

PROCEEDING

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



Universiteit Leiden



PROCEEDING

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

Editors:

Dr. Rina Kuswahyuning, M.Si., Apt.

Prof. Dr. Abdul Rohman, M.Si., Apt.

Dr. Fita Rahmawati, M.Si., Apt.

Dr. Ika Puspitasari, M.Si., Apt.

Dr. Silvia Utami Tanjung, M.Si., Apt.

Dr. Dwi Endarti, M.Kes., Apt.

Published by:

**Faculty of Pharmacy Universitas Gadjah Mada
Sekip Utara, Yogyakarta, 55281,
Indonesia**

Pharmaceutical Science & Clinical Pharmacy

Published by:

**Faculty of Pharmacy Universitas Gadjah Mada
Sekip Utara, Yogyakarta, 55281,
Indonesia**

ISSN : 2614-1779

First Edition, 2017

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher, Faculty of Pharmacy, Gadjah Mada University, Yogyakarta, Indonesia.

No responsibility is assumed by the publisher for any injury and/ or damage to persons or property as a matter of product liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein.

Printed in Yogyakarta , Indonesia

Preface from Editor

Preface From Editor

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

Table of Content

Preface from Editor

Table of Content

The Comparison of Sodium Alginate and Xanthan Gum on Captopril Release Profile of Floating Drug Delivery System Effervescent Capsule <i>Adeltrudis Adelsa D., Zakinza Karina AP, Ratna Triana SGZ, Dahlia Permatasari</i>	1 – 9
Pharmacist's Role In Individualising Amikacin Dosing In Severe Renal Failure <i>Mochamad Djunaedi, Ab Fatah Ab Rahman</i>	10 – 14
Observational Study of Analgesic and Pain Relief In Postoperative Patients <i>Budi Suprpti, Aisyah, Dewi Wara Shinta, Arga Patrianagara</i>	15 – 26
Red Betel Leaves (<i>Piper crocatum</i> RUIZ & PAV) Extract Granule Formula and <i>In Vivo</i> Antiinflammatory Activity Studies <i>Laksmitawati DR, Kusumaningsih DA, Fahleni, Arifin MF¹</i>	27 – 38
Antidiabetic Activity and Phytochemical Analysis of Ethyl Acetate Fraction of Dadangkak Roots (<i>Hydrolea spinosa L</i>) From South Kalimantan <i>Muhammad Zaini, Vivi Shofia, Amalia Ajrina</i>	39 – 48
THE FORMATION OF INCLUSION COMPLEXES OF GLIMEPIRIDE-BETACYCLODEXTRIN TO INCREASE SOLUBILITY AND DISSOLUTION RATE <i>Fitrianti Darusman, Ulfa Siti, Silviyaturrohmah</i>	49 – 55
Utilization of Black Bali Rice (<i>Oryza sativa L.</i>) in Improving Insulin Activity and Regeneration of B-Cell Pancreas on White Diabetic Rat with Alloxan Induced <i>Ketut Agus Adrianta, I Gusti Agung Ayu Kusuma Wardani</i>	56 – 63
Toxicology of CR(III)- Glutamic Acid as Hypoglycemic Nutraceutical on Streptozotocin-Nicotinamide Induced Diabetic Rats <i>Kun Sri Budiasih, Kartika Ratna Pertiwi, Rizqie Aultana</i>	64 – 71
The Influence of Appearance Pharmacy And Drug Information Service to Patient Satisfaction of Outpatient Program Jamkesda In H.Hasan Basry Hospital at Kandangan City <i>Nita Pujianti, Aulia Azizah, Musafaah, Fauzie Rahman</i>	72 – 76
The Effect of Keto-Acids Supplements on GFR Patients with Chronic Kidney Disease in One of General Hospital in Jakarta <i>Putu Rika Veryanti, Yan Santosa</i>	77 – 80

Health Related Quality of Life of Ischemic Stroke Patients in Yogyakarta Measured With EQ-5D-5L 81 – 90
Muslimah, Tri Murti Andayani, Rizaldy Pinzon, Dwi Endarti

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

Fitrianti Darusman*, Ulfa Siti, Silviaturrohmah

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 $37\pm 5^{\circ}\text{C}$ 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 $37\pm 5^{\circ}\text{C}$. 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 betacyclodextrin