

ABSTRACT**THE EFFECT OF CONCENTRATION
METHYLCELLULOSE 4 mPa.s ON THE PHYSICAL
PROPERTIES and DISSOLUTION NANOSUSPENSION
COATED BEADS HESPERETIN-SODIUM DODECYL
SULFATE**

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Hesperetin (HPT) is a plant compound which has many beneficial biological effects but poorly soluble in water. One of the strategies to overcome its solubility and slow dissolution problem is by formulating HPT as nanosuspension followed by solidification or drying of nanosuspensions. Processing of nanosuspension into solid oral dosage form consist of several techniques, in particular is coating the nanosuspensions onto beads or known as beads layering. This research was aimed to investigate the influence of methylcellulose (MC) concentration as a coating polymer on the physicochemical properties and release of dried hesperetin nanosuspensions and the coated beads. In this study, hesperetin nanosuspension was made with sodium dodecyl sulfate (SDS) as a stabilizer followed by addition of two concentrations of MC as the coating polymer. Two different concentrations of MC were applied: 25% w/w (F1) and 50% w/w (F2). Particle size of HPT-SDS nanosuspension was below 250 nm whilst addition of MC and PEG 6000 increased the particle size to bigger than 250 nm. The dried nanosuspensions at 60°C were then evaluated for their particle size after redispersion, XRD pattern and morphology using SEM. Additionally, the influence of adding MC were evaluated by the dissolution test. Dissolution rate of coated beads decreased (less than 50% within the 120 min) compared to the nanosuspensions. Futhermore, there was no significant difference observed between the dissolution profile of beads coated with nanosuspensions F1 and F2. Increasing concentration of MC did not improve the release of HPT.

Keywords: hesperetin, nanosuspension, methylcellulose, beads layering