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Literature study: Use of Sungkai Leaf and Virgin Coconut Oil (Vco) in soap making

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Abstract
Purpose: This literature review discusses the use of Sungkai leaves (Peronema canescens Jack.) and Virgin Coconut Oil (VCO) in soap production as promising natural alternatives in the cosmetic industry. Sungkai leaves have been proven to possess antibacterial, anti-inflammatory, and antioxidant activities, whereas VCO is known for its antimicrobial and anti-inflammatory properties. Previous research has indicated that Sungkai leaf extract and VCO have the potential to be effective soap formulations for maintaining skin health.
Method: The research method employed in this study is a literature review that gathers, analyzes, and synthesizes information from various literature sources to present a comprehensive overview of the use of both ingredients in soap production.
Results: The research results indicate that the combination of Sungkai leaves and VCO in soap provides good cleansing effects and maintains skin health and moisture. The practical implications of this research are the potential development of more effective and environmentally friendly soap products for the cosmetic industry.
Keywords: *Sungkai leaves, Virgin Coconut Oil (VCO), soap, soap making, antibacterial*
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1. Introduction

The use of natural ingredients in skincare products is gaining increasing attention in the public and cosmetic industries. Two of the natural ingredients that have been the research focus are Sungkai leaf (Peronema canescens Jack) and Virgin Coconut Oil (VCO). Both have been shown to have promising potential for making soap, which is effective and beneficial for skin health. The Sungkai leaf, a tropical plant widely found in Southeast Asia, has long been recognized for its various pharmacological properties. The Sungkai leaf extract has been shown to have antibacterial, anti-inflammatory, and antioxidant activities, all of which contribute to skincare. On the other hand, VCO has become a popular ingredient in skincare and beauty products due to its high fatty acid content, including lauric acid, which has antimicrobial and anti-inflammatory properties.

Several previous studies have examined the potential use of Sungkai leaves and VCO in soap-making. For example, research by Haflin, Agusriani, Mariska, and Hartesi (2023) explored the effect of polymers on the quality of Sungkai leaf methanol extract paper soap as an antibacterial. These results provide an understanding of soap formulations that are effective against bacteria. Emilia, Setiawan, Novianti, Mutiara, and Rangga (2023) also conducted a phytochemical screening study of Sungkai leaf extracts by infundation and maceration, showing the potential of active compounds in Sungkai leaves that can be used in soap formulations. Nisa, Marliana, and Erwin (2024) evaluated the antioxidant activity of the methanol extract of Sungkai leaves, which provided knowledge of the health benefits of using this natural ingredient in soaps.

These studies highlight the great potential of using Sungkai leaves and VCO in soap-making, in terms of skin health and cleaning effectiveness. Therefore, this study aims to present a comprehensive review of the use of both ingredients in soap-making, focusing on their benefits, related findings from previous studies, and their practical implications in the cosmetic and skincare industry.

2. Research Methodology

This study explored the use of Sungkai leaves and Virgin Coconut Oil (VCO) in soap making. As a literature study, this research does not involve direct primary data collection but instead relies on literature analysis and previous studies conducted by previous researchers.

This research design was based on gathering information from various literature sources relevant to the research topic, including scientific journals, books, articles, and other reliable sources. The information obtained from the literature was then analyzed and synthesized to gain a comprehensive understanding of the use of Sungkai leaves and VCO in soap making. This research method involved searching and selecting literature relevant to the research topic, reading and understanding the content of the literature, and analyzing the findings reported by previous researchers. As such, this research design allowed for an understanding of the benefits and potential of using Sungkai leaves and VCO in soap making based on pre-existing evidence in the scientific literature.

Although it does not involve primary data collection, this study has significant value in providing a solid and supportive knowledge base for future research. By collecting, analyzing, and synthesizing information from various literature sources, this study makes an essential contributes to expanding the understanding of the potential use of Sungkai leaves and VCO in the soap-making industry.

