ABSTRACT

EFFECT OF RATIO D-α-TOCOPHERYL POLYETHYLENE GLYCOL SUCCINATE 1000 (TPGS) AND POLOXAMER 188 ON PHYSICAL CHARACTERISTICS AND STABILITY OF MIXED MICELLES
(for Development Delivery Sistem of Hesperetin)

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Hesperetin a flavonoid compound of citrus fruit has a many pharmacological effects. Hesperetin has a poor solubility in water and fast elimination from the body causes low bioavailability of this compound when given orally. Formulating hesperetin as micelles sistem could overcome these problems. Additionally, the use of micelles compound such as TPGS and poloxamer 188 as mixed micelles were known had synergism effect to improve their each lacks. The aim of the study is to investigate the effect of different ratio TPGS:poloxamer 188 on physical characteristic and stability of mixed micelles. The mixed micelles were prepared by thin film hydration method. Particle size of all mixed micelles analyzed using dynamic light scattering sizer, it was shown mixed micelles TPGS:poloxamer 188 with ratio 1:4 resulted bigger particle size than ratio 1:1 and 1:2. CMC of mixed micelles TPGS:poloxamer 188 is lower than CMC of single TPGS micelles. The encapsulation efficiency of mixed micelles TPGS:poloxamer 188 also greater than single TPGS micelles. The lowest CMC and greatest encapsulation efficiency was obtained in mixed micelles TPGS:poloxamer 188 with ratio 1:4. Dilution stability test was observed visually and mixed micelles showed no precipitation in ratio 1:2 and 1:4. The conclusion, increasing amount of poloxamer 188 in mixed micelles could form bigger particle size, lower CMC, greater encapsulation efficiency.

Keywords : Mixed micelles, TPGS, poloxamer 188, hesperetin, physical characteristic, stability.