

KINETIC MODELING OF ROSOGOLLA SWELLING DURING COOKING FROM IMAGE PROCESSING BASED MEASUREMENT

by

RANJANA DEKA
(FPT10015)

A Thesis Submitted to the

**Department of Food Engineering and Technology
Tezpur University**

In the partial fulfillment of requirements for the award of degree of

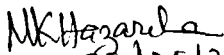
**MASTER OF TECHNOLOGY
IN
FOOD PROCESSING TECHNOLOGY**

Approved by


(M.K. Hazarika)
Supervisor



(External Examiner)


(M.K. Hazarika)
Head, FET
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DEPARTMENT OF FOOD ENGINEERING AND TECHNOLOGY
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25th may, 2013

CERTIFICATE OF THE SUPERVISOR

This is to certify that the major project report titled '**Kinetic Modeling of Rosogolla Swelling During Cooking from Image Processing Based Measurement**' submitted by **Miss Ranjana Deka, Roll No FPT10015** to the Department of Food Engineering and Technology, Tezpur University, in the partial fulfillment of the degree of M. Tech in Food Processing Technology, is a bonafide record of the investigation carried out by her under my supervision. To the best of my knowledge the report embodies an account of her findings and is valid for the purpose for which it is submitted.


(M.K. Hazarika)

Supervisor

Place: Tezpur University

Date: 25/05/2013



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CERTIFICATE OF THE HEAD OF THE DEPARTMENT

This is to certify that the major project report titled **Kinetic Modeling of Rosogolla Swelling During Cooking from Image Processing Based Measurement** submitted by **Miss Ranjana Deka, Roll No FPT10015** to the Department of Food Engineering and Technology, Tezpur University in the partial fulfillment of the degree of M. Tech in Food Processing Technology is a bonafide record of the investigation carried out by her under the supervision of Dr. M. K. Hazarika, Associated Professor of the Department. The report embodies an account of her findings and is valid for the purpose for which it is submitted.


(M.K.HAZARIKA)

HEAD OF THE DEPARTMENT

Place: Tezpur University

Date: 25/05/2013

DECLARATION

I, Ranjana Deka hereby declare that the submitted major project report titled - is authentic and valid research work carried out by me under the supervision of Dr. M. K. Hazarika, Associate Professor, Dept. of Food Engineering and Technology, Tezpur University, for the partial fulfillment of the Degree of Master of Technology in Food Engineering and Technology. The data presented in my report is original findings of my project work.

I, further declare that this project is not submitted anywhere by anyone for any degree or diploma and I am solely responsible for any wrong information or duplicity.

Place: *Tezpur*
Date: *30/5/2013*

Ranjana Deka .
(Ranjana Deka)
Roll No: FPT10015

AKNOWLEDGEMENTS

For the successful completion of any experiment work, the contribution and cooperation of many people is needed. So, it is my pleasant honour to express my heartiest thanks to all individuals linked directly or indirectly in the successful completion of the project.

I am overwhelmed to avail this rare opportunity to evince my profound sense of gratitude and regard to my advisor Dr. M. K. Hazarika, Associate Professor and Head, Dept. of Food Engineering and Technology, Tezpur University, Tezpur for his disciplined attitude, inspiring and valuable guidance, authentic suggestions with constructive criticism and soothing affection time throughout the course of investigation and preparation of this manuscript.

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Finally, I express my gratitude to all the faculty members and staff members of the department of Food Engineering and Technology for providing me their unweaving help and moral support.

Lastly, but not the least, I would like to express my gratitude to my parents and family members, and thanks to all my friends, classmates and juniors, for being source of endless encouragements. I dedicate this work to all of them.

Place: Tezpur

Date: 30/5/2013


Ranjana Deha

PREFACE

Project work means to learn about research by comprehensive experimental study on a subject. When we read books we know the work of books but when the thing we have learned from the books are brought into practical and experimental form, the knowledge becomes more perfect and complete. Furthermore, an inquisitive does not feel satisfied with this bookish knowledge only, so, the inclusion of project work in our course is justified.

For the satisfactory completion of the above requirement, a project work titled 'Kinetic Modeling of Rosogolla Swelling During Cooking' from Image Processing Based Measurement' was undertaken by me under the supervision of Dr M. K. Hazarika, Associate Professor and Head, Dept. of Food Engineering and Technology, Tezpur University, for the partial fulfillment of the Degree of Master of Technology.

Here, I am giving the description and experimental finding of the project work, which is a loyal and humble attempt to represent my findings and knowledge which I have gathered through this experimental study.