ABSTRACT

Comparative Characterization and Disolution of Inclusion Complex Drug-Hydroxypropyl-β-Cyclodextrine (HPβCD) Using Freeze Drying and Spray Drying Methods

Literature Review

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Solubility is one of the physicochemical properties that affect the absorption of drug in the *gastrointestinal tract,* which given orally. However, the drugs with low solubility cause dissolution rate and low bioavailability, resulting in more prolonged onset of action. Therefore, the cyclodextrin-inclusion complex formed to increase solubility and dissolution. The literature review aims to compare the results of inclusion complex-hydroxypropyl-β-cyclodextrine (HPβCD) characterization and dissolution with freeze drying and spray drying methods. A comprehensive study was defined to obtain data for the inclusion complex characterization (DSC, PXRD, FTIR spectra, SEM) and dissolution test with freeze-drying and spray-drying methods. The combination of 5 keywords from the relevant literature were searched from electronic databases such as Google Scholar, ScienceDirect, and PubMed. Analysis convinced that the characteristics of the inclusion complex from the freeze-drying method and the spray drying method could be distinguished. The difference in characteristic results is shown by the DSC thermogram which provides a more significant shift in melting temperature confirmed the finding results and the PXRD diffractogram with a higher degree of amorphous state of the frezze drying method.The dissolution rate of the inclusion complex with the freeze drying method is higher than the spray drying method.

Keywords : inclusion complex, freeze drying method, spray drying method, characterization, dissolution.