

**DIVERSIFICATION OF BLUE TARO TUBER
(*Xanthosoma sagittifolium* L. Schott) PRODUCT THROUGH HEAT
MOISTURE TREATMENT TO PRODUCE INSTANT PORRIDGE
WITH CORN BROTH TASTE**

***DIVERSIFIKASI PRODUK UMBI KIMPUL
(Xanthosoma sagittifolium L. Schott) MELALUI PROSES HEAT
MOISTURE MENJADI BUBUR INSTAN DENGAN CITA RASA
KALDU JAGUNG***

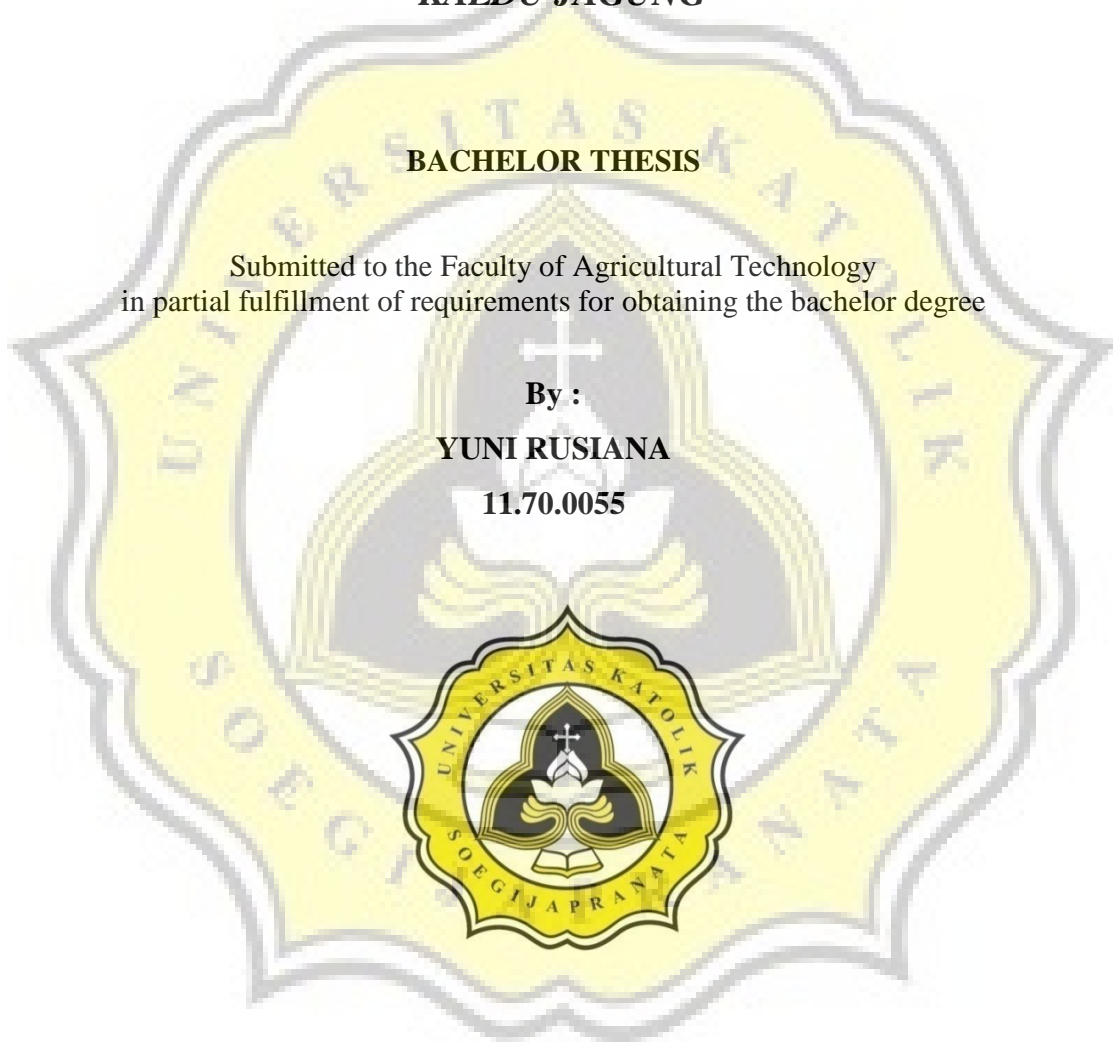
BACHELOR THESIS

Submitted to the Faculty of Agricultural Technology
in partial fulfillment of requirements for obtaining the bachelor degree

By :

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STATEMENT OF THESIS AUTHENTICITY

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Declares that Thesis entitled “**DIVERSIFICATION OF BLUE TARO TUBER (*Xanthosoma sagittifolium* L. Schott) PRODUCT THROUGH HEAT MOISTURE TREATMENT TO PRODUCE INSTANT PORRIDGE WITH CORN BROTH TASTE**” is truly my original work to fulfill the requirement for obtaining the bachelor degree in Soegijapranata Catholic University, Semarang. As long as I know, there is none work or opinion that had been written or published by another people, except those mentioned in references. If someday part or whole of this Thesis is proved and found as plagiarism, then I deserve to be canceled with any risk of its punishment as the regulation that applicable in Soegijapranata Catholic University and/or the applicable of legislation.

