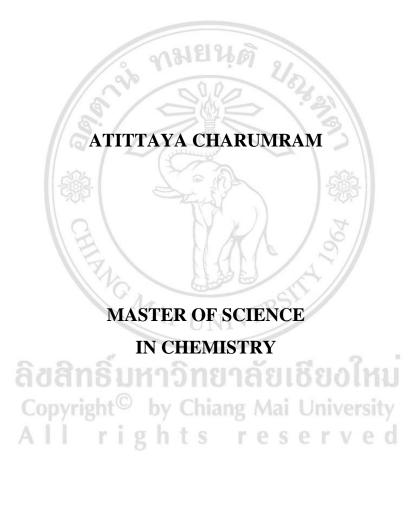
DEVELOPMENT OF COST EFFECTIVE ASSAY FOR PHOSPHATE CONTENTS IN SEAFOOD AND FROZEN FOOD SAMPLES



GRADUATE SCHOOL CHIANG MAI UNIVERSITY OCTOOBER 2014

DEVELOPMENT OF COST EFFECTIVE ASSAY FOR PHOSPHATE CONTENTS IN SEAFOOD AND FROZEN FOOD SAMPLES

ATITTAYA CHARUMRAM

A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

> MASTER OF SCIENCE IN CHEMISTRY

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved

GRADUATE SCHOOL, CHIANG MAI UNIVERSITY OCTOBER 2014

DEVELOPMENT OF COST EFFECTIVE ASSAY FOR PHOSPHATE CONTENTS IN SEAFOOD AND FROZEN FOOD SAMPLES

ATITTAYA CHARUMRAM

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

Examination Committee:

Advisor:

Porlayuth Socksonit. Chairman

(Dr. Ponlayuth Sookamiti)

Kate 6

(Prof. Dr. Kate Grudpan)

T. Langan ee Member

(Dr. Tinakorn Kanyanee)

Kate Gangan Member

(Prof. Dr. Kate Grudpan)

27 October 2014 Copyright © by Chiang Mai University

I would like to dedicate my thesis to my beloved parents and my brother



ACKNOWLEDGEMENT

First, I would like to thank my advisor, Prof. Dr. Kate Grudpan for providing me the opportunity to complete my master thesis at Chaing Mai University. I especially want to thank my advisor on the spot, Prof. Dr. Kate Grudpan, whose support and guidance made my thesis work possible. He has been actively interested in my work and has always been available to advise me. I am very grateful for his patience, motivation, enthusiasm, and great knowledge in analytical chemistry, taken together, make him a great mentor.

Second, I would like to express gratitude to the Center of Excellence for Innovation in Analytical Science and Technology (I-ANALY-S-T) for research financial support.

Finally, I would like to thank I-ANALY-S-T members for their tender love, continual care and encouragement, Ms.Kanokwan Kiwfo, Mr.Wasin Wongwilai, Mr.Kajornkai Thajee, Ms.Sutasinee Apichi, Ms.Suphasinee Sateanchok and Ms.Sasithon Boonmapa for them unending support and friendship. I would like to thank Mr. Kitti Phojuang and his family for support a car for on-site analysis apart from academic discussion. I am profoundly indebted to my parents, my brothers and Mr.Wasin Wongdit for an abundance of support and encouragement. With love and respect, I dedicate this thesis to my honorable parents, who have always loved me and given me a helping hand for everything in my life.

l rights reserved

Atittaya Charumram