

ABSTRACT

Characterization The Result of Recrystallization Carbamazepine in Methanol Solution (Evaporation and Rapid Cooling Method)

Izma Kartika Wilis

Carbamazepine (CBZ) is used as first line monotherapy for seizures in elderly patients. The major advantages of CBZ is their efficacy and the disadvantages is the solubility ($<200 \mu\text{g /ml}$) and low of gastrointestinal absorption which influence the dissolution rate and bioavailability. The purpose of this study is to determine the characteristics of CBZ in methanol solution by evaporation and rapid cooling recrystallization that effect its dissolution rate. CBZ was prepared in methanol solutions then evaporate the solvent at room temperature or cooling immediately in freezer. The characteristic was compared with original CBZ. Characterization was performed using Differential Thermal Analysis (DTA), X-ray Diffraction, Infrared Spectrophotometry and Scanning Electron Microscope (SEM). DTA study showed that there was no change between them. The diffractogram showed that there is different profile between recrystallization by rapid cooling and original CBZ. Infrared study exhibited the identical spectra and SEM study exhibited that there are different habit of the sample. The result of dissolution suggested that there are different characteristic between them. The sample recrystallization by evaporation showed the most fast of dissolution rate.

Key words : Carbamazepine, methanol, characterization, dissolution rate.