MONITORING OF ALKALINE PHOSPHATASE LEVELS AROUND MAXILLARY MOLARS AND MINISCREW IMPLANTS DURING ORTHODONTIC MOLAR INTRUSION

SUWIT THAITHAMAYANON

MASTER OF SCIENCE IN ORTHODONTICS

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

THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
MARCH 2010

MONITORING OF ALKALINE PHOSPHATASE LEVELS AROUND MAXILLARY MOLARS AND MINISCREW IMPLANTS DURING ORTHODONTIC MOLAR INTRUSION

SUWIT THAITHAMAYANON

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

EXAMINING COMMITTEE	
Soch PLIC Lat Assoc. Prof. Vachara Phetcharakupt CHAIF	RPERSON
D. Jolikastu MEMB	EER
Assoc. Prof. Dr. Prachaya Kongtawelert MEMB	ER 7
Assoc. Prof. Dr. Siriwan Ongchai MEMB	Eniversity

9 March 2010

© Copyright by Chiang Mai University

ACKNOWLEDGEMENTS

I would like to express my gratitude to all those who gave me the possibility to complete this thesis. I wish to thank my thesis advisory committee, Assoc. Prof. Dhirawat Jotikasthira, Assoc. Prof. Dr.Prachaya Kongtawelert and Assoc. Prof. Dr. Siriwan Ongchai, for giving me guidance and permission to commence this project.

I would like to acknowledge Faculty of Dentistry and Graduate School, Chiang Mai University for providing grants and Renew Biocare Co., Ltd. for supporting miniscrew implants, used in this research.

I am heartily thankful to Dr. Peraphan Pothachareon for her great assistance in laboratory procedures. I also would like to express my appreciation to Assist. Prof. Dr. Piyanart Chatigate, Ms. Prakaymuk Saraithong for their warming hospitality and excellent advice.

In addition, I wish to give my regards to the staff of the Department of Orthodontics and Pediatric Dentistry, Faculty of Dentistry, Chiang Mai University, in particular Assoc. Prof. Virush Pattanapon and Assist. Prof. Marasri Chaiworawitkul, for their suggestions and encouragement through the hardest time.

Last but not least, I really wish to thank my mother, father and sisters for the unconditional love. I am truly blessed to have them all by my side. This thesis and every single success of my life have been dedicating to my family who is always there for me.