

Pharmaceutical Technology Perspectives

Muhammad Taher



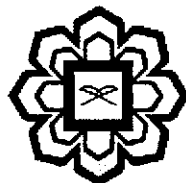
IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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Editor

Muhammad Taher



IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
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Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Muhammad Taher
Pharmaceutical Technology Perspectives
Muhammad Taher
Include index
Bibliography: p. 149

ISBN: 978-967-418-075-1

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan

Table of Content

1. Small Active Molecules with Insulin Mimetic Activity	12
<i>Muhammad Taher</i>	
2. Liver and Kidney Protective Effects of the Polyphenols, Tocopherols and Carotenoids	25
<i>Juliana bt Md. Jaffri</i>	
3. Potential Surface Active Properties of <i>Nigella sativa</i>	37
<i>Siti Nurfajariah bt Said and Kausar bt Ahmad</i>	
4. Pufa in Fish: Extraction and Fractionation Methods	51
<i>Sahena Ferdosh and Md. Zaidul Islam Sarker</i>	
5. Polypyrrole-Peg Composite Film for Drug Delivery	64
<i>Khadijah bt Edueng</i>	
6. Co-Encapsulation of Cyclophosphamide and Mesna into Double-Walled Microspheres	77
<i>Farahidah bt Mohamed and Christopher van der Wallle</i>	
7. A Recent Updates of Polysaccharide Based Nanoparticulate Oral Preparation of Insulin with Special Emphasis on <i>In Vivo</i> Application	97
<i>Uttam Kumar Mandal</i>	
8. Development of an Appropriate and Robust Dissolution Method for Solid Dosage Forms	116
<i>Uttam Kumar Mandal</i>	
9. Use of Cyclodextrin in the Production of Biomedical Nano Particles	126
<i>Omar El-Hadad</i>	
10. The Role of Pharmacogenetic Variation in Metoprolol CYP2D6 Genotypes Polymorphism	133
<i>Wan Mohd Azizi Wan Sulaiman, Tariq Abdul Razak, Lay Kek Teh and Rusli Ismail</i>	
11. Polymorphic Crystals and Their Characterisation	163
<i>Mohd Rushdi Abu Bakar, Zoltan Kalman Nagy and Christopher David Rielly</i>	

CHAPTER 7

A RECENT UPDATES OF POLYSACCHARIDE BASED NANOPARTICULATE ORAL PREPARATION OF INSULIN WITH SPECIAL EMPHASIS ON *IN VIVO* APPLICATION

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In the 21st century, diabetes has appeared as curse to human civilization. According to a recent WHO report, approximately 346 million people worldwide are suffering from this deadly disease. A large number of diabetic patients require subcutaneous daily doses of insulin which is painful and associated with many other complications. For obvious reason of patient incomppliance with existing therapy, the search for alternative simple, noninvasive and patient friendly delivery modes are being explored by scientists all over the world. So far, polysaccharides like chitosan, alginates, and pectin based insulin nanoparticles have produced limited but encouraging in vivo results for oral delivery of insulin. The present review article deals with polysaccharide based oral nanoparticulate formulations of insulin and their in vivo success storey.

7.1 Introduction

Diabetes is one of the major causes of premature illness and death worldwide. It is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body can't effectively use the insulin it produces. *Insulin* is a peptide hormone which mainly regulates blood sugar. It is composed of 51 amino acids that is synthesized, packaged, and *secreted in pancreatic beta cells*. Hyperglycemia or increased blood sugar is a common effect of uncontrolled diabetes and over time it leads to serious damage to many of the body's