DETERMINATION OF CHEMICAL AND PHYSICAL CHARACTERISTIC OF WHIPPING CREAM PREMIX DURING STORAGE AND PREDICTING ITS SHELF LIFE USING ACCELERATED SHELF LIFE TEST

PENENTUAN KARAKTERISTIK KIMIA DAN FISIK PREMIKS *WHIPPING CREAM* SELAMA PENYIMPANAN SERTA PENENTUAN UMUR SIMPANNYA DENGAN MENGGUNAKAN METODE *ACCELERATED SHELF LIFE TEST*

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By:

MARIA ROSALIA KUSUMANINGTYAS

09.70.0055

DEPARTMENT OF FOOD TECHNOLOGY

FACULTY OF AGRICULTURAL TECHNOLOGY

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By:

MARIA ROSALIA KUSUMANINGTYAS

NIM: 09.70.0055

Department: Food Technology

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Faculty of Agricultural Technology,
Soegijapranata Catholic University

Supervisor I, **Dean,**

Dr. Ir. B. Soedarini, MP. **Dr. V. Kristina Ananingsih S.TP., MSc.**

Supervisor II,

Ita Sulistyawati, STP, M.Sc.

SUMMARY

Premix product is a ready-made flour processed food contained the ingredients and some additives that are stable in the mixture which still need some additional minimum such as; egg, water and butter. Whipping cream premix is a powder product which is strongly influenced by environmental temperature. The main objective of this study is to determine chemical and physical characteristics of whipping cream premix. Chemical analyses consist of moisture content and water activity variables, while physical analyses consist of overrun and stiffness variables, also observation on decoration properties. The second objective of this study is to determine the whipping cream premix shelf-life based on its chemical and physical characteristics. The whipping cream premix shelf-life measured using Accelerated Shelf Life Test (ASLT) Arrhenius Model, with three different extreme temperatures, i.e. 21°C, 27°C and 37°C. The result shows that water activity was supposed as the key to determine whipping cream premix shelf-life, with regression linear equation follows order 0 (y = y =-5.507x + 12,50). Based on water activity variable, the shelf-life of whipping cream premix on supermarket temperature (25°C) is 250 days.

Keywords: *premix, whipping cream, ASLT Arrhenius model, water activity.*

RINGKASAN

Premiks adalah jenis pangan olahan berupa bubuk siap pakai yang berisi bahan-bahan utama disertai beberapa bahan tambahan makanan. Premiks stabil dalam bentuk campuran dan untuk membuatnya menjadi produk jadi, premix hanya membutuhkan tambahan seperti telur, air dan mentega. Bentuknya yang berupa bubuk, membuat kualitas premix *whipping cream* sangat mudah dipengaruhi oleh kondisi suhu lingkungan. Tujuan utama dari penelitian ini adalah untuk menentukan karakteristik fisik dan kimia dari premiks *whipping cream*. Analisa kimia yang dilakukan berupa variabel kadar air dan aktivitas air, sedangkan analisa fisik yang dilakukan berupa variabel *overrun* dan *stiffness* serta pengamatan terhadap *decoration properties*. Tujuan kedua dari penelitian ini adalah untuk menentukan umur simpan premix berdasarkan karakteristik kimia dan fisiknya. Penentuan umur simpan premix whipping cream diukur dengan menggunakan *Accelerate Shelf Life Test* (ASLT), dengan tiga temperatur ekstrim yang berbeda yaitu 21°C, 27°C dan 37°C. Hasil dari penelitian menunjukkan bahwa variabel aktivitas air merupakan titik kontrol kritis untuk menentukan umur simpan premix whipping cream, dengan persamaan regresi linier mengikuti orde 0 ($y = -5.507x + 12,50$). Berdasarkan variabel aktivitas air, umur simpan premiks *whipping cream* pada suhu supermarket (25°C) adalah 250 hari.

Keywords: *premix, whipping cream, ASLT Arrhenius model, aktivitas air.*

FOREWORD

Praise to Almighty God, Jesus Christ and Mother Mary for all blessing that given to author, so the author has finished the bachelor thesis entitled "DETERMINATION OF WHIPPING CREAM PRE-MIX SHELF LIFE UNDER LOCAL TEMPERATURE USING ACCELERATE SHELF LIFE TEST (ASLT) ARRHENIUS MODEL". The author would not be able to finish all of these tasks alone, as the guidance, support, and encouragement from great people around the author have made it possible for the author to complete this bachelor thesis. Therefore, the author would like to say special thanks to:

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The author realized that the writing of this report is still far from perfect and there are still many shortcomings due to the limitations of the author. However, the author hoped that this report can still be an inspiration and provide useful information for the reader.

Semarang, October, 2013

Maria Rosalia Kusumaningtyas

Author

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