PROCEEDING

The 5th International Conference on Pharmacy and Advanced Pharmaceutical Sciences November 1–2, 2017 Yogyakarta, Indonesia

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Editors:

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Preface from Editor

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On behalf of the Editors, I am deeply grateful to all the reviewers who have been working very hard for reviewing manuscripts submitted during the 5th International Conference on Pharmacy and Advanced Pharmaceutical Sciences" held in Sheraton Hotel Yogyakarta, by the Faculty of Pharmacy, Gadjah Mada University, Yogyakarta, Indonesia on November 1 - 2, 2017

We would like to acknowledge to keynote speakers and all the distinguished speakers for their valuable contribution during this conference. Furthermore, we also thank the steering committee for their advice and support. Finally, I would appreciate to all participants, paper and poster presenters who participated in the conference as well as cordially contributed by submitting their full manuscripts published in this proceeding.

Finally, we believe that the presence of this proceeding will significantly contribute to the advance scientific research, especially in the field of Pharmaceutical Science and Thecnology.

Yogyakarta, November 2017,
Chief

Rina Kuswahyuning

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THE FORMATION OF INCLUSION COMPLEXES OF GLIMEPIRIDE-BETACYCLODEXTRIN TO INCREASE SOLUBILITY AND DISSOLUTION RATE

Fitrianti Darusman*, Ulfa Siti, Silviyaturrohmah
Departement of Pharmacy, MIPA, Universitas Islam Bandung, Jl. Tamansari No.1 Bandung 40116, West Java, Indonesia
efit.bien@gmail.com

ABSTRACT

Glimepiride is a third-generation oral antidiabetic drug of sulfonylurea group capable of lowering blood glucose levels with small hypoglycemia side effects. However glimepiride including the Biopharmaceutical Classification System (BCS) class II has a solubility practically insoluble in water so that the effect on the dissolution rate and bioavailability. The efforts to increase the solubility and dissolution rate of glimepiride by the method of formation of inclusion complexes using betacyclodextrin compounds with co-grinding and solvent evaporation technique in a 1:1, 1:2 and 2:1 mole ratio. Yield solids of inclusion complexes glimepiride in betacyclodextrin in solubility test until it reaches equilibrium at 37±5°C for 24 hours and the dissolution rate test using USP II (paddle) with a stirring speed of 50 rotations per minute, phosphate buffer pH 7.4 as medium, 900 mL at 37±5°C. The result of solubility and dissolution rate which indicates the formation of inclusion complexes of glimepiride-betacyclodextrin occurred in the 1:2 mole ratio, in co-grinding and solvent evaporation techniques, characterized by increased solubility and dissolution rate of glimepiride compared to pure glimepiride and the physical mixture of both. However, significant effect on solvent evaporation technique.

Key words : Glimepiride, inclusion complexes, betacyclodextrin, solubility, dissolution rate.

INTRODUCTION

Glimepiride is a third-generation oral antidiabetic drug of sulfonylurea group capable of lowering blood glucose levels with small hypoglycemia side effects. However glimepiride including the Biopharmaceutical Classification System (BCS) class II has a solubility practically insoluble in water so that the effect on the dissolution rate and bioavailability (Kawabata, et.al., 2011).

One effort to increase the solubility of GMP is by forming inclusion complex using cyclodextrin derivative compound that is betacylodextrin