

# **THE EFFECT OF CALCIUM LACTATE ENRICHMENT TO THE PHYSICAL CHARACTERISTICS AND SENSORY EVALUATION OF SOYMILK ICE CREAM**

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## **PENGARUH PENGAYAAN KALSIMUM LAKTAT TERHADAP KARAKTERISTIK FISIK DAN EVALUASI SENSORI ES KRIM SUSU KEDELAI**

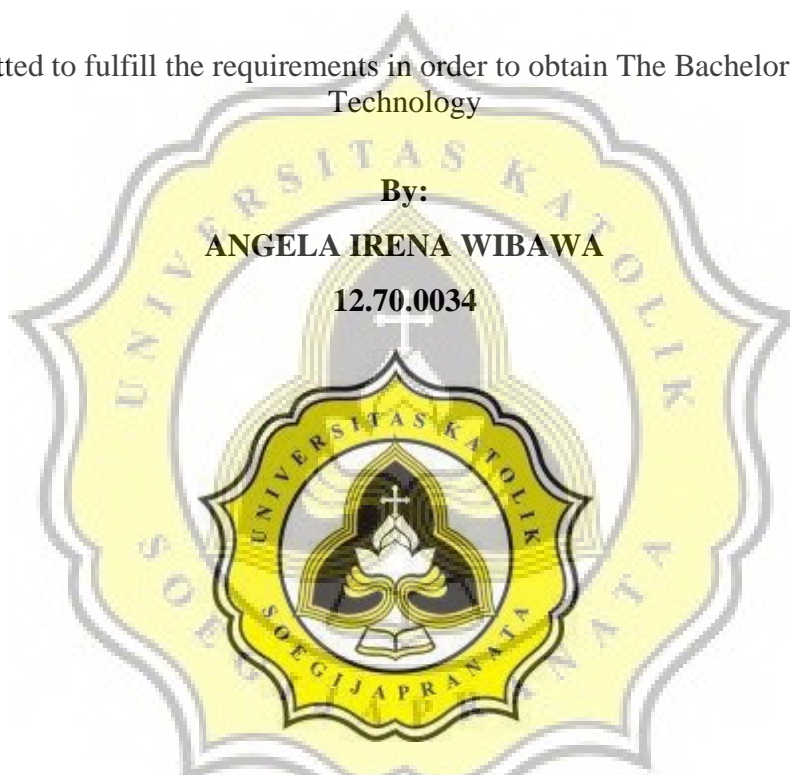
**THESIS**

Submitted to fulfill the requirements in order to obtain The Bachelor of Food  
Technology

**By:**

**ANGELA IRENA WIBAWA**

**12.70.0034**



**DEPARTMENT OF FOOD TECHNOLOGY FACULTY OF  
AGRICULTURAL TECHNOLOGY SOEGIJAPRANATA  
CATHOLIC UNIVERSITY SEMARANG**

**2016**

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This thesis has been approved and defended in front of the examination committee on  
February, 19<sup>th</sup> 2015

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## THE AUTHENTICITY OF A THESIS STATEMENT

I hereby declare that the thesis entitled “**THE EFFECT OF CALCIUM LACTATE ENRICHMENT TO THE PHYSICAL CHARACTERISTICS AND SENSORY EVALUATION OF SOYMILK ICE CREAM**” contains no work that ever proposed to acquire a bachelor title in Soegijapranata Catholic University and there is no work ever written or published by others, except the the references in this thesis mentioned before.

If it is proven in the future that partially or whole thesis is the result of plagiation, therefore I will be willing to be revoked with all the consequences in accordance with the law and regulations applied at Seogijapranata Catholic University and/or valid law and regulations.