Semarang, March, 2015

Yuni Rusiana

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**This bachelor thesis has been approved and defended
in front of examiners in March, 5th 2015**

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SUMMARY

In general, Indonesian people having habit consuming rice as a staple food. For reducing the number of rice consumption, tubers such as blue taro (*Xanthosoma sagittifolium* L. Schott) can be processed into an instant porridge to fulfill carbohydrate needs as a rice-replacement. Blue taro tuber has high nutrient and bioactive compounds, such as diosgenin and water soluble polysaccharides, but it is tasteless. Therefore, the instant porridge from blue taro tuber will be combined with corn broth powder to give specific aroma and taste in order to increase the consumer acceptance. The problem in processing blue taro instant porridge is the starch granule is difficult to rehydrate. Heat moisture technique could be used to modificate blue taro starch and increase the rehydration. The objectives of this study are to produce instant porridge from blue taro tuber with the addition of corn broth powder as a rice-replacement and to find out the effect of different heat moisture treatment on physical and chemical characteristics of blue taro instant porridge, especially in increasing the rehydration aspect. The research was conducted by giving heat moisture treatment to the blue taro flour at temperature 77°C and 110°C for 3 hours, 6 hours and 9 hours. The physical characteristics consisted of rehydration, solubility, water absorption index, dispersibility, color, bulk density, and swelling power were analyzed. The blue taro flour which had the best physical characteristics (77°C in 3 hours and 110°C in 6 hours) and control flour were continued to the chemical analysis consists of carbohydrate, protein, fat, crude fiber, moisture and ash content. The blue taro flour was used to make instant porridge with the addition of corn broth powder for sensory analysis by 30 untrained panelists with parameters, i.e. taste, aroma, colour, texture, and overall. The best heat moisture treatment to produce blue taro instant porridge was found at 77°C (3 hours). The physical analysis, included solubility (8.40 ± 0.68), water absorption index (321.26 ± 5.57), rehydration (2.02 ± 0.06), dispersibility (41.60 ± 0.26), swelling power (4.34 ± 0.46) and bulk density (1.50 ± 0.02). The chemical analysis consisted of moisture content (6.80 ± 0.28), ash content (3.39 ± 0.09), fat (0.90 ± 0.10), protein (1.66 ± 0.20), crude fiber (9.13 ± 0.45), and carbohydrate (78.12 ± 0.68) whereas in sensory analysis, it had the highest preferences in color (1.50 ± 0.51), taste (1.37 ± 0.49), aroma (1.43 ± 0.50), and overall (1.33 ± 0.48).

RINGKASAN

Pada umumnya, masyarakat Indonesia masih mengonsumsi beras sebagai makanan pokok. Untuk mengurangi tingginya angka konsumsi beras, umbi-umbian seperti kimpul (*Xanthosoma sagittifolium* L. Schott) dapat diproses menjadi produk bubur instan sehingga dapat memenuhi kebutuhan karbohidrat sebagai pengganti beras. Umbi kimpul cenderung memiliki rasa yang tawar walaupun memiliki senyawa bioaktif seperti diosgenin dan polisakarida larut air dan kandungan nutrisi yang tinggi. Oleh sebab itu, bubur instan yang diproduksi menggunakan umbi kimpul akan dikombinasikan dengan bubuk kaldu jagung untuk memberikan citarasa dan aroma yang khas serta meningkatkan penerimaan konsumen. Namun, umbi kimpul memiliki granula pati yang sulit untuk mengalami rehidrasi. Teknik heat moisture dapat digunakan untuk memodifikasi pati umbi kimpul dan meningkatkan rehidrasinya. Tujuan dilakukannya penelitian ini adalah untuk menghasilkan bubur instan dengan penambahan bubuk kaldu jagung sebagai alternatif makanan pengganti beras, dan untuk mengetahui pengaruh perlakuan heat moisture yang berbeda terhadap karakteristik fisik dan kimia bubur instan dari umbi kimpul, terutama untuk meningkatkan daya rehidrasinya. Penelitian dilakukan dengan memberikan perlakuan hidrotermal pada suhu 77°C dan 110°C selama 3 jam, 6 jam and 9 jam. Kemudian, dilakukan analisa fisik yang meliputi rehidrasi, kelarutan, indeks penyerapan air, daya dispersi, warna, densitas kamba dan daya pengembangan. Tepung kimpul hasil perlakuan heat moisture yang memiliki karakteristik fisik terbaik (77°C selama 3 jam dan 110°C selama 6 jam) dan tepung kontrol dianalisa kandungannya, meliputi karbohidrat, protein, lemak, serat kasar, kadar air dan abu. Kemudian, tepung kimpul tersebut digunakan sebagai bahan pembuatan bubur instan dengan penambahan bubuk kaldu jagung untuk analisa sensori yang diselenggarakan dengan 30 panelis tidak terlatih. Parameter yang digunakan dalam uji sensori adalah rasa, aroma, tekstur, warna, dan keseluruhan. Perlakuan heat moisture terbaik untuk menghasilkan bubur instan kaldu jagung adalah pada 77°C (3 jam) dengan hasil analisa fisik meliputi kelarutan ($8,40 \pm 0,68$), indeks penyerapan air ($321,26 \pm 5,57$), rehidrasi ($2,02 \pm 0,06$), daya dispersi ($41,60 \pm 0,26$), daya pengembangan ($4,34 \pm 0,46$), dan densitas kamba ($1,50 \pm 0,02$). Selain itu, kandungan kimianya meliputi kadar air ($6,80 \pm 0,28$), kadar abu ($3,39 \pm 0,09$), lemak ($0,90 \pm 0,10$), protein ($1,66 \pm 0,20$), serat kasar ($9,13 \pm 0,45$), dan karbohidrat ($78,12 \pm 0,68$) sedangkan pada analisa sensori, tepung ini memiliki tingkat kesukaan tertinggi pada warna ($1,50 \pm 0,51$), rasa ($1,37 \pm 0,49$), aroma ($1,43 \pm 0,50$), dan keseluruhan ($1,33 \pm 0,48$).

