CHEMICAL STUDIES ON SELECTED MALAYSIAN ANNONACEAE SPECIES

A dissertation submitted to the

Faculty of Science

University of Malaya

in the fullfillment of the requirement for the degree of

Master of Science

By

YATIMAH BT ALIAS

MAY 1995

KUALA LUMPUR

ACKNOWLEDGEMENT

I wish to forward my greatest appreciation to my supervisor Professor Dr. A. Hamid A. Hadi for his beneficial guidance, invaluable advice and dedication throughout the course of this study. I would like to express my deepest gratitude to Dr. Khalijah Awang for her interest, guidance, encouragement and supervision in this work.

Acknowledgement also go to Halimah A. Rahim, L. E. Teo, G. Pacyappan, Sidon, Guillaunme and the French cooperation for their helpful guidance, cooperation and technical assistant. All knowledge and experience will treasured with fondest memories.

Finally, I owe much to my husband Ismail Yusoff for his constant support, valuable helps, kind assistance and patience in the period of this study.

The work reported in this dissertation was supported by research grants from University of Malaya, Kuala Lumpur.

ABSTRACT

The isolation and structural elucidation of two Malaysian Annonaceae species have been carried out in this study. The structure of the flavonoids and alkaloids were elucidated by spectroscopic methods. The two species are *Fissistigma lanuginosum* and *Polyalthia hookerian*. Alkaloids were found in both species and flavonoids were only isolated from *Fissistigma lanuginosum*.

The flavonoids isolated from *Fissistigma lanuginosum* were pedicin **21**, 2', 5' - dihydroxy - 3', 4', 6' - trimethoxychalcone **22**, 5, 8 - dihydroxy - 6, 7 - dimethoxyflavone **23**, fissistin **33**, isofissistin **34**, 3', 4', 6' - trimethoxy - 2', 5' - quinochalcone **35** and alkaloids were liriodenine **39** and lanuginosine **40**. Two new ' condensed ' chalcones, **33** and **34**, were elucidated by spectral methods, especially 2D NMR.

Beside the main alkaloids and flavonoids isolated from *Fissistigma lanuginosum*, three other alkaloids were extracted from *Polyalthia hookerian* identified as lysicamine **41**, liriodenine and atherospermidine **42**.

ABSTRAK

Pengasingan dan elusidasi struktur juzuk-juzuk kimia bagi dua spesies Annonaceae yang terdapat di Malaysia telah dikaji. Struktur flavonoid dan alkaloid telah dielusidasi menggunakan kaedah spektroskopi. Dua spesies yang dikaji ialah *Fissistigma lanuginosum* dan *Polyalthia hookeerian*. Alkaloid telah ditemui dalam kedua-dua spesies tersebut manakala flavonoid hanya terdapat dalam *F. lanuginosum*.

Flavonoid yang dipisahkan dari *F. Lanuginosum* ialah pedicin **21**, 2',5'-dihidroksi-3',4',6'-trimetoksicalkon **22**, 5-8-dihidroksi-6,7-dimetoksiflavon **23**, fissistin **33**, isofissistin **34**, 3',4'6'-trimetoksi-2',5'-kuinocalkon **35** dan alkaloid pula ialah liriodenina **39** dan lanoginosina **40**. Dua calkon baru iaitu **33** dan **44** telah dielusidasi dengan kaedah spektroskopi terutama 2D RMN.

Disamping alkaloid dan flavonoid yang dipisahkan dari *Fissistigma lanuginosum*, tiga lagi alkaloid telah diekstrak dan diasingkan dari *Polyalthia hookerian* dan dikenalpasti sebagai lysicamina **41**, liriodenina **39** dan atherospermidina **42**.

List of Tables, Schemes and Figures.

List of Tables, Schemes and Figures.

Schemes

Figures

TABLE OF CONTENTS