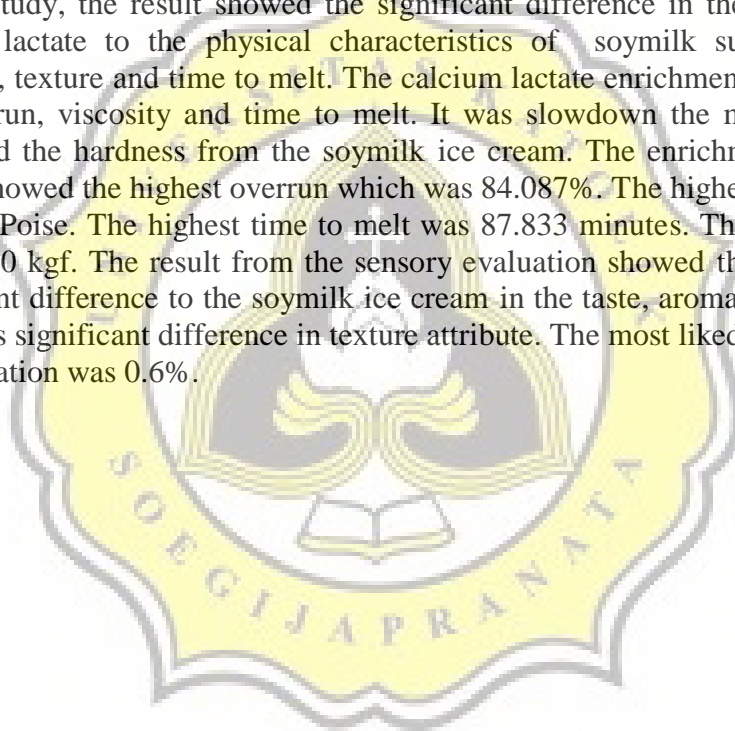


Semarang, March 4<sup>th</sup> 2016

Angela Irena Wibawa  
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## SUMMARY

Nowadays, many people want to live healthier. One of the alternative to live healthier is avoiding the over consumption of fat. Ice cream is one of the favorite sweet frozen dessert contains high amounts of fat. It is not considered as the ideal dessert because usually it is made from the cow's milk which has high fat content. Therefore, the soy milk can be the good alternative to replace the cow's milk because it has lower fat. However, the calcium content in the soymilk is lower than cow's milk thus increase the calcium content in the soymilk, the calcium lactate is added into the soymilk. The objective of this study is to determine the effect of the different concentration of the calcium lactate to the physical characteristics, sensory evaluation of the soymilk ice cream, and the suitable concentration of calcium lactate enrichment to the soymilk ice cream. The concentrations of the calcium lactate are 0%, 0.3%, 0.6%, 0.9%, and 1.2%. Based on this study, the result showed the significant difference in the enrichment of calcium lactate to the physical characteristics of soymilk such as overrun, viscosity, texture and time to melt. The calcium lactate enrichment could increase the overrun, viscosity and time to melt. It was slowdown the melting rate and decreased the hardness from the soymilk ice cream. The enrichment of calcium lactate showed the highest overrun which was 84.087%. The highest viscosity was 334.162 Poise. The highest time to melt was 87.833 minutes. The lowest texture was 2.080 kgf. The result from the sensory evaluation showed that there was no significant difference to the soymilk ice cream in the taste, aroma and overall but there was significant difference in texture attribute. The most liked calcium lactate concentration was 0.6%.



## RINGKASAN

Pada zaman sekarang, banyak orang yang ingin hidup sehat. Salah satu cara untuk hidup sehat adalah menghindari konsumsi lemak yang berlebihan pada produk pangan. Hal inilah yang mendorong pembuatan es krim nabati yang terbuat dari susu kedelai. Namun disisi lain, susu kedelai mengandung kalsium yang rendah maka untuk meningkatkan jumlah kalsium pada susu kedelai, ditambahkan kalsium laktat. Tujuan dari penelitian ini adalah untuk mengetahui penambahan jumlah kalsium laktat yang berbeda pada karakteristik fisik dan sensori dari es krim susu kedelai serta konsentrasi kalsium laktat yang tepat untuk ditambahkan pada es krim susu kedelai. Konsentrasi dari kalsium laktat yang digunakan adalah 0%, 0,3%, 0,6%, 0,9%, dan 1,2%. Berdasarkan penelitian tentang penambahan kalsium laktat pada es krim susu kedelai, hasil yang didapat adalah ada beda nyata pada penambahan kalsium laktat terhadap karakteristik fisik es krim susu kedelai meliputi volume pengembangan, viskositas, tekstur dan waktu leleh . Penambahan kalsium laktat dapat meningkatkan volume pengembangan, viskositas dan waktu leleh, menghambat kecepatan leleh es krim susu kedelai dan menurunkan tingkat kekerasan dari es krim susu kedelai. Pada penambahan konsentrasi kalsium laktat 1,2%, dihasilkan volume pengembangan tertinggi yaitu 84,087%, viskositas tertinggi sebesar 334,162 Poise, waktu leleh tertinggi yaitu 87,833 menit serta tekstur terendah yaitu 2,080 kgf. Hasil yang didapat pada uji sensori tidak menunjukkan beda nyata pada parameter rasa, aroma dan secara keseluruhan produk. Namun, parameter tesktur menunjukkan adanya beda nyata. Konsentrasi kalsium laktat yang paling disukai pada parameter tekstur adalah 0,6%.