3. Result and discussions

The following table shows the results of the data extraction of articles identified using Google Scholar.
Table 1. Description of Included Articles

No	Author	Title	Design, Population and Sample	Result
1	Haflin et al. (2023)	Effect of Polymer on the Quality of Paper Soap of Methanol Extract of Sungkai Leaf (Peronema canescens Jack) as Antibacterial.	This study used the maceration method to extract active ingredients from sungkai leaves (Peronema canescens Jack) using 95% methanol solvent. The liquid extract was then concentrated using a rotary vacuum evaporator. Phytochemical screening was carried out to identify secondary metabolite compounds contained in the sample. Hand washing paper soap preparation formula was made using sungkai leaf extract, HPMC/PVA polymer, glycerin, sodium lauryl sulfate, 50% NaOH, sodium EDTA, and aquadestilata. The manufacturing process was carried out using a hot water bath method.	Phytochemical screening results showed the presence of alkaloids, flavonoids, saponins, tannins, and steroid compounds in sungkai leaf extract. Sungkai leaf extract has a yield of 13.71%. The handwashing paper soap formula containing sungkai leaf extract has met the pH parameters, foam stability level, water content, fatty acid content and free alkali regulated by SNI standards.

			The population in this study was sungkai leaves (Peronema canescens Jack) obtained from the Muara Kilis area, Tebo Regency, Jambi Province. Sungkai leaf samples were processed for extraction using a maceration method using 95% methanol solvent.	
2	Emilia et al. (2023)	Phytochemical Screening of Sungkai Leaf Extract (Peronema canescens Jack.) by Infundation and Maceration.	This study used a qualitative chemical analysis method using various laboratory tools such as a glass maceration vessel, rotary evaporator, and Buchner funnel. The materials used included 70% methanol, distilled water, and sungkai leaves. The extraction process was carried out using infundation and maceration methods. The population in this study was sungkai (Peronema canescens) leaves. The sample used was sungkai leaf simplisia extracted using the infundation and maceration methods.	Phytochemical test results show that macerated sungkai leaf extract contains alkaloid, flavonoid, terpenoid, steroid, tannin, and saponin compounds. While the infundation extract contains flavonoids, steroids, terpenoids, tannins, and saponins, it does not contain alkaloids.
3	Nisa et al. (2024)	Potential Antioxidant Activity of Methanol Extract of Sungkai Leaf (Peronema canescens Jack.).	This study aims to evaluate the antioxidant activity of the methanol extract of sungkai (Peronema canescens Jack.) leaves and identify the content of secondary metabolites that contribute to the activity. The phytochemical method was used to identify secondary metabolite compounds in sungkai leaves, while an antioxidant activity test was conducted by determining the IC50 value. The population in this study was sungkai leaves (Peronema canescens Jack.). The samples used were methanol extracts from sungkai leaves that had been	Based on phytochemical tests, sungkai leaves contain alkaloids, flavonoids, saponins, phenolics, and tannins. The mechanism of action of these secondary metabolite compounds as antioxidants varies, ranging from donating hydrogen to free radicals to inhibiting lipid peroxide formation and chelating metal ions.

			extracted and tested for antioxidant activity.	
4	Fransisca, Kahanjak, and Frethernety (2020)	Test the antibacterial activity of ethanol extract of sungkai leaves (Peronema canescens Jack) against the growth of Escherichia coli by the Kirby-Bauer disc diffusion method.	This study uses the Kirby Bauer disc testing method to evaluate the antibacterial activity of the ethanol extract of sungkai leaves (Paronema canescens Jack) against Escherichia coli (E. coli) growth. The research method used was experimental with positive control and negative control. Sungkai leaf extract was prepared in various concentrations (25%, 50%, 75%, and 100%) using 96% ethanol solvent. Sungkai leaf samples were collected randomly from the Kuala Kurun, Gunung Mas Regency. The research was conducted at the Research Laboratory of Muhammadiyah University, Palangka Raya. Plant identification was carried out at the Plant Taxonomy Laboratory, Faculty of Biology, Jenderal Soedirman University, while content testing was carried out at the Chemistry Education Laboratory, Palangka Raya University.	Ethanol extract from sungkai leaves showed antibacterial activity against E. coli growth, with the largest inhibition zone formed at 100% concentration. The sungkai leaf content identification test results showed the presence of active compounds such as alkaloids, steroids, phenolics/tannins, and saponins that have potential as antibacterials.
5	Ulfa, Syamsiah, Anuar, and Afriliani (2023)	Preparation of Solid Soap from Sungkai Leaf Extract (Peronema Canescens Jack) as Antibacterial against Staphylococcus Aureus.	This study used the maceration extraction method to produce sungkai leaf extract. The extract is then used as an additional ingredient in solid soap making. The soap-making process uses the semi-boiled process method, with variations in the volume of sungkai leaf extract. The population in this study was sungkai leaves (Peronema canescens Jack) as the source of the extract. The sample used was the	The extraction results of sungkai leaves show the content of secondary metabolite compounds such as alkaloids, phenol hydroquinone, flavonoids, saponins, terpenoids, and steroids. The manufacture of solid soap with the addition of sungkai leaf extract produces products with a pH between 9.7 and 10, the pH standard of soap safe for the skin. In addition, organoleptic tests showed changes in the shape, colour, and

