ABSTRAK

Parasetamol merupakan salah satu obat yang memiliki efek antipiretik dan analgetik yang banyak digunakan oleh masyarakat karena keamanan dan kemudahan pengunaannya dalam swamedikasi. Bahan dalam obat terdiri dari zat aktif dan eksipien. Eksipien berupa bahan pengikat dan bahan penghancur dapat berpengaruh pada sifat fisik tablet berupa kerapuhan dan waktu hancur. Bahan pengikat yang digunakan pada penelitian ini berupa PVP K-30 dan bahan penghancur yang digunakan berupa amilum manihot. Penelitian ini bertujuan untuk menentukan komposisi optimum antara bahan pengikat PVP K-30 dengan variasi 8 mg, 9 mg, 10 mg, 11 mg, dan 12 mg dan bahan penghancur dengan variasi 40 mg, 39 mg, 38 mg, 37 mg, dan 36 mg. Hasil penelitian dianalisis menggunakan ANOVA dan dilakukan penentuan formula optimum. Penentuan formula optimum menggunakan pendekatan *Simplex Lattice Design* (SLD) dengan bantuan *software Design Expert V13*. Pada penelitian ini, tablet parasetamol diproduksi menggunakan metode granulasi basah dengan metode penambahan bahan penghancur secara kombinasi, yaitu intragranular dan ekstragranular. Granul yang telah diproduksi diuji sifat fisiknya meliputi waktu alir, laju alir, dan kompresibilitas serta sifat fisik tablet meliputi organoleptik, keragaman bobot, kekerasan, kerapuhan, dan waktu hancur. Hasil penelitian menunjukkan bahwa tidak ditemukan formula optimum dikarenakan tidak terdapat perbedaan signifikan terhadap kekerasan dan kerapuhan tablet. Perbedaan signifikan hanya terjadi pada waktu hancur tablet. Seluruh formula memenuhi syarat pada keragaman bobot tablet. Penentuan formula optimum hanya dapat dilakukan apabila tablet memenuhi syarat keragaman bobot, kekerasan, kerapuhan, dan waktu hancur tablet serta terdapat perbedaan signifikan antar seluruh formula terhadap respon kekerasan, kerapuhan, dan waktu hancur tablet.

Kata Kunci: formulasi, intragranular, ekstragranular, komposisi, optimum

ABSTRACT

Paracetamol is a medicine that has antipyretic and analgesic effects that is widely used by the public due to their safety and ease of use in self-medication. The ingredients in medicine consist of active pharmaceutical ingredient and excipient. Excipients in the form of binder and disintegrants can the fragility and disintegration time of tablet. The binder used is PVP K-30 and the disintegrant used is starch manihot. This study aims to determine the optimum composition between the binder PVP K-30 with variations of 8 mg, 9 mg, 10 mg, 11 mg, and 12 mg and the disintegrant with variations of 40 mg, 39 mg, 38 mg, 37 mg, and 36 mg. The results of the study were analyzed using ANOVA and the optimum formula was determined used the Simplex Lattice Design (SLD) approach with the help of softwere Design Expert V13. In this study, paracetamol tablets were produced using the wet granulation method with a combination of disintegrants, namely intragranular and extragranular. The physical properties of the granules that have been produced were tested including flow time, flow rate, and compressibility as well as the physical properties of the tablets including organoleptic, weight diversity, hardness, friability, and disintegration time. The results of this study showed that no optimum formula was found because there was no significant difference in tablet hardness and friability. Significant difference only occured in tablet disintegration time. All formulas complied the requirements for uniformity test tablets. Determination of the optimum formula can only be done if the tablets can complied the requirements for uniformity test, hardness, friability, and tablet disintegration and there are have significant differences between all formulas in the response of tablet hardness, friablity, and disintegration time.

***Keywords**: formulation, intragranular, extragranular, composition, optimum*