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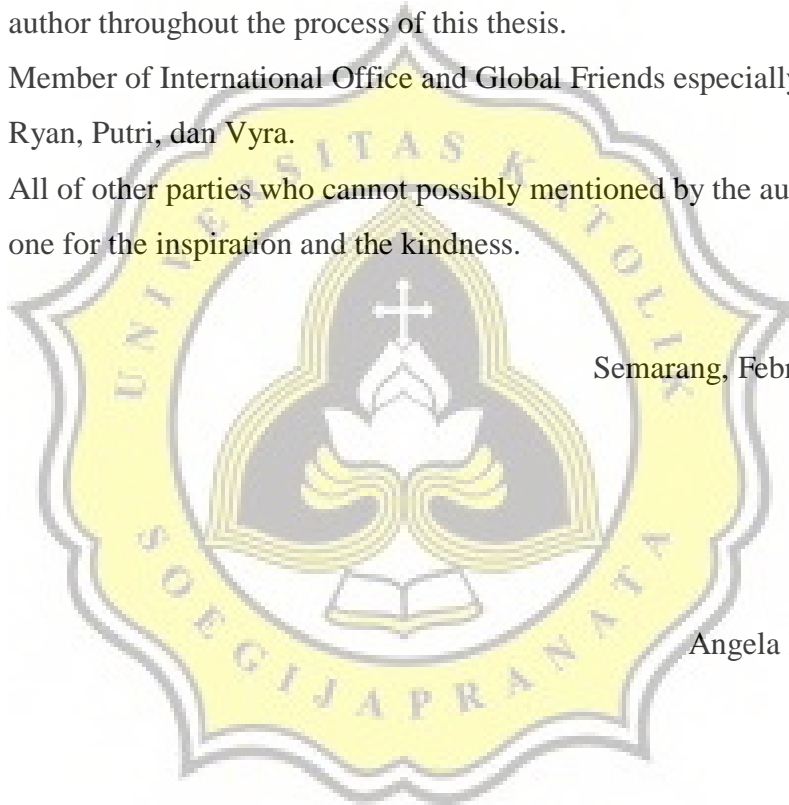
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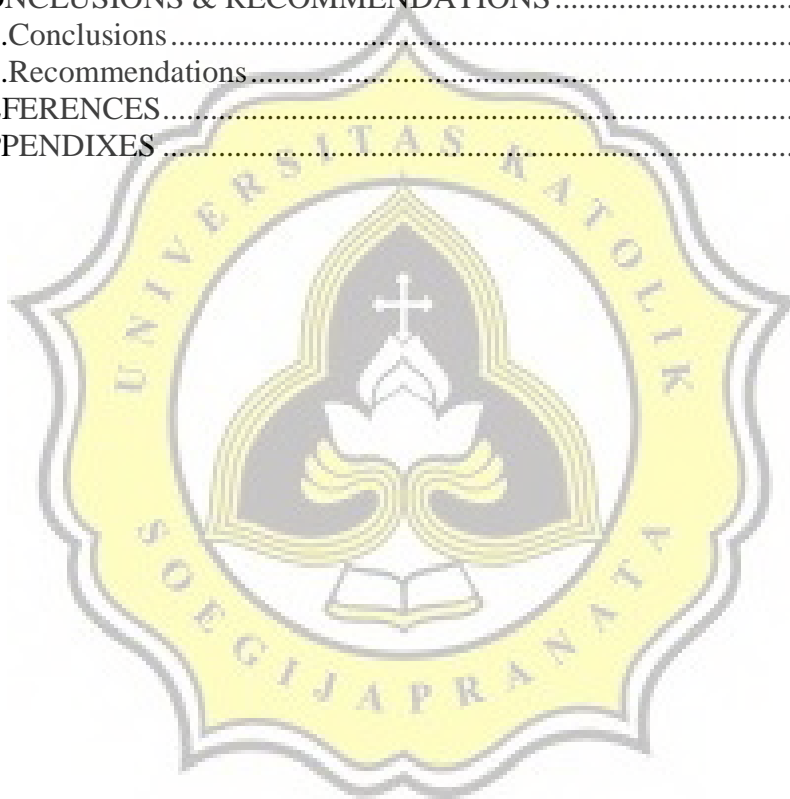


