Brief introduction for Mr. Song Xian-Ju
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Mr.Song was born in 1973 and graduated in central south forest university in 1999. He then worked for the Wahaha Group Corporation (a well known food and beverage company in China) for 5 years. Since 2004, he is pursuing doctoral research under Professor Zhang Ming for Ph .D.

Prof. Arun S Mujumdar of NUS, Singapore, is Co-Advisor for this project.He has researched in processing and storage of agricultural products. His thesis research work will be on the mechanism and modeling of processing of low-fat fruit and vegetable crisps.

Study of the mechanisms and modeling of processing of low-fat fruit and vegetable crisps

Abstract

General Introduction

1. Introduction
2. Aim and Motivation of the Thesis Research
3. Objectives and scope
4. Major research content

Chapter I General Literature Review

1. Review : Development of vacuum frying technology
2. Progress in process technology for production of fruit and vegetable crisps
3. Progress in reduction of fat uptake in vacuum fried foods
4. Characteristics of vacuum microwave drying
5. Progress in modeling of heat and mass transfer during vacuum microwave drying
6. Progress in modeling of heat and mass transfer during frying

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Chapter II. Oil absorption isotherms and oil desorption isotherms of fruit and

vegetable crisps

1. Effect of different factors on absorption equilibrium oil content of fruit and vegetable crisps
2. Establishment of absorption equilibrium oil content change model
3. Effect of different factors on desorption equilibrium oil content of fruit and vegetable crisps
4. Establishment of desorption equilibrium oil content change model
5. Distribution and morphology of oil deposits in fruit and vegetable crisps

Chapter III Microwave-vacuum drying kinetics of fruit and vegetable crisps

1. Optimization of the process parameters of microwave-vacuum drying prior to vacuum frying
2. Modeling the transport phenomena during microwave-vacuum drying prior to vacuum frying
3. Optimization of process parameters of microwave-vacuum drying of vacuum fried fruit and vegetable crisps
4. Modeling the transport phenomena during microwave-vacuum drying after vacuum frying

Chapter IV Dehydration of fruit and vegetable crisps by combination of microwave-vacuum drying and vacuum frying

1. Mechanisms of reduction of fat uptake in vacuum fried fruits and vegetables by pretreatment of microwave-vacuum drying
2. Mechanisms of reduction of surface fat content and controlling fat distribution in vacuum fried fruit and vegetable crisps by post-treatment of microwave-vacuum drying
3. The effect of pretreatment and post-treatment of microwave-vacuum drying on quality of vacuum fried fruit and vegetable crisps

Chapter V Discussion of processing mechanisms of fruit and vegetable crisps during vacuum frying and establishment of mathematical model

1. Heat and mass transfer equations of fruits and vegetables
2. Modeling the transport phenomena during vacuum frying
3. Numerical simulation and analysis
4. Compare theoretical results with experimental results

Chapter VI Conclusions and recommendations for future work

4. Conclusion – Summary of results/ Original Contributions to knowledge
5. Future work-recommendations

Acknowledgements

References