

CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME III

Editors:

Md. Zahangir Alam
Ahmed Tariq Jameel
Azura Amid



IIUM PRESS

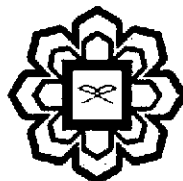
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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**Department of Biotechnology Engineering
Faculty of Engineering
International Islamic University Malaysia**



IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
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Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Md. Zahangir Alam, Ahmed Tariq Jameel & Azura Amid: Current Research and Development in Biotechnology Engineering at IIUM Volume III

ISBN: 978-967-418-144-4

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan

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CHAPTER 15

EVALUATION ON QUALITY OF HEAT RESISTANCE CHOCOLATE

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ABSTRACT

Milk chocolate will be blended with palm stearin and palm mid fraction which are POP rich fat to investigate a possible heat resistant property. Tempering conditions for crystallization of blended chocolate will be optimized to obtain well tempered chocolate using Greer curve assessment. Samples will then be observed and analyzed for mold release, hardness and compression, viscosity, fat bloom, and melting range as a measurement of its quality and stability at different storage time. Chocolate samples will be selected for thermal profile analysis to determine samples with excellent heat resistance.

INTRODUCTION

Fine quality chocolates consist principally of cocoa butter are solid at ambient temperature of 20-25°C. It gives a desirable sensory characteristic by melting rapidly at oral temperature of 37°C which leads to a fast release of flavor (Afoakwa, Patterson & Fowler, 2007). Due to this unique property, fine chocolates will lose its solid form in relatively high surrounding temperature which may cause customers dissatisfaction and demands proper storage condition by retailers. Heat from surrounding is thus an uncontrolled quality risk factor which will effect negatively on the manufacturers. New product developments to overcome this problem have been commercially applied such as coating and enrobing the chocolate with non-chocolate based formulation such as sugar or cellulose coating. Efforts in producing heat resistant chocolates formulation have been done through other various methods for instance addition of hydrogenated fats, polyol gel, high melting emulsifiers, moisture and water in fat emulsion into chocolate composition. However, incorporation of moisture into chocolate would cause undesirable bloom and texture; polyol will largely affect the chocolate rheology while high melting emulsifiers requires a particular warming temperature incompatible in the tempering process. Chocolate contains approximately 30% of continuous fat phase content and 70% of dispersed phase of sugar and cocoa solids. Thus usage of fat based additive is more convenient in aspects of processing, compatibility, stability and maintaining desired sensory properties.