			sungkai leaf extract produced from the maceration extraction process. Variations in extract volume were used to make five different solid soap products.	aroma of solid soap along with the addition of sungkai leaf extract.
6	Hitijahubessy and Parlindungan (2021)	Quality analysis of hand sanitizer from the combination of Virgin Coconut Oil (VCO) as a softener and antibacterial with ethanol mixture.	This laboratory experimental study aims to test the effectiveness of the combination of VCO and alcohol in making hand sanitizer. Test methods include organoleptic tests and clear zone tests. The population in this study was bacteria from human hands. At the same time, the samples used were a combination of VCO and alcohol in various concentrations, as well as positive control (70% alcohol) and negative control (distilled water).	Organoleptic test results show that the combination of VCO with concentrations of 10%, 25%, and 50% provides a soft texture, distinctive coconut aroma, and cloudy colour to be used as a hand sanitizer. The 100% VCO concentration provides high softness due to the soft nature of the oil. Straightforward Zone Test: Hand sanitizers with 5%, 10%, and 25% VCO concentrations had extreme inhibition zones, with inhibition zone sizes of 20.725 mm, 20.6375 mm, and 20.05 mm, respectively. These results indicate that combining VCO with alcohol has good antibacterial ability.
7	Khatin and Oktiansyah (2022)	Potential of Sungkai Stem Bark (Peronema Canescens Jack) as Salmonella Typhi Antibacterial.	This study was conducted with an experimental design using the disc diffusion method to test the antibacterial activity of sungkai stem extract against Salmonella typhi. The results showed that sungkai stem bark extract has significant antibacterial activity against the growth of Salmonella typhi bacteria. The analysis method used is the One Way ANOVA statistical test and Honest Real Differences (BNJ) follow-up test. The statistical	The results showed that sungkai bark extract has antibacterial activity against Salmonella typhi. ANOVA statistical analysis showed a significant difference between the treatments and the control, with the calculated F value more significant than the F table. BNJ test showed that all treatments had a significant effect on antibacterial activity. Various compounds such as tannins, flavonoids, phenolics, steroids, and alkaloids in sungkai

			test results showed that sungkai stem extract significantly affected bacterial growth. In addition, active compounds in sungkai stem extract, such as tannins, flavonoids, and steroids, have different mechanisms of action in inhibiting bacterial growth.	plants play a role in the antibacterial activity, with different mechanisms of action.
8	Triani and Asnilawati (2020)	Anti-bacterial Activity Test of Sungkai Leaf Extract (Peronema canesceens jack) against the Growth of Escherichia coli Bacteria.	This study used an experimental design with positive control (Tetracycline) and negative control (DMSO). Using the disc diffusion method, Sungkai stem extract was tested against Salmonella typhi bacteria. The treatment was performed with 50%, 75%, and 100% extract concentrations. The population in this study was Salmonella typhi bacteria. The sample used was sungkai stem extract. The research was conducted at the Pharmaceutical Laboratory of Pioneer University of Padang, Indonesia, with observations for ± 5 months.	Sungkai stem extract showed anti-bacterial activity against Salmonella typhi. There was a significant difference between the treatments and the control, with the calculated F value more significant than the F table. BNJ test showed that all treatments had a significant effect on anti-bacterial activity.
9	Zulliati, Hidayah, and Nugraha (2021)	Virgin Coconut Oil Soap to Prevent Candidiasis Vaginalis Infection	The research was conducted using experimental methods in the laboratory. The research stages include providing raw materials, breeding Candida albicans fungi, making VCO from coconut, making soap with VCO base, and testing the activity against Candida albicans fungi.	The test results show that VCO has antifungal activity against Candida albicans at specific concentrations. However, when processed into soap, the antifungal effect was not significant. The results also show that soap formulations with VCO have a pH safe to use in the feminine area.
10	Fadlilaturrahmah, Khairunnisa, Putra, and Sinta (2021)	Sunscreen and Antioxidant Activity Test of Ethanol Extract of Sungkai Leaf	The study involved collecting and processing Sungkai leaves, followed by extraction using the maceration method. Antioxidant activity was	The antioxidant activity of Sungkai leaf extract was determined by measuring its ability to capture

