

**PROCESS DESIGN DEVELOPMENT FOR  
PRODUCTION OF OMEGA-3 SOFT CAPSULE FROM CANDLENUT OIL**

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### STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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## ABSTRACT

### PROCESS DESIGN DEVELOPMENT FOR PRODUCTION OF OMEGA-3 SOFT CAPSULE FROM CANDLENUT OIL

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The thesis work was written to develop a process design and a business plan for the production of omega-3 soft capsules from candlenut oil. This work content about market research of the omega-3 products, production plan, material balance, energy balance, specification of the machines until the economical analysis. This thesis work was completed by using the information from previous studies, journals, experiment and experience/knowledge throughout the studies. Malnutrition has been one of the health concerns for children in Indonesia and one of the causes is lack of omega-3 intake. In this process research development, candlenut oil as the source of omega-3 oil can be developed into supplement capsules. On working with this process design development, it is found that the process could be done by using sorting, cold press (oil extraction) method, centrifugation (separation), mixing, capsuling, drying, inspection, polishing and packaging. The candlenut oil will be added with vitamin E (alpha-tocopherol) to act as an antioxidant and filled into soft capsules. By using these processes and producing omega-3 soft capsule supplements, the unsaturated fatty acid content in the candlenut oil can be maintained (from oxidation).

*Keywords: Candlenut (Aleurites Moluccanus), Kemiri, Omega 3 (Linolenic acid), Process Design Development, Business Plan.*



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## DEDICATION

I dedicate this work to my parents who financially supported me through my university life and I would also like to specially express my gratitude to my “dear” friends, Quincy and Sophia, for helping me to keep my sanity and morality during the whole quarantine period.



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**TABLE OF CONTENTS**

	Page
STATEMENT BY THE AUTHOR.....	2
ABSTRACT.....	3
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
TABLE OF CONTENTS.....	7
LIST OF FIGURES .....	9
LIST OF TABLES.....	11
LIST OF GRAPH .....	12
1. INTRODUCTION .....	13
1.1 Background.....	13
1.2 Objectives .....	14
1.3 Hypothesis .....	14
2. LITERATURE REVIEW .....	15
2.1. Candlenut.....	15
2.2. Candlenut Oil.....	17
2.3. Omega.....	17
2.3.1. Omega from Candlenut Oil.....	21
2.4. Vitamin E.....	21
2.5. Soft Capsule.....	23
2.6. Raw Material Availability .....	26
2.7. Previous Study .....	27
3. RESEARCH METHODS .....	28
3.1 Material, Chemicals and Equipment.....	28
3.1.1. Materials and Chemicals.....	28
3.1.2. Equipment.....	29
3.2 Process Development Experimental Design.....	30
3.2.1. Market Research .....	31
3.2.2. Product Manufacturing Procedure .....	31
3.2.3. Designing Process Flow Diagram.....	33
3.2.4. Material Balance .....	33
3.2.5. Energy Balance .....	33
3.2.6. Process Equipment Research .....	34
3.2.7. Economic Analysis .....	34
4. RESULTS AND DISCUSSION.....	35

PROCESS DESIGN DEVELOPMENT FOR  
PRODUCTION OF OMEGA-3 SOFT CAPSULE FROM CANDLENUT OIL

4.1	Market Research .....	35
4.2	Production Master Plan.....	40
4.2.1.	Omega-3 Soft Capsule Dosage .....	42
4.2.2.	Omega-3 Soft Capsule Additives .....	42
4.3	Material Balance and Process Flow Diagram.....	43
4.3.1.	Flow Rates Block Diagram.....	43
4.3.2.	Process Flow Diagram (PFD).....	47
4.3.3.	Data and Assumptions .....	57
4.3.4.	Material Balance .....	58
4.4	Energy Balance .....	65
4.4.1	Heat Energy Calculation.....	65
4.4.2.	Data of Material Used.....	70
4.5	Process Equipment Research .....	73
4.6.	Economic Analysis .....	79
4.6.1.	Materials and Equipment.....	79
4.6.2.	Utilities and Utility Equipment (Production Machines).....	83
4.6.3.	Capital Investment .....	86
4.6.4.	Fixed Cost and Variable Cost .....	87
4.6.5.	Production Cost and Selling Price .....	89
4.7.	Manufacturing Plant Layout .....	91
4.7.1.	Overall Layout .....	92
4.7.2.	Production Room Layout.....	93
	CONCLUSION AND RECOMMENDATION.....	96
5.1.	Conclusion .....	96
5.2.	Recommendation .....	96
	REFERENCES .....	97
	CURRICULUM VITAE.....	107



