Thesis Title Determination of Sulfamethazine Acetylator Phenotype in Thai Volunteers

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ABSTRACT

The acetylator phenotyping study in Thai volunteers were performed in 16 healthy male and 14 healthy female volunteers. The mean age was 26.6±6.8 years and the mean weight was 55.7±9.38 kilograms. After single oral dose of 500 mg of sulfamethazine sodium as 5 ml solution, the plasma and urine drug concentrations were determined by spectrophotometric method using the diazotization and coupling reaction with N-1-(naphthyl)ethylenediamine dihydrochloride. The absorbance was measured at 548 nm. The High Performance Liquid Chromatographic method was also performed using trichloroacetic acid to precipitate protein from plasma and urine samples, followed by the analysis on a reverse phase μ-Bondapak C_{18} (10 um) with UV detection at 254 nm and 1% acetic acid : acetonitrile (87:13) as a mobile phase. Sulfadiazine was

used as an internal standard and acetylsulfamethazine used for the preparation of the standard calibration curve was synthesized by acetylation sulfamethazine with acetic anhydride-acetic acid and recrystallization from dioxane-water.

The percentage acetylation determined in plasma and urine by both methods showed the same bimodal distribution. Antimode in plasma and urine were approximately 40 and 75%, respectively. Six subjects from a total of 30 subjects were slow acetylators and the rest were rapid acetylators. Therefore, it could be calculated as 20% slow acetylator and 80% rapid acetylator, respectively.