	(Perenema canescens Jack).	evaluated using DPPH assay, while sun protection factor (SPF) was determined spectrophotometrically. The results were analyzed to assess the effectiveness of Sungkai leaf extracts as antioxidants and sunscreen agents.	free radicals using the DPPH assay. The IC50 value, which represents the concentration required to inhibit 50% of free radicals, was found to be 42,219 ppm, indicating a high level of antioxidant activity. In addition, the SPF values of the Sungkai leaf extract at 600 ppm, 400 ppm, and 200 ppm concentrations were 24±0.31, 16±0.34, and 8±0.3, respectively, indicating its potential as a sunscreen agent.

3.1 Discussion

Sungkai leaves and Virgin Coconut Oil (VCO) used in soap-making are exciting and growing topics in scientific research. Various studies have investigated the potential of these two natural ingredients in the formulation of soap products to benefit skin health. Research on Sungkai leaf extracts has shown that the plant contains various active compounds, including alkaloids, flavonoids, saponins, and tannins. Haflin et al. (2023) showed that the methanol extract of Sungkai leaves has antibacterial activity against *Staphylococcus aureus*, a common skin pathogen. These findings provide a solid basis for the use of Sungkai leaves in soap formulations, particularly soaps, for maintaining skin hygiene.

The antibacterial properties of the Sungkai leaf extract are essential for soap-making. The addition of this extract can provide additional benefits to users, particularly in maintaining skin hygiene and health. In addition, the active compounds in Sungkai leaf extract can also positively affect the skin, such as by protecting against bacterial infections and maintaining the balance of skin microbiota (Emilia et al., 2023). On the other hand, VCO is also an interesting natural ingredient to use in soap making. Although research on the use of VCO is often related to the manufacture of hand sanitizers, the findings indicate the potential of VCO as an effective antibacterial agent. Hitijahubessy and Parlindungan (2021) found that combining VCO and alcohol can effectively kill bacteria, showing antimicrobial properties. In addition to its antibacterial activity, VCO is known to have natural moisturizing properties that keep the skin moist. This is an essential consideration in soap-making, where skin moisture is critical for user health and comfort. Thus, using VCO in soap formulations provides a cleansing effect and maintains skin moisture and health (Hitijahubessy & Parlindungan, 2021).

The use of sungkai leaves and Virgin Coconut Oil (VCO) in soap-making greatly benefits health and skincare. Sungkai leaves contain natural compounds with antibacterial, antifungal, and anti-inflammatory properties, and are rich in antioxidants that protect the skin from free radical damage. VCO is rich in saturated fatty acids and vitamin E, which moisturize the skin and fight infection-causing bacteria and fungi. The soap-making process involves extracting the sungkai leaves to obtain their active

compounds, which are then mixed into the soap mixture. VCO can be used in the soap oil processing phase and added after saponification to provide additional nourishment to the skin. Despite their benefits, paying attention to the appropriate concentrations of these two ingredients is essential to avoid potential skin irritation or allergic reactions. With proper consideration, soaps containing sungkai leaves and VCO can be a good choice for natural and sustainable skincare.

Further research on using Sungkai leaves and VCO in soap making is needed to optimize formulations and understand their benefits and side effects more intensely. However, current findings suggest that these two natural ingredients have exciting potential for the development of high-quality soap products that are beneficial for skin health (Fadlilaturrahmah et al., 2021). With further development, soaps containing Sungkai leaf extract and VCO can attract consumers who are concerned about skin health and the environment.