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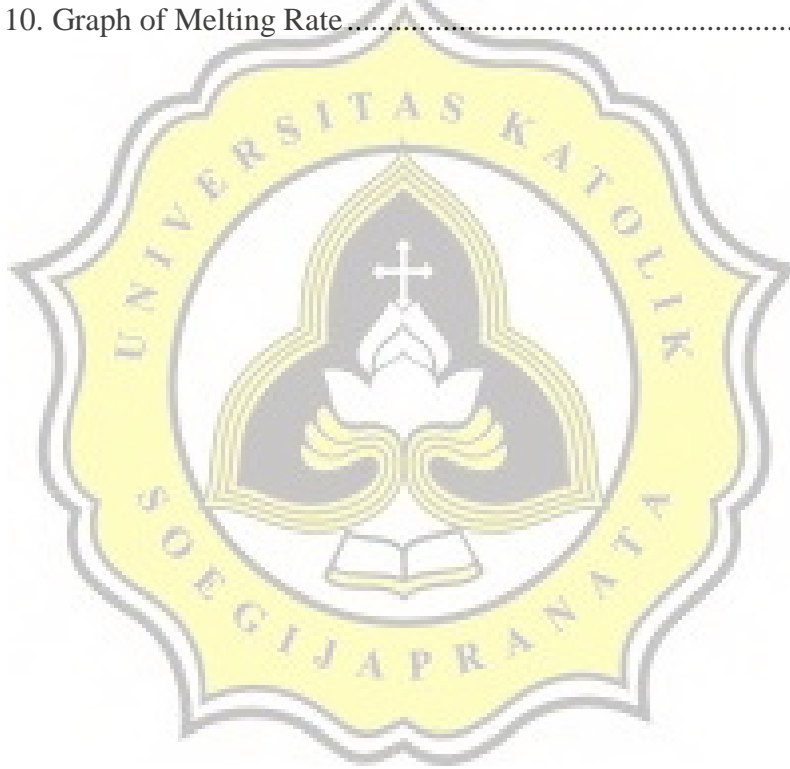


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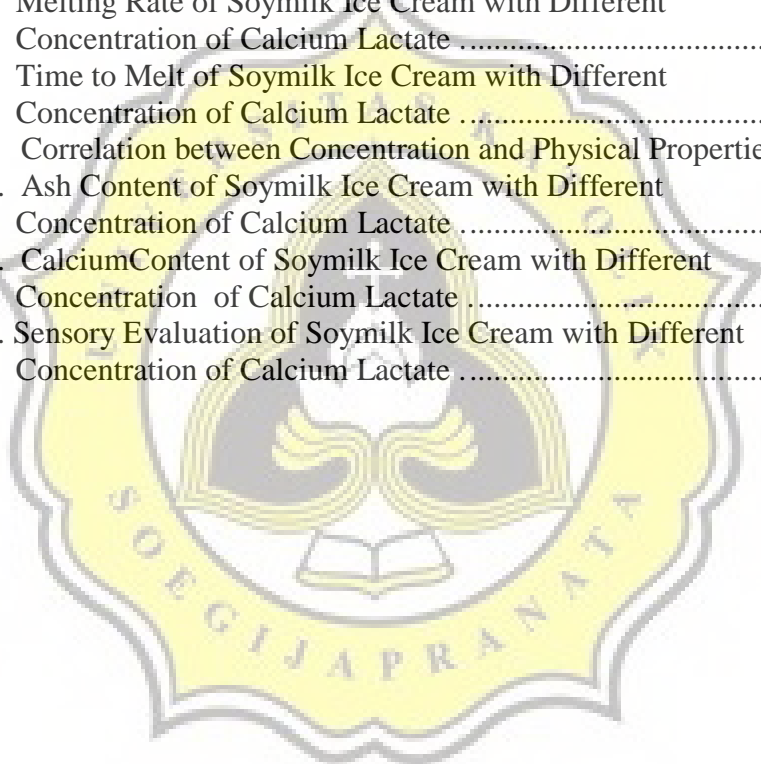
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