

靜宜大學食品營養學系

碩士論文

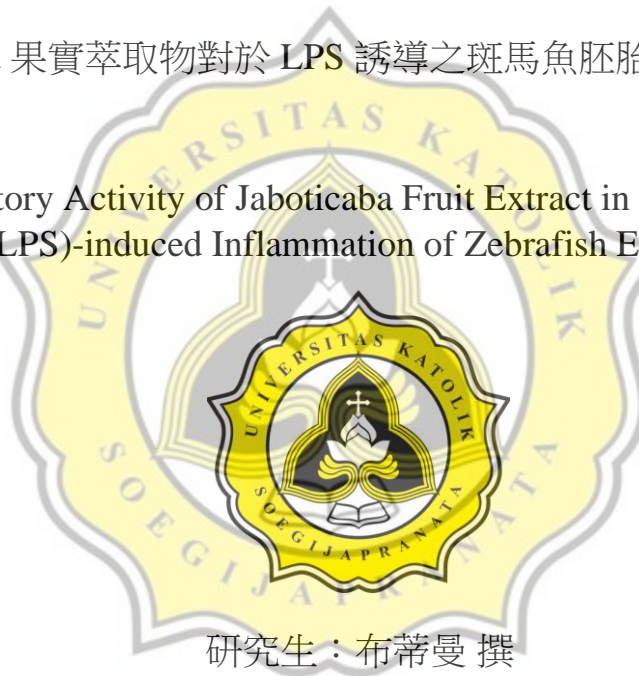
Department of Food and Nutrition, Providence University

Department of Agricultural Technology, Soegijapranata Catholic University

Master Thesis

Jaboticaba 果實萃取物對於 LPS 誘導之斑馬魚胚胎的抗發炎活性

Anti-Inflammatory Activity of Jaboticaba Fruit Extract in Lipopolysaccharides
(LPS)-induced Inflammation of Zebrafish Embryo



研究生：布蒂曼 撰

Graduate student : Josephine Claretta Budiman

指導教授：鍾雲琴博士

Advisor : Yun-Chin Chung, Ph.D.

Dr. B. Soedarini, MP

中華民國一百一十年七月

July, 2021

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MASTER THESIS

Submitted in partial fulfillment of the requirements for a Food Technology
Master's degree in Faculty of Agricultural Technology

By:

JOSEPHINE CLARETTA BUDIMAN

19.13.0005

This thesis has been approved and defended in front of the examination committees on 16
July, 2021

Semarang, July 20th, 2021
Faculty of Agricultural Technology
Soegijapranata Catholic University

Supervisor



Dr. Yun-Chin Chung

Dean

Dr. R. Probo Y. Nugrahedi, S.T.P., M.Sc.

Co-Supervisor



Dr. B. Soedarini, MP.

靜宜大學碩士論文審定書
Providence University

Master's Thesis Oral Defense Approval Form

食品營養學系碩士班

Graduate Program Department of Food and Nutrition

學生姓名：布蒂曼 610860181

口試日期：2021/7/16

(STUDENT)

(DATE)

論文題目：Jaboticaba 果實萃取物對於 LPS 誘導之斑馬魚胚胎的抗發炎活性
(THESIS TITLE) Anti-Inflammatory Activity of Jaboticaba Fruit Extract in LPS-induced Inflammation of Zebrafish Embryo

審查委員簽名
Committee Members

經本委員會評審認可，本案符合碩士資格。

召集人：黃承輝
(COMMITTEE CONVENER)



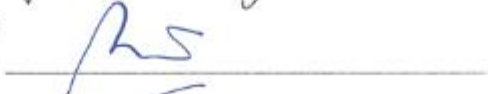
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(EXAM COMMITTEE MEMBER)



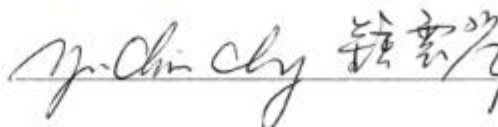
指導教授：鍾雲琴
(THESIS ADVISOR)



指導教授(共同指導)：Soedarini
(THESIS ADVISOR)

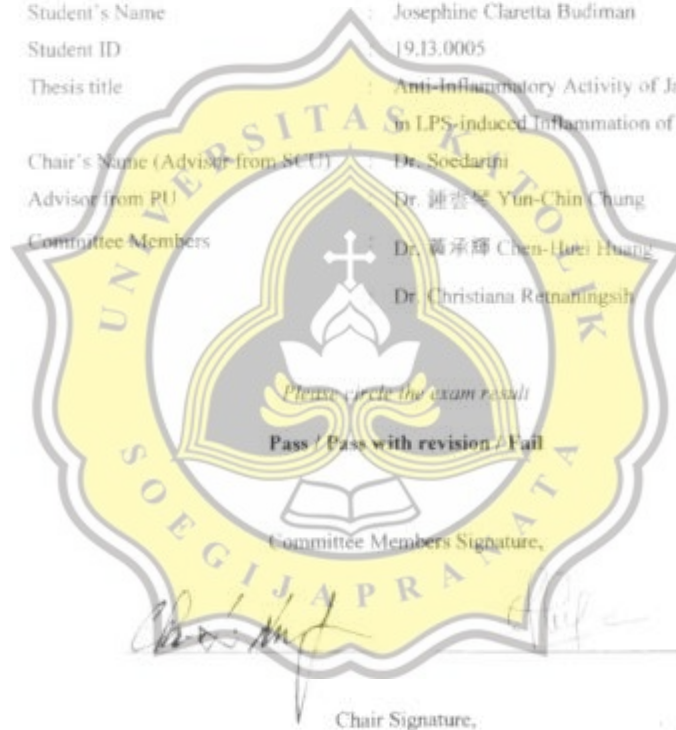


系主任：
(CHAIRPERSON)



