





FATTY ACIDS ANALYSIS OF AFRICAN CATFISH (*Clarias gariepinus*) AT  
DIFFERENT POST HARVEST TREATMENTS

By  
Raja Nor Hidayah Bt Raja Mahmud

Research Report submitted in partial fulfilment of  
the requirements for the degree of  
Bachelor of Agrotechnology Science (Post Harvest Technology)

Department of Agrotechnology  
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
UNIVERSITY MALAYSIA TERENGGANU  
2009

## DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

Signature : -----

Name : Raja Nor Hidayah Bt Raja Mahmud

Matric no. : UK 14038

Date : 26<sup>th</sup> April 2009

## ACKNOWLEDGEMENTS

First and foremost, all praises to Allah s.w.t for all the blessing in my life and helped me all the time and making me complete this final year project successfully. Also, I want to thank my beloved parents for their support throughout my studies and my life. This project is really special for me because I have a chance to learn more and gained knowledge.

I wish to express my deepest appreciation to both of my project supervisors, Prof. Dr. Awang Soh b. Mamat and Dr. Zainudin b. Bachok for their guidance, patience, suggestion, encouragement and constructive criticism during my project period. Perhaps, I may not be able to finish my project without their support.

Thank to all the staff of Postharvest Laboratory. To Miss Mardhiah Hayati and Mr. Azhari from Marine laboratory, thanks for your guidance, advice and cooperation during my project. Special thank to research assistant, Mr. Ridhuan b. Abdullah for his assistance and guidelines.

Last but not least, I would like to express my heartfelt appreciation to my friend and fellow coursemate. To Hidayah and Farehah, Marine Biology students, I owe a great debt of gratitude both for teaching me and helping me and always being there whenever I need.

## ABSTRACT

African catfish (*Clarias gariepinus*) is one of the fishery resources in Malaysia. The traditional post harvest treatment or preservation techniques and its relation to the composition of fatty acid were analyzed. The objective of this study is to determine the fatty acids composition of African catfish at four post harvest treatment salting, pickling, smoking and freezing. After treatments, the lipid was extracted and the lipids were purified by Thin- Layer Chromatography (TLC). Then, the samples were analyzed by gas chromatography, Flame Ionize Detector (GC-FID) to determine the fatty acids composition. Total lipids concentration was significantly higher in smoking ( $0.23 \pm 0.05$  g/g) compared to other treatments. Twenty fatty acid components were identified in the tissue of African catfish. The dominant fatty acid was oleic acid (18: 1  $\omega$  9) in all the samples. Saturated fatty acids (SAFAs) were not significantly different after treatments. Besides that, the most dominant polyunsaturated fatty acid (PUFAs) was (18: 3  $\omega$  3, 18: 2  $\omega$  6, and 18: 3  $\omega$  6). The mean concentration of PUFA was significantly higher in freezing treatment ( $26.0 \pm 3.7$  %) compared to other treatments. Analysis of the fatty acid composition of African catfish at four different post harvest treatments imply that after preservation the fatty acid composition which is PUFA omega 3 and omega 6 of African catfish was changed but still existed for human diet.