**LIST OF FIGURES**

Figure 2.1 Candlenut Fruits from Candlenut Tree (9 Manfaat Minyak Kemiri untuk Rambut, Kulit, dan Kesehatan n.d.).....	16
Figure 2.2. Candlenut seeds (Source: <a href="https://padangkita.com/3-daerah-penghasil-kemiri-di-pessel/">https://padangkita.com/3-daerah-penghasil-kemiri-di-pessel/</a> ).....	16
Figure 2.3 Candlenut Kernels (Source: 3 Cara membuat minyak kemiri sendiri di rumah dengan mudah   merdeka.com n.d.) .....	16
Figure 2.4 Structure of Omega 3: ALA, EPA and DHA. (Source: Scorletti and Byrne 2013) .....	19
Figure 2.5 Linoleic acid and Arachidonic acid structure (Source: Structures of omega-6 and omega-3 fatty acids Omega-3 fatty acids. n.d.) .....	19
Figure 2.6 Gamma Linoleic Acid Structure (Barre 2009) .....	20
Figure 2.7 Conjugated Linoleic Acid Structure (Source: Frank et al. 2020).....	20
Figure 2.8 Oleic Acid Structure (Source: Pamolyn 100 FGK Kosher Oleic Acid, in Powai, Mumbai , Eastman Chemical India Private Limited. n.d.) .....	20
Figure 2.9 Oblong Softgel Size (Source: Softgel Sizes: The Ultimate Guide - SaintyTec n.d.) .....	24
Figure 2.10 Round Softgel Size (Source: Softgel Sizes: The Ultimate Guide - SaintyTec n.d.) .....	25
Figure 2.11 Oval Softgel Size (Source: Softgel Sizes: The Ultimate Guide - SaintyTec n.d.) .....	25
Figure 2.12 Tube Softgel Size (Source: rouND oVAL obLoNG sTANDArD shApes AND siZes oF soFT GeLATiN CAPsuLes n.d.) .....	25
Figure 2.13 Suppository Softgel Size (Source: rouND oVAL obLoNG sTANDArD shApes AND siZes oF soFT GeLATiN CAPsuLes n.d.) .....	26
Figure 2.14 Fish Softgel Size (Source: rouND oVAL obLoNG sTANDArD shApes AND siZes oF soFT GeLATiN CAPsuLes n.d.) .....	26
Figure 3.1 Block diagram of process development experimental design .....	30
Figure 3.2 Block diagram of the main production procedure for the production of omega-3 soft capsule from candlenut oil .....	31
Figure 4.1 Wellness Omega 3 supplement (Source: Natural Farm) .....	37
Figure 4.2 Naturelo omega 3 supplement (Source: Amazon, Tokopedia) .....	37

Figure 4.3 Puritan omega 3 supplement (Source: Puritan's) .....	38
Figure 4.4 Naturelo vegan omega 3 supplement (Source: Tokopedia) .....	38
Figure 4.5 Blackmores omega 3 supplement (Source: Blackmores).....	39
Figure 4.6 Nordic Naturals omega 3 supplement from algae (Source: Plentyvegan) ....	39
Figure 4.7 Block diagram with stream numbers which are indicated with red numbers encircled with red circles .....	43
Figure 4.8 Process Flow Diagram of the manufacturing process .....	47
Figure 4.9 Cold press expeller for oil extraction process (Source: Google Image).....	49
Figure 4.10 Centrifuge machine (Source: Alibaba.com).....	50
Figure 4.11 Mixing Tank (Mixer Machine & Mixing Equipment - Ginhong n.d.).....	51
Figure 4.12 Gelatin Mixing Tank (Gelatin Service Tank: The Complete Guide - SaintyTec n.d.).....	52
Figure 4.13 Softgel encapsulation machine with tumble dryer (Source: Alibaba.com). 53	
Figure 4.14 Tumble Dryer ( <i>China Soft Gel Capsule Tumber Dryer Suppliers &amp; Manufacturers &amp; Factory - Made in China - LeadTop n.d.</i> ).....	54
Figure 4.15 Capsule inspection machine (Source: Google Image) .....	55
Figure 4.16 Soft capsule polisher machine (Automatically removes oil residue from softgel surfaces in preparation for capsule printing 2019) .....	56
Figure 4.17 Bottling Machine (Source: Alibaba) .....	57
Figure 4.18 Partition for soft capsule bottle in secondary packaging.....	81
Figure 4.19 HDPE Bottle for soft capsule .....	81
Figure 4.20 Bottle Label .....	81
Figure 4.21 Overall Plant Layout .....	92
Figure 4.22 First floor of the production area.....	93
Figure 4.23 Second floor of the production area .....	94

**LIST OF TABLES**

Table 2.1 Recommended Dietary Allowances (RDAs) for Vitamin E (Alpha-Tocopherol) (Source: Vitamin E, 2019) .....	22
Table 2.2 Tolerable Upper Intake Levels (UL) for Vitamin E (Source: Vitamin E, 2019) .....	22
Table 2.3 Previous study which were conducted in Swiss German University .....	27
Table 3.1 Material required for the soft capsule filling .....	28
Table 3.2 Material required for making soft capsule .....	28
Table 3.3 Materials required for packaging .....	29
Table 3.4 Equipment required for manufacturing process .....	29
Table 3.5 Equipment required for formulation of soft capsule .....	30
Table 4.1 Omega content of refined candlenut oil (Source: H. L. T. P. F. I. Sutanto 2019) .....	40
Table 4.2 Adequate Intake for Omega-3 (Source: Office of Dietary Supplements, n.d.) .....	41
Table 4.3 Name of the machines referring to PFD .....	48
Table 4.4 Material balance in machine sorting process .....	59
Table 4.5 Material balance in cold pressing process .....	59
Table 4.6 Material balance in centrifugation process .....	60
Table 4.7 Material balance in mixing process .....	60
Table 4.8 Material balance in gelatin mixing process .....	61
Table 4.9 Material balance in capsuling process .....	62
Table 4.10 Material balance in drying process .....	62
Table 4.11 Material balance in inspection (sorting) process .....	63
Table 4.12 Material balance in polishing process .....	64
Table 4.13 Data for energy balance calculation .....	73
Table 4.14 Machine names and specifications .....	76
Table 4.15 Payback Period .....	91

**LIST OF GRAPH**

Graph 4.1 Increase in omega 3 global market (More, 2020).....	35
Graph 4.2 Increase in omega 3 sales globally (marketgrowthnews, 2019).....	36
Graph 4.3 Accumulated price of omega 3 supplements from different brands.....	40
Graph 4.4 First Year Sale .....	90

