kontrol yang masing-masing membutuhkan 3 hewan uji. Jumlah kematian yang terjadi menentukan dosis pasti selanjutnya. Dosis 300 mg/kg BB sebagai dosis awal. Tiga ekor mencit betina galur *Swiss* dikondisikan 5 hari sebelum pemejanaan. Pengamatan gejala toksik dilakukan setelah 30 menit, 4, 8, 12, 16, 20, 24 jam pada hari pertama; selanjutnya setiap hari hingga 14 hari. Berat badan diukur sebelum pemejanaan, pada hari ke-7, dan ke-14. Pada akhir uji semua hewan yang hidup dinekropsi, diambil dan ditimbang organnya (jantung, hati, paru, ginjal, lambung, usus, dan limpa), dan dibuat preparat histopatologi.

Hasil penelitian menunjukkan bahwa propil *p*-benzoiloksibenzoat masuk dalam kategori 5 atau *unclassified* GHS dengan LD_{50} *cut-off* sebesar 5000 mg/kg BB. Tidak ada gejala toksik yang nampak akibat pemejanaan propil *p*-benzoiloksibenzoat pada dosis 300 maupun 2000 mg/kg BB. Berdasarkan urutan keparahan organ sasaran, spektrum efek toksik yang terjadi meliputi organ ginjal, hati, lambung, paru, dan usus. Mekanisme efek toksik yang diduga dapat mempengaruhi kematian hewan uji adalah kerusakan sel-sel hepatosit hati dan kerusakan struktur nefron ginjal yang parah.

Kata kunci: toksisitas akut oral, propil *p*-benzoiloksibenzoat, *The Acute Toxic Class Method*

ABSTRACT

The research about oral acute toxicity of propyl *p*-benzoyloxybenzoate in Swiss female mice with The Acute Toxic Class (ATC) Method was done. Obtaining the acute toxicity potency of propyl *p*-benzoyloxybenzoate in female mice which was according to The Globally Harmonised System (GHS) and its LD₅₀ cut-off; showing the toxic signs; and understanding the toxic effect mechanism which caused the animal death were the aims of this research.

According to the sort of this research as a true experimental research with random, complete, and one way pattern design. The study was based on The ATC Method procedure which using four fixed dose, 5; 50; 300; 2000 mg/kg of body weight. This study also used the control group. Each group used three animals. The number of dead animals at one step determined the next step. The 300 mg/kg of body weight was the starting dose which based on the recommendation of The ATC Method. Three female mice were adapted together in one cage five days before the dosing. The toxic signs observed at 30 minutes, 4, 8, 12, 16, 20, 24 hours after the administration of propyl *p*-benzoyloxybenzoate. The next observation was once a day until the fourteenth day or the end of study. The animals were weighed shortly before the test substance was administered, at seventh, and at fourteenth day. The survival animals were humanely killed and their organs (heart, liver, lungs, kidneys, stomach, small intestine, and spleen) were taken and weighed at the end of study. The histopathological preparations were made from these organs.

This research shows that propyl *p*-benzoyloxybenzoate is included the fifth or unclassified category of GHS with 5000 mg/kg of body weight LD₅₀ cut-off. There are no toxic signs-related propyl *p*-benzoyloxybenzoate which is shown at the 300 and 2000 mg/kg of body weight doses. The spectrum of toxic effect which is based on the severity of damaged organs includes kidneys, liver, stomach, lungs, and small intestine. The toxic effect mechanism which caused the animal death are the severe damaged hepatocytes and nephrons.

Keywords: oral acute toxicity, propyl *p*-benzoyloxybenzoate, The Acute Toxic Class Method