4. Conclusion

Studies on the use of Sungkai leaves and Virgin Coconut Oil (VCO) in soap-making have shown that these two natural ingredients have promising potential in the skincare industry. Sungkai leaf extract has been shown to have effective antibacterial activity against various types of bacteria, whereas VCO has natural moisturizing properties that are beneficial to the skin.

Previous studies have shown that soap formulations containing Sungkai leaf extract and VCO can provide skin health benefits such as maintaining cleanliness and providing moisture. The use of these natural ingredients also reflects the trend of consumers, who are increasingly concerned about environmentally friendly products that are free from harmful chemicals. However, further research is needed to optimize soap formulations, understand their side effects, and validate their clinical benefits in humans. This is important for ensuring that the resulting soap products are safe and effective for long-term use.

Overall, using Sungkai leaves and VCO in soap-making holds promise as a more natural, effective, and sustainable alternative in the skincare industry. With further research and proper formulation development, these soap products can attract consumers seeking more natural and high-quality skincare products.

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Conflict of Interest

This study has no conflict of interest to declare. It is a systematic review that objectively analyzes the existing literature on the subject.

References

Emilia, I., Setiawan, A. A., Novianti, D., Mutiara, D., & Rangga, R. (2023). Skrining Fitokimia Ekstrak Daun Sungkai (Peronema canescens Jack.) Secara Infundasi Dan Maserasi. *Indobiosains*, 95-102.

Fadlilaturrahmah, F., Khairunnisa, A., Putra, A. M., & Sinta, I. (2021). Uji Aktivitas Tabir Surya dan Antioksidan Ekstrak Etanol Daun Sungkai (Perenema canescens Jack). *Jurnal Ilmiah Ibnu Sina*, 6(2), 322-330.

Fransisca, D., Kahanjak, D. N., & Frethernety, A. (2020). Uji aktivitas antibakteri ekstrak etanol daun sungkai (Peronema canescens Jack) terhadap pertumbuhan Escherichia coli dengan metode difusi cakram Kirby-Bauer. *Jurnal Pengelolaan Lingkungan Berkelanjutan (Journal of Environmental Sustainability Management)*, 460-470.

Haflin, H., Agusriani, A., Mariska, R. P., & Hartesi, B. (2023). Pengaruh Polimer Terhadap Kualitas Sabun Kertas Ekstrak Metanol Daun Sungkai (Peronema canescens Jack) Sebagai Antibakteri. *Majalah Farmasetika*, 8(2), 175-193.

Hitijahubessy, H., & Parlindungan, J. Y. (2021). Analisis kualitas hand sanitizer dari kombinasi virgin coconut oil (VCO) sebagai pelembut dan antibakteri dengan campuran etanol. *Biofaal Journal*, 2(2), 87-93.

Khatin, A. M., & Oktiansyah, R. (2022). *POTENSI KULIT BATANG SUNGKAI (Peronema Canescens Jack) SEBAGAI Antibakteri Salmonella typhi*. Paper presented at the Prosiding Seminar Nasional Pendidikan Biologi.

Nisa, N. K., Marliana, E., & Erwin, E. (2024). Potensi Aktivitas Antioksidan Ekstrak Metanol Daun Sungkai (Peronema canescens Jack.). *JURNAL ATOMIK*, *9*(1), 19-24.

Triani, R. O., & Asnilawati, A. (2020). *Uji Aktivitas Antibakteri Ekstrak Daun Sungkai (Peronema canesceens jack) terhadap Pertumbuhan Bakteri Escherichia coli*. Paper presented at the Prosiding Seminar Nasional Pendidikan Biologi.

Ulfa, E. D., Syamsiah, S., Anuar, H., & Afriliani, C. N. (2023). Pembuatan Sabun Padat Ekstrak Daun Sungkai (Peronema Canescens Jack) Sebagai Antibakteri Terhadap Staphylococcus Aureus. *JURNAL TEKNIK KIMIA VOKASIONAL (JIMSI)*, 3(1), 28-38.

Zulliati, Z., Hidayah, N., & Nugraha, D. F. (2021). Virgin Coconut Oil Soap Pencegah Infeksi Candidiasis Vaginalis. *DINAMIKA KESEHATAN: JURNAL KEBIDANAN DAN KEPERAWATAN*, 12(1), 283-292.