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 ortho position of hydroxyl group. 4'-Acetamidophenyl-3-chlorobenzoate have been synthesized for the purposed of obtaining derivate of paracetamol with greater activity and lower toxicity. The first process is in silico prediction before actually synthesized. The results showed that binding of 4'-acetamidophenyl-3-chlorobenzoate with 3LN1 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 ^{1}H-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's show 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 indepentdent t 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.