ABSTRAK

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Prog Studi : S1 Farmasi

Judul : Optimasi *Sodium Starch Glycolate* Dalam Formulasi Tablet Sebagai Upaya Meningkatkan Bioavailabilitas Gemfibrozil

Menurut *Biopharmaceutical Classification System,* gemfibrozil diklasifikasikan sebagai obat kelas-II. Obat kelas II memiliki permeabilitas yang tinggi tetapi kelarutan rendah. Kelarutan rendah akan mengarah pada permasalahan bioavailabilitas. Masalah disolusi dapat diatasi salah satunya dengan cara penambahan superdisintegran seperti *sodium starch glycolate* (SSG) dalam formula. Oleh karena itu, perlu dilakukan optimasi formula yang tepat untuk memperbaiki permasalahan disolusi pada tablet gemfibrozil. Untuk memastikan kualitas tablet selama proses formulasi, maka diperlukan serangkaian uji fisik dan uji disolusi *in vitro*. Penelitian dilakukan dengan membuat tablet gemfibrozil menggunakan metode granulasi basah dengan perbedaan konsentrasi *sodium starch glycolat* sebesar 1%; 2%; dan 3% dalam setiap formula. Kemudian dilakukan uji terhadap 3 formula tersebut meliputi uji massa tablet, uji fisik tablet, dan uji disolusi tablet secara *in vitro*. Dari ketiga formula dapat disimpulkan bahwa formula gemfibrozil dengan konsentrasi SSG 3% dapat memenuhi syarat uji massa tablet, uji fisik tablet, dan uji disolusi *in vitro* dengan hasil persentase disolusi sebesar 86,54% waktu 30 menit. Dalam penelitian ini, *Sodium starch glycolat* (SSG) diketahui merupakan suatu superdisintegran yang memiliki peran penting dalam peningkatan disolusi. *Sodium starch glycolat* membuat proses disintegrasi cepat yang mengubah tablet ke bentuk dispersi halus. Dispersi halus karena disintegrasi cepat akan meningkatkan luas permukaan spesifik yang kontak dengan medium pendispersi dan dengan demikian dapat mempengaruhi disolusi tablet secara in-vitro. Sodium Starch Glycolate dengan konsentrasi 3% pada F3 dapat meningkatkan laju disolusi tablet gemfibrozil. Dibuktikan dengan persentase disolusi obat yang memenuhi syarat yaitu 86,55% pada menit ke 30. Sementara itu F1 79,21% dan F2 83,03% tidak memenuhi syarat.

Kata kunci: Gemfibrozil, Sodium Starch Glycolate, Uji Disolusi Tablet

ABSTRACT

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Title *: Optimization of Sodium Starch Glycolate in Tablet Formulation as an Effort to Increase Bioavailability of Gemfibrozil*

According to the Biopharmaceutical Classification System, gemfibrozil is classified as a class II drug. Class II drugs have high permeability but low solubility. Low solubility will lead to bioavailability problems. One way to solve the dissolution problem is by adding a superdisintegrant such as sodium starch glycolate (SSG) in the formula. Therefore, it is necessary to optimize the right formula to improve the dissolution problem in gemfibrozil tablets. To ensure tablet quality during the formulation process, a series of physical tests and in vitro dissolution tests are required. The research was conducted by making gemfibrozil tablets using the wet granulation method with a 1% difference in sodium starch glycolate concentration; 2%; and 3% in each formula. Then, the three formulas were tested including tablet mass test, tablet physical test, and tablet dissolution test in vitro. From the three formulas, it can be concluded that the gemfibrozil formula with a concentration of 3% SSG can meet the requirements for tablet mass test, tablet physical test, and in vitro dissolution test with a dissolution percentage of 86.54% in 30 minutes. In this study, Sodium starch glycolate (SSG) is known to be a superdisintegrant that has an important role in increasing dissolution. Sodium starch glycolate makes for a rapid disintegration process that converts the tablet into a fine dispersion form. Fine dispersion due to rapid disintegration will increase the specific surface area in contact with the dispersing medium and thereby affect the in vitro dissolution of the tablet. Sodium Starch Glycolate with a concentration of 3% in F3 can increase the dissolution rate of gemfibrozil tablets. It was proven by the percentage of dissolution of the drug that met the requirements, namely 86.55% at 30 minutes. Meanwhile, F1 was 79.21% and F2 83.03% did not meet the requirements.

Key Word: *Gemfibrozil, Sodium Starch Glycolate, Tablet Dissolution Test*