

ABSTRACT**THE INFLUENCE OF BINDER ADDITION METHOD ON THE PHYSICAL PROPERTIES OF GRANULE AND TABLET OF DRIED NANOSUSPENSION HESPERETIN-SODIUM DODECYL SULPHATE**

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Hesperetin (HPT) is an aglycone of flavanone glucoside which has low water solubility and slow dissolution rate. These cause low oral bioavailability hence decreasing the oral absorption. Formulation of nanosuspension will able to improve solubility and dissolution rate of HPT. Nanosuspension is the dispersion of nanocrystal in a stabilizer solution. In this study, HPT nanosuspension was stabilized with sodium dodecyl sulphate (SDS) with size < 250 nm using wet beads milling. Furthermore, this nanosuspension was then used as granulating liquid in wet granulation where the nanosuspension also containing the binder or referred to as wet method. Another method is the dry method. This study was aimed to investigate the influence of the different binder addition method on the physical properties of granule and tablet containing dried nanosuspension of HPT-SDS. PVP K-30 was used as binder. In the wet method, nanosuspension was added with PVP K-30 and used as a granulating solution. In dry method, PVP K-30 was blended with the filler and disintegrant then nanosuspension was added as granulating liquid. Granule evaluation showed that after drying process, moisture content of the two methods were <2%. The wet method has better flow rate compared to the dry method. Tableting was carried out at compression force of 10kN. Evaluation of tablet friability showed that both methods resulted in high friability and did not fulfil the requirement. Nevertheless, the friability of tablet from wet method was significantly lower than the dry method. Tablet hardness of the wet method was higher than the acceptance range (4-8 kP) but disintegration time of tablets from both methods still fulfilled the criteria for immediate release tablet. Dissolution of hesperetin from tablets obtained showed that both addition method failed to fulfill requirement as immediate release. In conclusion, the addition of a binder with wet method has better results in physical properties of granule and tablet except for the dissolution of hesperetin.

Keyword : Wet granulation, planetary mixer, binder addition