# ABSTRAK

Ketoprofen merupakan obat golongan antiinflamasi nonsteroid (AINS) yang termasuk dalam *Biopharmaceutics Classification System* (BCS) kelas II karena memiliki kelarutan yang rendah dan permeabilitas tinggi, sehingga menyebabkan laju disolusi dan bioavailabilitasnya terbatas. Dispersi padat dengan pembawa *hydroxypropyl methylcellulose* (HPMC) dan neusilin US2 yang diformulasikan menggunakan metode *solvent evaporation* merupakan salah satu upaya meningkatkan disolusi ketoprofen. Penelitian ini bertujuan mengetahui pengaruh sistem pembuatan dan pengaruh variasi perbandingan pembawa HPMC dan neusilin US2 sistem dispersi padat terhadap profil disolusi dan *dissolution efficiency* (DE). Penelitian eksperimental murni ini menggunakan dispersi padat (DP) dan campuran fisik (CF) ketoprofen-HPMC-neusilin US2 dengan variasi perbandingan 2:2:6; 2:4:4; dan 2:6:2 (b/b). Uji disolusi dilakukan menggunakan alat disolusi tipe I dalam medium dapar fosfat pH 6,8 dan kadar ketoprofen ditetapkan menggunakan spektrofotometer UV-Vis. Data disolusi DP dan CF dianalisis menggunakan uji statistik *independent t-test*, dan hasil uji disolusi DP dianalisis menggunakan uji statistik ANOVA satu arah atau uji *Kruskal-Wallis*. Hasil penelitian menunjukkan bahwa penetapan kadar ketoprofen memenuhi persyaratan. Dispersi padat memiliki profil disolusi dan $DE_{120}$ lebih tinggi dibandingkan CF. Berdasarkan analisis *independent t-test*, DP formula 1 dan 2 berbeda signifikan dibandingkan CF ($p < 0,05$), sedangkan DP formula 3 tidak berbeda signifikan ($p > 0,05$). ANOVA satu arah menunjukkan perbedaan signifikan nilai $DE_{120}$ antar formula DP ($p < 0,05$), dengan formula 1 berbeda signifikan dibandingkan formula 2 dan 3, sedangkan formula 2 dan 3 tidak berbeda signifikan. Disimpulkan bahwa pembentukan sistem dispersi padat dan variasi perbandingan pembawa berpengaruh terhadap profil disolusi dan DE ketoprofen.

Kata kunci: ketoprofen, dispersi padat, disolusi, HPMC, neusilin US2.

## *ABSTRACT*

*Ketoprofen is a nonsteroidal anti-inflammatory drug (NSAID) that is included in the Biopharmaceutics Classification System (BCS) class II because it has low solubility and high permeability, causing its dissolution rate and bioavailability to be limited. Solid dispersion with hydroxypropyl methylcellulose (HPMC) and neusilin US2 carriers formulated using the solvent evaporation method is one of the efforts to increase the disolution of ketoprofen. This study aims to determine the influence of the manufacturing system and the effect of the comparative variation of HPMC carriers and neusilin US2 solid dispersion systems on the dissolution profile and dissolution efficiency (DE). This purely experimental study used a solid dispersion (DP) and physical mixture (CF) of ketoprofen-HPMC-neusilin US2 with a ratio variation of 2:2:6; 2:4:4; and 2:6:2 (w/w). The dissolution test was carried out using a type I dissolution device in a phosphate medium of pH 6.8 and the ketoprofen level was determined using a UV-Vis spectrophotometer. The DP and CF solution data were analyzed using an independent t-test statistical test, and the results of the DP solution test were analyzed using a one-way ANOVA statistical test or a Kruskal-Wallis test. The results of the study showed that the determination of ketoprofen levels met the requirements. Solid dispersions have a higher resolution profile and $DE_{120}$ than CF. Based on independent t-test analysis, formula 1 and 2 DP were significantly different from CF ($p < 0.05$), while formula 3 DP was not significantly different ($p > 0.05$). One-way ANOVA showed a significant difference in the value of $DE_{120}$ between the DP formula ($p < 0.05$), with formula 1 differing significantly compared to formula 2 and 3, while formula 2 and 3 were not significantly different. It was concluded that the formation of a solid dispersion system and the comparative variation of carriers had an effect on the dissolution profile and DE of ketoprofen.*


*Key words: ketoprofen, solid dispersions, disolution, HPMC, neusilin US2.*