ABSTRACT

Synthesis of 4’-Acetamidophenyl-3-chlorobenzoate and Analgesic Testing in Mice (*Mus musculus*) with Hot Plate Method

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Paracetamol is a nalgesic drug that is widely used in Indonesia. Paracetamol has hepatotoxic effect if it consumed for a long time and in large dosage. Hepatotoxic is caused by the formation of acetaminophen’s metabolite (NAPQI) at the position of hydroxyl group. 4’-Acetamidophenyl-3-chlorobenzoate have been synthesized for the purpose of obtaining a derivative of paracetamol with greater activity and lower toxicity. The first process is in silico prediction before actually synthesized. The result showed that binding of 4’-acetamidophenyl-3-chlorobenzoate with 3 LN1 is more stable than acetaminophen. The process of synthesis by reacting paracetamol with 3-chlorobenzoyl chloride in THF. Percentage of compound produced is 72.19%. According to the ultraviolet spectrophotometer, infrared spectrophotometer and 1H-NMR spectrometer analysis, it was concluded that the compound was 4’-acetamidophenyl-3-chlorobenzoate. The analgesic activity of 4’-acetamidophenyl-3-chlorobenzoate was tested using hot plate method and paracetamol as the reference drug. Paracetamol and 4’-acetamidophenyl-3-chlorobenzoate was administered orally to mice with dose of 100 mg/kg weight. The 4’-acetamidophenyl-3-chlorobenzoate has 29.7% maximum possible effect higher than others, it shows that the 4’-acetamidophenyl-3-chlorobenzoate has analgesic activity higher than paracetamol. But, it’s not different significantly by using ANOVA one way, LSD and independent test. However, 4’-acetamidophenyl-3-chlorobenzoate has duration of action longer than paracetamol by hot plate method.

Keywords: in silico, hot plate method, molegro, synthesis, 4’-acetamidophenyl-3-chlorobenzoate.