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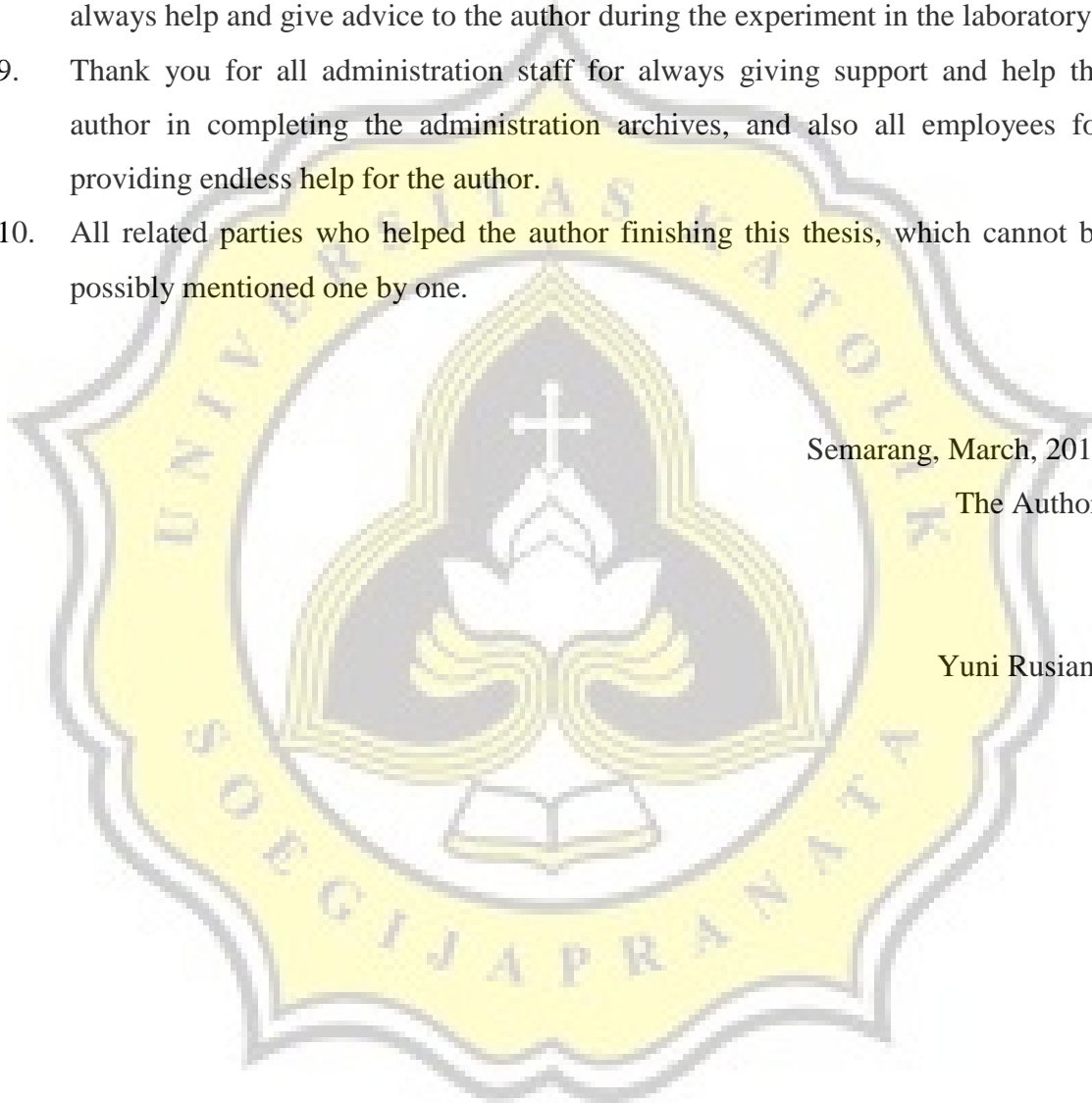
