

**SQUALENE EXTRACTION AND PURIFICATION FROM BIDARA
(*ZIZIPHUS MAURITIANA*) SEEDS**

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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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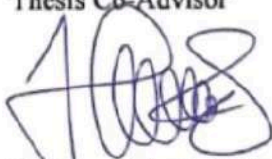
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ABSTRACT

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Squalene is a high value compound in the pharmaceutical and cosmetic industries that is mainly produced from shark liver oil. However due to the dwindling population of sharks, the production of squalene becomes challenging. Therefore, plant-based alternatives were sought to overcome this challenge. Bidara or *Ziziphus mauritiana* is one of the alternative sources of squalene. The objective of this research is to determine the most suitable extraction and purification method to obtain Bidara seed oil containing squalene. This was determined through three phases which includes solvent screening through maceration, selection of most suitable extraction method and purification by saponification followed by liquid-liquid extraction. The most suitable solvent was determined to be methanol. The most suitable extraction method is soxhlet using methanol solvent with a solid-to-solvent ratio of 1:10 w/v for 6 hours at the temperature range of 65-70°C. This method yielded $32.90 \pm 1.08\%$ of crude Bidara seed oil with a relative squalene content of $0.236 \pm 0.008\%$. The purification through saponification followed by liquid-liquid extraction yielded $1.55 \pm 0.22\%$ of purified oil containing $1.927 \pm 0.206\%$.

Keywords: *Squalene, Ziziphus mauritiana, Bidara, Soxhlet Extraction, Maceration, Methanol, Saponification, Liquid-Liquid Extraction*



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DEDICATION

I dedicate this work for my parents who have continuously supported me throughout
my life



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First and foremost, I would like to thank God for blessing me with health and strength to finish my bachelor thesis. I would also like to give my gratitude to my family and friends for their continuous support.

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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.....	10
CHAPTER 1 - INTRODUCTION.....	11
1.1. Background.....	11
1.2. Research Problems.....	12
1.3. Research Objectives.....	13
1.4. Significance of Study.....	13
1.5. Research Questions.....	13
1.6. Hypotheses.....	13
CHAPTER 2 - LITERATURE REVIEW.....	14
2.1. Squalene.....	14
2.1.1. Benefits of Squalene.....	15
2.1.2. Market Demand and Source of Squalene.....	17
2.2. Bidara (Ziziphus) plant.....	21
2.2.1. Classification.....	21
2.2.2. Distribution, Diversity, and Cultivation of Bidara (Ziziphus) Species in Indonesia.....	21
2.2.3. Benefits of Bidara (Ziziphus) plants.....	22
2.2.4. Phytochemical Study of Bidara (Ziziphus) plants.....	22
2.3. Extraction Method.....	23
2.3.1. Maceration.....	24
2.3.2. Soxhlet.....	25
2.4. Purification Method.....	26

2.5. Previous Study.....	26
2.5.1. Extraction method of squalene from plants.....	26
2.5.2. Extraction in Bidara.....	28
2.6. State of the Art.....	29
CHAPTER 3 – RESEARCH METHODS.....	31
3.1. Venue and Time.....	31
3.2. Materials and Equipment.....	31
3.2.1. Materials.....	31
3.2.2. Equipment.....	31
3.3. Design of Experiment.....	32
3.3.1. Phase I: Screening for Best Solvent Through Maceration.....	33
3.3.2. Phase II: Selection of Best Extraction Method.....	34
3.3.3. Phase III: Purification Through Saponification Followed by Liquid-Liquid Extraction.....	35
3.4. Analytical Methods.....	36
CHAPTER 4 – RESULTS AND DISCUSSIONS.....	40
4.1. Maceration: Screening for Best Solvent.....	40
4.1.1. Pretreatment.....	40
4.1.2. Determination of Best Solvent.....	40
4.2. Selection of Extraction Method.....	46
4.3. Purification: Saponification Followed by Liquid-Liquid Extraction.....	48
CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS.....	52
5.1. Conclusions.....	52
5.2. Recommendations.....	52
REFERENCES.....	53
APPENDIX.....	59

LIST OF FIGURES

Figures	Page
1. Chemical structure of squalene (Popa et al., 2015).....	14
2. Cornforth's synthesis of squalene (Jarchow-Choy et al., 2014).....	18
3. Petersen's synthesis of squalene using Claisen rearrangement (Jarchow-Choy et al., 2014).....	18
4. Biosynthesis pathway of squalene (Lozano-Grande et al., 2018).....	19
5. <i>Ziziphus mauritiana</i> (Aiden Gardens, 2024).....	21
6. Maceration extraction (Lakna, 2018).....	25
7. Soxhlet extraction apparatus (Bhargavi et al., 2018).....	25
8. Design of Experiment of Extraction and Purification of Squalene from Bidara Seeds.....	32
9. Experimental Procedure of Phase 1: Screening for Best Solvent.....	33
10. Experimental Procedure of Phase 2: Selection for Best Extraction Method.....	34
11. Experimental Procedure of Phase 3: Purification of Bidara Seed Oil.....	35
12. GC-MS diagram (Turner, 2024).....	37
13. MS profile of squalene (P et al., 2012).....	37
14. a) Extracted Crude Oil of Hexane b) Extracted Crude Oil of Methanol.....	41
15. Gas Chromatogram of Crude Bidara Seed Oil.....	41
16. Mass Spectrum of Squalene from Crude Bidara Seed Oil.....	42
17. Standard Curve for Antioxidant Activity.....	44
18. a) Setup of Saponification Process b) Setup of Liquid-Liquid Extraction.....	49
19. Purified Bidara Seed Oil (Unsaponified Fraction After Evaporation).....	49
20. GC-MS Profile of Crude Bidara Seed Oil.....	50
21. GC-MS Profile of Purified Bidara Seed Oil.....	50

LIST OF TABLES

Table	Page
1. Physical and Chemical Properties of Squalene (Senbagalakshmi et al., 2019).....	14
2. List of Squalene Sources with Their Respective Yields.....	20
3. State of the Art of Bidara Seeds Extraction.....	29
4. Crude Oil Yield of Bidara Seed Kernels Using Different Solvents.....	40
5. Squalene Content of Crude Bidara Seed Oil Using Different Solvents.....	42
6. Major Impurities of Crude Bidara Seed Oil Using Different Solvents.....	43
7. Squalene Content of Crude Bidara Seed Oil Using Different Solvents.....	45
8. Crude Oil Yield of Bidara Seed Kernels Using Different Extraction Method.....	46
9. Squalene Content of Crude Bidara Seed Oil Using Different Extraction Method...	47
10. Squalene Content of Crude Bidara Seed Oil Using Different Extraction Method.	47
11. Squalene and Major Impurities Content (% of total peak area) of Crude and Purified Bidara Seed Oil.....	50