

Pharmaceutical Technology Perspectives

Muhammad Taher



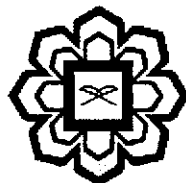
IIUM PRESS

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

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CHAPTER 1

SMALL ACTIVE MOLECULES WITH INSULIN MIMETIC ACTIVITY

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Type 2 diabetes (non-insulin-dependent diabetes mellitus) is a chronic metabolic disease that results from defects in insulin secretion and insulin receptor kinase. Investigation of novel small active molecule that can potentiate insulin action or having a similar action as insulin is important in the treatment of diabetes. World ethnobotanical information on medicinal plants reports almost 800 plants used in the treatment of diabetes mellitus. However, only a small number of them have been investigated to identify their active principle in antidiabetes properties.

1.1 Plants in Type 2 Diabetes Treatment

The plant extracts and its product play an important role in treating many symptoms. Pioneering studies on the active constituents of *Podophyllum peltatum* followed by the discovery and development of the antileukemic agents, vinblastine and vincristine from *Catharantus roseus* provided convincing evidence that plants could be sources of novel and potential chemotherapeutic agents (Baker *et al.*, 1995).

Imparl-Radosevich *et al.* (1998), Jarvill-Taylor *et al.* (2001), Anderson *et al.* (2004) and Pszczola (2001) have introduced method to evaluate plants compound for antihyperglycemia activity. The plant used is cinnamon and suggested to contain a novel phenolic polymer. The compound stimulated phosphorylation insulin receptor and enhance glucose uptake in 3T3-L1 adipocytes. Khan *et al.* (2003) reported the effect of *Cinnamomum cassia* on the diabetes