

UNIVERSITI PUTRA MALAYSIA

ANTI-HYPERCHOLESTEROLEMIA AND ANTIOXIDANT EFFECTS OF BELALAI GAJAH (Clinacanthus nutans L.) EXTRACTS AND PROTO-CATECHUIC ACID RICH FRACTION, In Vivo AND In Vitro

SAREGA A/P NADARAJAN

FPSK(p) 2016 21



ANTI-HYPERCHOLESTEROLEMIA AND ANTIOXIDANT EFFECTS OF BELALAI GAJAH (*Clinacanthus nutans* L.) EXTRACTS AND PROTO-CATECHUIC ACID RICH FRACTION, *In Vivo* AND *In Vitro*

By

SAREGA A/P NADARAJAN

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Doctor of Philosophy

July 2016

COPYRIGHT

All material contained within the thesis, including without limitation text, logos, icons, photographs and all other artwork, is copyright material of Universiti Putra Malaysia unless otherwise stated. Use may be made of any material contained within the thesis for non-commercial purposes from the copyright holder. Commercial use of materialmay only be made with the express, prior, written permission of Universiti Putra Malaysia.

Copyright © Universiti Putra Malaysia



UNIVERSITI PUTRA MALAYSIA

STATUS CONFIRMATION FOR THESIS / PROJECT REPORT AND COPYRIGHT

ACADEMIC SESSION :

TITLE OF THESIS / PROJECT REPORT :

ANTI-HYPERCHOLESTEROLEMIA AND ANTIOXIDANT EFFECTS OF BELALAI GAJAH (Clinacanthus nutans L.) EXTRACTS AND PROTO-CATECHUIC ACID RICH FRACTION, In Vivo AND In Vitro

NAME OF STUDENT : <u>SAREGA A/P NADARAJAN</u>

I acknowledge that the copyright and other intellectual property in the thesis/project report belonged to Universiti Putra Malaysia and I agree to allow this thesis/project report to be placed at the library under the following terms:

- 1. This thesis/project report is the property of Universiti Putra Malaysia.
- 2. The library of Universiti Putra Malaysia has the right to make copies for educational purposes only.
- 3. The library of Universiti Putra Malaysia is allowed to make copies of this thesis for academic exchange.

I declare that this thesis is classified as :

*Please tick (v)



RESTRICTED

CONFIDENTIAL



OPEN ACCESS

(Contain confidential information under Official Secret Act 1972).

(Contains restricted information as specified by the organization/institution where research was done).

I agree that my thesis/project report to be published as hard copy or online open access.

This thesis is submitted for :

PATENT

Embargo from_____(date)

(date)

Approved by:

(Signature of Student) New IC No/ Passport No.: (Signature of Chairman of Supervisory Committee) Name:

_until _

Date :

Date :

[Note : If the thesis is CONFIDENTIAL or RESTRICTED, please attach with the letter from the organization/institution with period and reasons for confidentially or restricted.]