INTISARI

Obat lini pertama untuk menurunkan demam pada anak adalah parasetamol dengan bentuk sediaan sirup. Tahun 2022, muncul masalah dari penggunaan obat tersebut akibat adanya cemaran dalam pelarut obat. Dari permasalahan itu, dilakukan modifikasi bentuk sediaan menjadi *fast disintegrating tablet*. Tujuan penelitian ini adalah mengetahui pengaruh proporsi *crospovidone* dan Ludiflash® terhadap sifat alir serbuk dan fisik *fast disintegrating tablet* parasetamol. Selain itu, mendapatkan proporsi optimum *crospovidone* dan Ludiflash® dari persamaan *simplex lattice design* yang dapat dipercaya.

Fast disintegrating tablet parasetamol dibuat dengan metode kempa langsung. Evaluasi sifat alir serbuk melalui uji kecepatan alir dan sudut diam. Sedangkan evaluasi sifat fisik *fast disintegrating tablet* diantaranya uji keseragaman ukuran, kekerasan, kerapuhan, waktu pembasahan, rasio absorpsi air, waktu disintegrasi, dan keragaman bobot tablet. Data dari hasil evaluasi tersebut diolah menggunakan metode *simplex lattice design* pada *software Design expert v.13.0.5.0*® guna mendapatkan formula optimum dan data prediksi dari setiap pengujian. Setelah itu, data prediksi diverifikasi dengan *software Microsoft excel* melalui uji *one sample t-test*.

Hasil penelitian menunjukkan bahwa *crospovidone* lebih berpengaruh terhadap mempercepat waktu pembasahan dan waktu disintegrasi, serta meningkatkan rasio absorpsi air pada tablet. Sedangkan Ludiflash® lebih dominan untuk meningkatkan sifat alir dan kekerasan tablet. Kombinasi *crospovidone* sebesar 1,5% dan Ludiflash® sebesar 51,5% terhadap bobot tablet dapat memberikan sifat fisik optimum *fast disintegrating tablet* parasetamol. Konsentrasi tersebut berasal dari persamaan *simplex lattice design* yang valid karena tidak ada perbedaan signifikan antara nilai prediksi dan hasil pengujian.

Kata kunci : Parasetamol, *Fast Disintegrating Tablet*, *Crospovidone*, Ludiflash®

ABSTRACT

The first line drug to reduce fever in children is paracetamol in syrup form. In 2022, a problem from the use of that drug is due to contamination in the drug solvent. From this problem, a modification of the dosage form was made to fast disintegrating tablet. The purpose of this study was to determine the effect of the proportion of crospovidone and Ludiflash® on the flow properties of powder and physical fast disintegrating tablet paracetamol. In addition, to obtain the optimum proportion of crospovidone and Ludiflash® from a reliable simplex lattice design.

Fast disintegrating tablet parasetamol was made by direct compression method. Evaluation of powder flow properties through flow rate and angle of repose. While the evaluation of fast disintegrating tablet physical properties include uniformity of size, hardness, friability, wetting time, water absorption ratio, disintegration time, and weight diversity tests. Data from the evaluation results were processed using the simplex lattice design method on Design expert software v.13.0.5.0® to obtain the optimum formula and prediction data from each test. After that, the prediction data was verified with Microsoft excel software using one sample t-test.

The results showed that crospovidone had a greater effect on accelerating wetting and disintegration time, as well as increasing the water absorption ratio in tablets. While Ludiflash® was more dominant to increasing the flow properties and hardness of the tablet. The combination of 1,5% crospovidone and 51,5% Ludiflash® to the weight of the tablet can provide optimum physical properties of fast disintegrating tablet paracetamol. The concentration comes from a valid simplex lattice design is reliable because there is no significant difference between the predicted value and the test results.

Keywords : Paracetamol, Fast Disintegrating Tablet, Crospovidone, Ludiflash®