ABSTRACT

Development of Ezetimibe Solid Dispersion Using PEG 4000 as Matrix (Prepared with Melting Method)

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Ezetimibe is a new antihyperlipidemia class which block the absorption of cholesterol from gastrointestinal track. Ezetimibe has been classified as *Biopharmaceutics Classification System* (BCS) class II category which generally has high permeability but poor solubility. Thus, ezetimibe have slow dissolution rate and affecting its bioavailability. Solid dispersion and surface solid dispersion is a potential system that could increase ezetimibe dissolution. The purpose of this research was to evaluate the effect of PEG 4000 as a matrix and mixture of lactose monohydrate-Avicel PH 101 (2:1) as adsorben on the dissolution properties of ezetimibe solid dispersion and surface solid dispersion. Likewise, solid dispersion and surface solid dispersion prepared using the melting method. Their physicochemical and dissolution properties were investigated in comparison with the drug powder. Surface solid dispersion of ezetimibe-PEG 4000-adsorben with ratio 1:3:6 had significantly higher dissolution compared with other system and ezetimibe alone. DTA and powder X-ray diffraction (PXRD) showed that the drug crystallinity was decreased. Furthermore, this ezetimibe in surface solid dispersion prepared with PEG 4000, lactose monohydrate and Avicell PH 101 would be suggested as a potential formulation for oral administration of ezetimibe.

Key words: Ezetimibe, PEG 4000, lactose mohohydrat, Avicel PH 101, Solid Dispersion, Surface Solid Dispersion, Powder X-ray Diffraction (PXRD), DTA