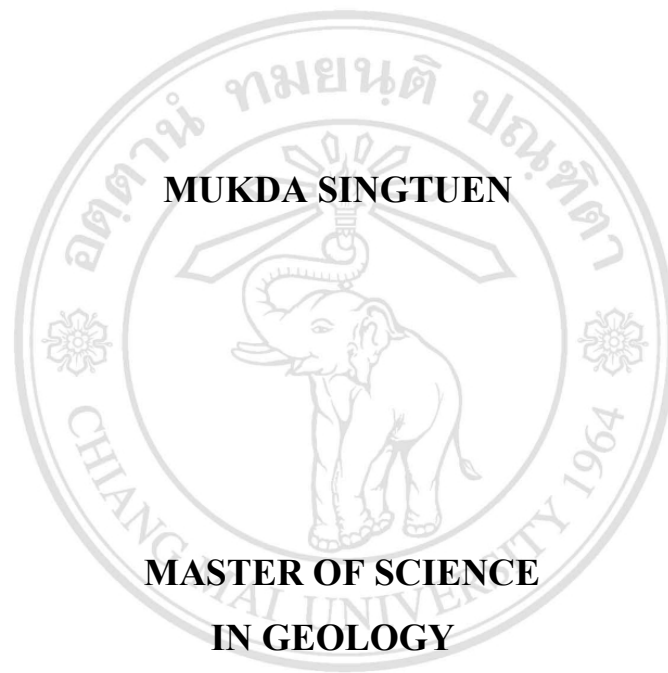


**GEOCHEMISTRY AND TECTONIC SETTING OF
VOLCANIC AND ASSOCIATED ROCKS IN
TAK PROVINCE**



MUKDA SINGTUEN

**MASTER OF SCIENCE
IN GEOLOGY**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

**GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
JANUARY 2017**

**GEOCHEMISTRY AND TECTONIC SETTING OF VOLCANIC
AND ASSOCIATED ROCKS IN TAK PROVINCE**

MUKDA SINGTUEN

**A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE
IN GEOLOGY**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

GRADUATE SCHOOL, CHIANG MAI UNIVERSITY

JANUARY 2017

**GEOCHEMISTRY AND TECTONIC SETTING OF VOLCANIC
AND ASSOCIATED ROCKS IN TAK PROVINCE**

MUKDA SINGTUEN

THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE
IN GEOLOGY

Examination Committee:

Abhisit Salam.....Chairman

(Dr. Abhisit Salam)

W. Srichan.....Member

(Asst. Prof. Dr. Weerapan Srichan)

Burapha Phajuy.....Member

(Asst. Prof. Dr. Burapha Phajuy)

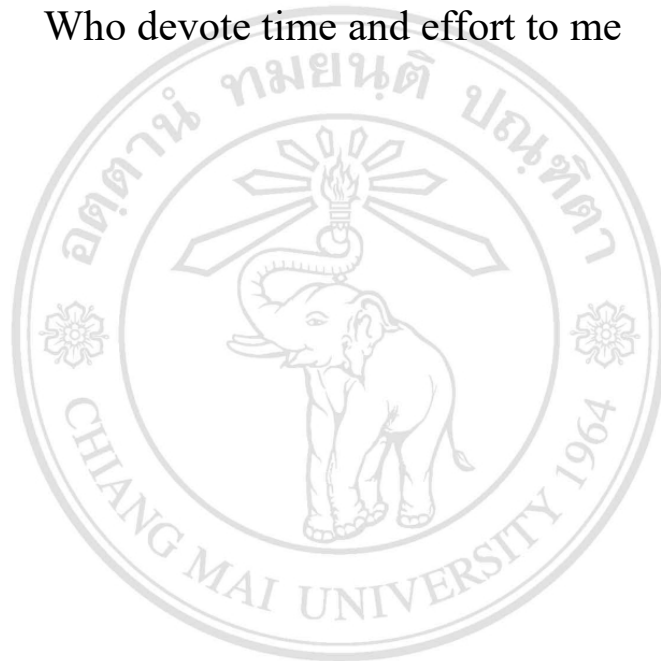
Advisor:

Burapha Phajuy.....

(Asst. Prof. Dr. Burapha Phajuy)

12 January 2017
Copyright © by Chiang Mai University

This study achieved by inspiration
Inspired by the commitment of the profession
Advices, teachings and a good role model of teacher
Who devote time and effort to me



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

ACKNOWLEDGEMENT

The author would like to express my sincere gratitude to my supervisor, assistant professor Dr. Burapha Phajuy for his stimulating supervision, support and encouragement, and correcting the manuscript. My thanks also go to assistant professor Dr. Weerapan Srichan of Chiang Mai University, for his invaluable advice and comments to complete this thesis.

Many thanks are also extended to the staff and friends at the Department of Geological Sciences, Chiang Mai University, who assisted me during this study. Mr. Charawut Sooksabai for his opportunity to use geological and topographic maps; Mr. Chanakan Boonnawa for his hospitality in field work and collecting samples; Mr. Chantip Pantusa and Mr. Chanawut Suksabai for his kindness in preparing the thin section and powder samples; Mrs. Mayuree Promphutha for her opportunity to use instructions of chemical analyses; Mr. Watakarn Kaewpradit, Mr. Chanakan Boonnawa, Mr. Khomchan Promneewat and Mr. Pongstron Kanna for preparation in fusion dish preparation; Mr. Satit Kantata for the analyses of major- and minor- oxides, and trace elements by XRF; All the graduate and undergraduate students at the Department of Geological Sciences, Chiang Mai University from years 2015-2016, for their valuable advice, guidance, hospitality, companionship, support and encouragement.

The author would also like to acknowledge the financial support from the Science Achievement Scholarship of Thailand (SAST). All my success is supported by my parents and my older brother. They have all encouraged and supported me.

Mukda Singtuen