INTISARI

AGUSTINA,W.E., 2019, OPTIMASI KOMPONEN *EFFERVESCENT* DAN PEG 4000 TERHADAP KARAKTERISASI DAN UJI MUTU FISIK TABLET *EFFERVESCENT* MELOKSIKAM. SKRIPSI. FAKULTAS FARMASI UNIVERSITAS SETIA BUDI, SURAKARTA

Meloksikam termasuk kedalam golongan obat BCS kelas II yang memiliki kelarutan yang rendah dengan permeabilitas tinggi. Biovailabilitas meloksikam sekitar 89% lipofitas tinggi dengan absorbsi dan disolusi yang terbatas. Metode dispersi padat dapat meningkatkan kelarutan meloksikam dengan menggunakan pembawa PEG 4000. Penelitian ini bertujuan untuk mengetahui konsentrasi optimum dan karakterisasi tablet yang diperoleh dari komponen *effervescent* dan PEG 4000 berdasarkan program *factorial design*.

Penelitian ini menggunakan 4 formula yang diperoleh dari program optimasi *factorial design* dengan variasi konsentrasi asam sitrat sebesar 15% dan 25% serta PEG 4000 sebesar 4 dan 6 bagian dari asam sitrat. Penetapan formula optimum tablet *effervescent* meloksikam yang terdispersi PEG 4000 diperoleh dari parameter titik kritis disolusi efisiensi (DE_{15}), obat yang terdisolusi pada menit ke 3 (Q_3), peningkatan kelarutan dan peningkatan kelembapan dengan metode *factorial design* terhadap kombinasi asam sitrat dan PEG 4000 menggunakan *design expert software versi 8.0.6 trial*.

Hasil optimasi diperoleh formula optimum dengan kombinasi asam sitrat 15% dan PEG 4000 4 bagian dengan nilai DE_{15} sebesar 43,01%, Q3 22,38%, peningkatan kelembapan 34,29% dan peningkatan kelarutan 134,96%. Hasil disolusi menunjukkan dispersi padat meloksikam mempunyai nilai Q_3 dan DE_{15} lebih tinggi dibandingkan dengan meloksikam murni dan kelarutan dispersi padat meloksikam mengalami peningkatan sebesar 134,96 % atau 1,34 kali dari meloksikam murni.

Kata kunci : Meloksikam, dispersi padat, asam sitrat, PEG 4000, tablet *effervescent, factorial design*

ABSTRACT

AGUSTINA,W.E., 2019, OPTIMIZATION OF EFFERVESCENT COMPONENTS AND PEG 4000 ON CHARACTERIZATION AND PHYSICAL QUALITY TEST EFFERVESCENT MELOXICAM TABLET. THESIS. FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA

Meloxicam is part into class II Biopharmaceutic Classification System (BCS) which has low solubility with high permeability. Biovailability meloxsicam about 89% high lipofitas with absorption and disolution are limited. Solid dispersion methode can increased the solubility of meloxicam using PEG 4000. The purpose of the research is determine the optimum concentration and characterization of tablets obtained by effervescent components, PEG 4000 and meloxicam based on the factorial design program.

This research used 4 formulas obtained from the factorial design optimization program with variations in citric acid concentration of 15% and 25% and PEG 4000 4 and 6 parts of citric acid. Determination of the optimum formula for effervescent meloxicam tablets dispersed by PEG 4000 was obtained from the critical point of efficiency dissolution parameters (DE_{15}), drug dissolved at minute 3 (Q_3), increased solubility and increased humidity which was optimized by the factorial design method on the combination of citric acid and PEG 4000 uses an expert software version 8.0.6 trial.

The optimum results were obtained for the optimum formula with a combination of 15% citric acid and 4 parts PEG 4000. The optimization results are obtained based on critical parameters that provide the most dominant influence on the preparation with a value of DE15 of 43,01%, Q3 22,38 %, an increase in humidity of 34.29% and an increase in solubility of 134,96%. Dissolution results showed that Q3 and DE15 of the solid dispersion of meloxicam had high value than pure meloxicam and the solubility of solid dispersion of meloxicam increased by 134.96% or 1.34 times that of pure meloxicam.

Key Word : Meloxicam, solid dispersion, citric acid, PEG 4000, effervescent tablet, factorial design