**Formulation of a Solid Self-Microemulsifying Drug Delivery System Containing Candesartan Cilexetil**

**Truong My Duyen1**, Diep Thi Diem Quynh1, Nguyen Thien Hai1.

1 Department of Pharmaceutics, Faculty of Pharmacy, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Viet Nam;

**Background and aims.** Candesartan cilexetil (CDC) is a selective angiotensin II receptor antagonist used in the treatment of hypertension. Because it belongs to group II in the biopharmaceutical classification system, CDC exhibits high permeability and low solubility in the physiological pH range, leading to incomplete absorption in the gastrointestinal tract and low oral bioavailability. The objective of this study is to investigate the formulation of a solid self-microemulsifying drug delivery system containing CDC (S-SMEDDS-CDC) to improve solubility and dissolution, thereby improving oral bioavailability and enhancing therapeutic efficacy.

**Methods.** The S-SMEDDS-CDC formula was selected based on the solubility of CDC in the excipients studied, phase diagram, CDC loading capacity, sensory properties, stability in pH buffer environments, transmittance, droplet size and zeta potential. CDC in the trials was quantified by UV-Vis method at 254 nm wavelength.

**Results.** The results showed that the composition (w/w) of S-SMEDDS-CDC including Gelucire 59/14: Kolliphor EL: Transcutol HP (30: 30: 40) loaded 5% CDC, giving an average droplet size of 29.81 nm ± 0.14 nm, zeta potential 8.04 ± 0.11 mV. The selected formula had a dissolution profile that met USP 44 (100.8 ± 0.48% > 80% after 45 minutes). The ability of drug release of the hard capsule containing S-SMEDDS-CDC in pH 1.2; 4.5; 6.8 environments was 98.5; 100.2 and 100.8%, respectively, significantly higher than that of the reference drug (Atacand® 16 mg) at corresponding pH values of 84.31; 88.28; and 78.67%.

**Conclusion/Discussion.** The S-SMEDDS-CDC was successfully prepared at the scale of 50 grams, demonstrated an improvement to the solubility and dissolution of candesartan cilexetil using a solid self-microemulsifying drug delivery system. The preparation process is stable and repeatable, showing that S-SMEDDS-CDC has great potential for practical application.

**References:**