



**UNIVERSITI PUTRA MALAYSIA**

***PURIFICATION AND CHARACTERISATION OF  
CYTOBIOTIC PRODUCED BY *Lactobacillus plantarum* I-UL4 ON  
HUMAN BREAST CANCER CELL LINE (MCF-7)***

**TAN HUEY KHENG**

**FBSB 2016 26**



**PURIFICATION AND CHARACTERISATION OF  
CYTOBIOTIC PRODUCED BY *Lactobacillus plantarum* I-UL4 ON HUMAN  
BREAST CANCER CELL LINE (MCF-7)**

By

**TAN HUEY KHENG**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,  
in Fulfilment of the Requirements for the Degree of Master of Science**

**June 2016**

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 material may 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 :**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NAME OF STUDENT :** \_\_\_\_\_

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 )

**CONFIDENTIAL**

(Contain confidential information under Official Secret Act 1972).

**RESTRICTED**

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

**OPEN ACCESS**

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 \_\_\_\_\_ until \_\_\_\_\_  
(date) (date)

**Approved by:**

\_\_\_\_\_  
(Signature of Student)  
New IC No/ Passport No.:

\_\_\_\_\_  
(Signature of Chairman of Supervisory Committee)  
Name:

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. ]**