**THESIS DEFENSE REPORT
MASTER PROGRAM OF FOOD TECHNOLOGY
SOEJIAPRANATA CATHOLIC UNIVERSITY**

Date : July 16, 2021
Time : 13:00 am
Student's Name : Josephine Claretta Budiman
Student ID : 19.13.0005
Thesis title : **Anti-Inflammatory Activity of Jaboticaba Fruit Extract
in LPS-induced Inflammation of Zebrafish Embryo**
Chair's Name (Advisor from SCU) : Dr. Soedartha
Advisor from PU : Dr. 鍾雲琴 Yun-Chin Chung
Committee Members : Dr. 黃承輝 Chen-Huei Huang
Dr. Christiana Retnaningsih





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Yang bertanda tangan dibawah ini:

Nama : Josephine Claretta Budiman
Program Studi : Teknologi Pangan
Fakultas : Teknologi Pertanian
Jenis Karya : Tesis

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Semarang, July 20th, 2021



Josephine Claretta Budiman
19.13.0005

SUMMARY

Inflammation can be defined as the immune system's response to harmful stimuli, such as pathogens, damaged cells, toxic compounds, or irradiation. Inflammation can be dangerous to human body because it may lead to various diseases. To help reduce inflammation, many people have been looking for natural sources of bioactive compounds. One of the examples is *Myrciaria cauliflora* (Jaboticaba), an edible fruit commonly found in Brazil. It contains considerable amount of polyphenols and other bioactive compounds which are beneficial for human health. Our previous studies showed the anti-inflammatory effect of Jaboticaba both *in vitro* and *in vivo* against COPD (Chronic Obstructive Pulmonary Disease) and IBD (Inflammatory Bowel Disease). To our knowledge, no publication on the anti-inflammatory effect of jaboticaba especially on the nerve protection, is available. Therefore, the purpose of this study is to examine the anti-inflammatory activity of jaboticaba fruit extract in LPS-induced zebrafish embryo. Jaboticaba peel and seed extracts were prepared by maceration in several concentrations of Ethanol and water. Zebrafish embryo is was used as model due to its ability to absorb the diluted small molecules in the surrounding water. Therefore, the bioactive compounds can be straightforward delivered to the targeted organs. Further, the effect of bioactive compounds can be easily observed due to the transparency of the embryos. Zebrafish embryos were divided into 6 groups, which are, LPS (Lipopolysaccharide)-induced group, LPS+Jaboticaba Peel Extract (JPE), LPS + Jaboticaba Seed Extract (JSE). The concentration of NO in zebrafish embryo is determined using Griess method, and the endocytosis of macrophage is observed using neutral red staining. While the proliferation of neutrophils is observed using Sudan Black staining. The result showed that jaboticaba fruit extract (especially the peel) may attenuate inflammation in a dose-dependent manner, indicated by reduction of both nitric oxide production and neutrophils proliferation. Extraction of jaboticaba peel is best done with 95% ethanol, followed by 50% ethanol and water. Although more work is needed to fully understand the critical role of jaboticaba on the inhibition of inflammation, our findings clearly demonstrate that jaboticaba may be a potential therapeutic intervention for the treatment of inflammatory disorders

ACKNOWLEDGEMENT

Praise the Lord because of His grace and blessing that the author able to complete the thesis entitled: “Anti-Inflammatory Activity of Jaboticaba Fruit Extract in LPS-induced Inflammation of Zebrafish Embryo”. This thesis was written to fulfil the requirement to acquire Master Degree of Food Technology in Soegijapranata Catholic University, Semarang, Indonesia and Providence University, Taichung, Taiwan. The author would like to express sincere gratitude to all people who have given support and guidance. They are:

1. Dr. R. Probo Y. Nugraedi, STP., MSc. and Dr. Wang, Chiun-Chuang as the Dean of Faculty of Agricultural Technology for giving the opportunity to finish the master thesis.
2. Dr. B. Soedarini, MP and Dr. Chung, Yun-Chin (鍾雲琴) as supervisor for giving the great guidance during the process.
3. All lecturers in Food Technology Department of Soegijapranata Catholic University and Providence University for giving all great lessons during the learning activities
4. All laboratory and administration staffs for providing great services and information during the learning activities.
5. Katharina Ardanareswari, STP, MSC as both laboratory partner and friend who always support and accompany author during research period at Providence University.
6. Author’s family and friends for always supporting and cheering for author.

The author realizes that there were unintended errors in writing this report. The author really allows all readers to give suggestions to improve its content. However, the author hopes that this report can be an inspiration and provide useful information for others.

Semarang, July 20th 2021

Author,



Josephine Claretta Budiman (布蒂曼)

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