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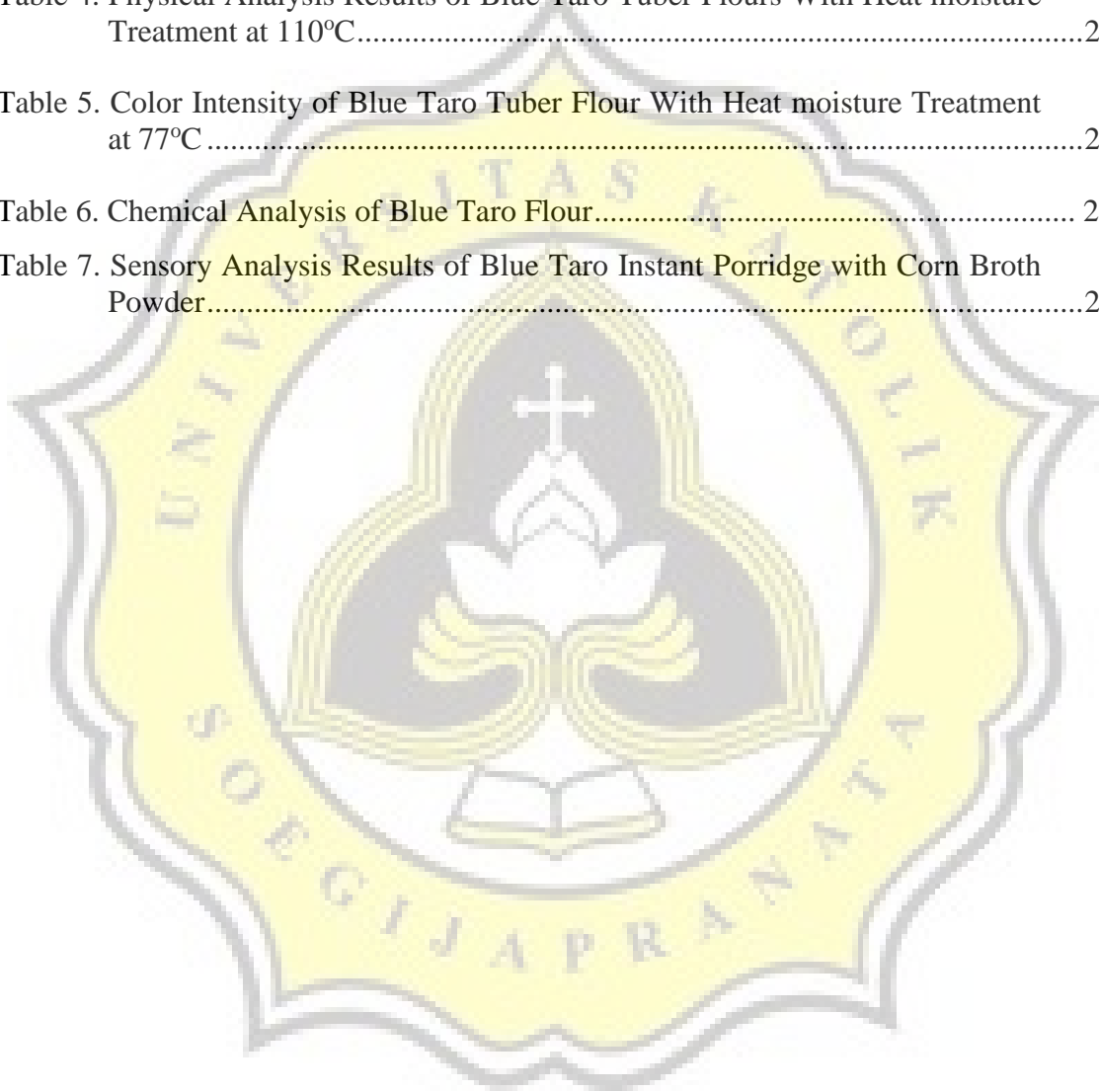
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