A STUDY ON THE QUALITY CHARACTERISTICS OF RED PALM OIL AFTER FRYING

MOHAMAD FAIZAL BIN HAJAR MAIDIN

BACHELOR OF SCIENCE (Hons.)
FOOD SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCES
UNIVERSITY TEKNOLOGI MARA MALAYSIA

NOVEMBER 2008

ACKNOWLEDGEMENTS

In The Name of Allah, The Most Merciful and The Most Gracious

I would like to take this opportunity to extend my sincere gratitude and appreciation to my supervisor, Assoc. Prof. Dr. Halimahton Zahrah Mohamed Som for her advice, sincere guidance, support and knowledge shared in directing this project. She supervised my work with great patience and encouraged me during my study of this project.

I would like to show my sincere appreciation to Project Coordinator, Puan Azizah Othman , Head of Programme B. Sc. (Hons.) Food Science and Technology, Assoc. Prof. Dr. Norizzah Abd. Rashid. Sincere thanks for Mr Ananthan and staffs from Golden Jomalina Food Industries for provided the oil and information to me to complete my project. Sincere thanks extended to Puan Siti Marhani, Puan Norahaniza, Cik Suhaida, Encik Osman and Encik Fadzli for their invaluable guidance, assistance, co-operation, information they had given to me.

My heartfelt appreciation and special thanks also go to my friends and my classmates especially to Azura, Aneng, Ajied, Alep, Alleh, Ami, Cekwe, Dayah Suhaimi, Fad, Farah, Izu, Mimie, Money, Mant, Nor, Naema, Sab, Shu and Pae for kindness, morale support and generous assistance in making this project successful.

Lastly, to my beloved parents and siblings, thank you for your tremendous support, sacrifices, constant encouragement and for being source of hope and energy for me.

Mohamad Faizal Hajar Maidin

TABLE OF CONTENTS

ABSTRACT

A STUDY ON THE QUALITY CHARACTERISTICS OF RED PALM OIL AFTER FRYING

The study was done on the quality characteristics of red palm oil after deep fat frying process in terms of chemical and physical changes as measured by percentage of peroxide value (PV), anisidine value (AV), free fatty acid (FFA), iodine value (IV), colour and viscosity. The study also determined the quality of food after deep frying process in red palm oil as determined by sensory evaluation. The frying process was done for five consecutive days at 165°C ± 5°C for both top up and non-top up oil. Based on the results obtained, top up oil had better quality in terms of PV, AV and FFA than non-top up oil. For IV, both oils showed the same trend which was the values decreased. For colour characteristics, the oils changed from dark red become light yellow after frying process. Meanwhile the viscosity of oil increased with days of frying. Sensory evaluation was conducted on food after frying process in terms of colour, aroma, taste and overall acceptability. Based on the results, only colour showed significant difference.

CHAPTER 1

INTRODUCTION

1.1 Background and problem statement

The palm oil has become the most prolific oil bearing crop in the world today. The economic life of palm tree is about 20 to 30 years and can bears about 10 to 12 fruit bunches. Each bunch weighing about 20 to 30 kilogram. Average yields of palm oil per annum are approximate 3700 kg/hectare. Nowadays, Malaysia has become the world largest producer and exporter of refined palm oil and its products. In 2000, it estimated for 8.8 million tones or more than 51% of the world production (Jailani et al., 1996).

Crude palm oil has the richest sources of carotenoid and the carotenes are known for have health and nutritional benefits including provitamin A activity, anti cancer, anti oxidant and anti atherosclerotic properties. Red palm oil is a derivative from crude palm oil, which is nutritionally rich and unique in comparison with other edible oils. The oil produced through a milder refining process to contain most of carotenes and vitamin E originally found in crude palm oil. It has a high content of ß-carotene and the ideal choice for combating vitamin A deficiency in the developing countries (Manorama et al., 1997).