ABSTRACT

THE EFFECT OF PVP K30 ADDITION ON THE PHYSICAL PROPERTIES OF TABLET OBTAINED FROM GRANULATED HESPERETIN-POLOXAMER 407 NANOSUSPENSION (PREPARED USING FLUID BED GRANULATION METHOD)

Ayub Ashari

Hesperetin is an aglycone obtained from hesperidin that has various biological effects. However, as other plant compounds, hesperetin is poorly soluble in water. This problem causes low bioavailability of hesperetin when given orally. Nanosuspension is one of the simple formulation strategies that could overcome this problem. However, conversion of nanosuspensions into solid dosage form is often problematic due to the different particle size and density between solidified nanosuspensions (obtained from spray drying or freeze drying process) with tablet excipients. One of the strategies is by using nanosuspensions as granulating liquid in granulation process using fluid bed granulation method. In this study, hesperetin nanosuspension was made with poloxamer 407 as a stabilizer followed by addition of certain concentration of PVP K-30 as a binder. Particle size of the nanosuspensions were maintained below 250 nm. Three different concentrations of PVP K-30 were applied : 4%, 7% and 10% (w/w). The granules obtained were evaluated for their physical properties prior to tableting process. Tablets were made by applying two compaction forces separately: 2kN and 4kN. Evaluation of tablet physical properties showed that increasing concentration of PVP K-30 did not improve physical quality of the tablets obtained. At concentration 10% w/w, PVP K-30 failed to increase tablet hardness as well as tablet friability. PVP K-30 at concentration 4% and 7% w/w with compaction force 4kN produced optimum tablet physical properties (hardness and disintegration time) but not for friability.

Keyword: *hesperetin, pvp k-30, nanosuspension, fluid bed granulation*