UNIVERSITI TEKNOLOGI MARA

BIOFLAVONOIDS FROM THE LEAVES OF *FICUS DELTOIDEA JACK* WITH α-GLUCOSIDASE INHIBITION

NOR AKMAL YATI BINTI SULONG

Thesis submitted in fulfillment of
the requirements for the degree of
Master of Science

Faculty of Pharmacy

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledge as referenced work.This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Nor Akmal Yati binti Sulong
Student I.D.No	:	2008264854
Programme	:	Master of Science
Faculty	:	Faculty of Pharmacy
Title	:	Bioflavonoids from the Leaves of *Ficus deltoidea Jack* with α-Glucosidase Inhibition.
Signature of Student	:	.....
Date	:	July 2014

ABSTRACT

The leaves of *Ficus deltoidea* are used as a traditional medicine by diabetes patients in Malaysia. The objective of the study is to identify and evaluate bioactive constituents with *in vivo* α-glucosidase inhibition. The partitioned extracts, subfractions and pure bioactive constituents were subjected to the *in vitro* and *in vivo* α-glucosidase inhibition assay. The identified bioactive constituents were administered orally to sucrose loaded normoglycemic mice and induced diabetic rats. The postprandial blood glucose levels were monitored at 30 min interval. Acute toxicity was evaluated in both normoglycemic mice and induced diabetic rats. Bioactivity guided fractionation led to the isolation of C-glycosyl bioflavonoids namely,vitexin **(78)** and isovitexin **(79)**. Oral administration of 1 mg/kg of either vitexin or isovitexin significantly *($p<0.05$)* reduced the postprandial blood glucose level in sucrose loaded normoglycemic mice at 30 min. The percentage of postprandial blood glucose reduction was highest in sucrose loaded induced diabetic rats administered orally with 200 mg/kg of vitexin or 100 mg/kg of isovitexin. Both vitexin and isovitexin did not exert any signs of toxicity at the highest dose of 2 g/kg administered orally to normoglycemic mice and induced diabetic rats. Both the *C*-glycosyl bioflavonoids, namely, vitexin and isovitexin exhibited *in vivo* α-glucosidase inhibition.

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