

CHAPTER I

INTRODUCTION

1.1. BACKGROUND

Referring to the Central Statistics Agency (BPS) Indonesia is one of the countries dominated by the largest Muslim population in the world with a population of 237,641,326 people or around 87.18% of the total population of Indonesia.¹ One of the most important things for Muslims, especially when worshiping, is purification, which is also known as *thaharah*. *Thaharah* is one of the teachings of Islam by cleaning yourself from dirt and *najis* which is one of the conditions for the validity of Muslim worship to Allah SWT,² So cleanliness is very important in Islam and cleanliness is part of faith. *Najis* is something that considered dirty and disgusting, it can make prayer invalid.³ The types of impurities consist of light impurities (*mukhafafah*), medium impurities (*muthawasithah*) and heavy impurities (*mughallazah*). The method of purification of the three impurities is also different.⁴ One of the animals that belonging to the unclean category mughallazah are dogs. Dogs are animals created by Allah SWT that are known to be loyal and obedient. Their licking habits make it difficult for humans to avoid their saliva. In modern times, a Muslim's interaction with dogs can occur in a variety of situations, such as at the vet, police using sniffer dogs, or people with disabilities utilizing dogs as assistive devices.

According to the MUI Fatwa (2020) anything that comes from dogs and pigs such as saliva, and its derivatives are categorized as severe impurities that

¹Maria Grace Tobing et al., "Potensi Formulasi Sediaan Sabun Padat Minyak Kelapa dengan Pengisi Bentonit sebagai Media Pembersih Najis Mughallazah," *Jurnal Teknik Kimia USU* 10, no. 1 (March 25, 2021): 31–37, <https://doi.org/10.32734/jtk.v10i1.4575>.

²Imron Mashadi, "pendidikan dan pengetahuan hidup bersih dan sehat dalam perspektif Islam," *Jurnal Ilmiah Pendidikan dan Keislaman* 2, no. 1 (April 30, 2022): 11–21, <https://doi.org/10.55883/jipkis.v2i1.20>.

³Syafiin Mansyur, "Cara Memahami Di Balik Perintah Tahārah Dalam Islam," *Jurnal Holistic* 5, no. 1 (2019): 49–59.

⁴Universiti Tun Hussein Onn Malaysia et al., "The Concept of Samak and Sertu: A Comparison According to Islamic Perspective," *Journal of Quranic Sciences and Research* 4, no. 2 (December 28, 2023), <https://doi.org/10.30880/jqsr.2023.04.02.002>.

must be purified using water and soil, which is in accordance with (HR Muslim 279, 91, Ahmad 2/427).

إذا ولغ الكلب في إناء أحدكم فليرقه: ثم ليغسله سبع مرار (رواه مسلم)

Meaning: *If a dog licks into a vessel from you, then clean it with earth and then wash it seven times. (Muslim History)*⁵.

In Islam, *thaharah* is teaching to purify oneself from dirt and *najis*liness, which can be done through wudhu, bathing, and tayamum.

This explanation is in accordance with the words of Allah SWT in Surah Al-Baqarah verse 222 (2).

إِنَّ اللَّهَ يُحِبُّ التَّوَّابِينَ وَيُحِبُّ الْمُتَطَهِّرِينَ

Meaning: *“Verily, Allah loves those who repent and loves those who purify themselves.”*

Dog saliva is considered *najis* because of the law of Allah SWT which forbids dogs as a test for its servants. In terms of health, the fact that dog saliva contains dangerous pathogens, such as *Capnocytopagha* bacteria, *Pasteurella*, *staphylococcus*, *Eschericiacoli*, *Streptococcus* and small worms, which can stick to the surface of the container, If the dog's saliva is not immediately cleaned with *thaharah*, it will cause several health risks such as ringworm skin disease, infections especially in people with weak immune systems, and dog saliva can also transmit the deadly rabies virus, so special protection is needed for skin exposed to dog saliva after *thaharah* using soil such as antibacterial soap.

The wisdom of *thaharah* from *mughallazah najis (sertu)* related to health is that dogs can cause the deadly disease rabies. According to the World Health Organization (WHO), approximately 99% of rabies that causes death in humans is caused by pathogens from dogs. It is known in the science of fiqh that soil and water are elements created by Allah SWT which are used as media in purification.⁶

⁵ محمد عوامة, كُتُبُ نَصَبِ الرِّبَا لِأَحَادِيثِ / لِهَدَايَةِ (المكية, 1926)

⁶ Dede Suhendar, “Fikih (Fiqh) Air dan Tanah Dalam Tharah Menurut Prespektif Ilmu Kimia.” 10, no. 1 (2017): 170–93.

Soil can absorb *najis* agents cleanly.⁷ Soil mixed with water will produce a suspension that further strengthens its adsorbent properties because the surface will be wider, so that the soil will attract pathogens attached with magnetic force so that washing *najis mughallazah* using soil is stronger in the sterilization process than using only water.⁸

According to the understanding of geologists, the use of soft types of soil above or below the surface of the earth such as bentonite can be used for purification.⁹ Kind of soils that can remove *najis mughallazah* is bentonite, which is a type of soil containing montmorillonite minerals as an adsorbent with a concentration of (1.0-2.0%), so bentonite can remove impurities by adsorption mechanism.¹⁰ Bentonite can be used as one of the fillers in soap formulations, besides that not all types of soil can be formulated in making liquid soap because the ingredients used in making liquid soap should meet pharmaceutical grade standard specifications to get a good formulation.¹¹

Soap is a sodium and potassium salt that is a combination of fatty acid compounds, which serves to wash and emulsify dirt on the body. The soap-making process involves a saponification reaction, which is the breaking of triglyceride chains that react with alkali.¹² Antibacterial soaps available in the market often contain synthetic chemicals such as triclosan and SLS (*Sodium Lauryl Sulfate*), which can be carcinogenic and cause allergic reactions, to minimize the negative impact on health, natural antibacterial alternatives are needed in soap formulations. Natural resources such as whey kefir can be used as a substitute for these antibacterial agents. Kefir grains are colonies of probiotic bacteria together with

⁷ Suhendar.

⁸ Suhendar.

⁹ Universiti Tun Hussein Onn Malaysia et al., "The Concept of Samak and Sertu."

¹⁰ Farah Ataya and Abdul Rohman, "Optimization of Bentonite Bar Soap Formula with Combination of Coconut Oil and Soybean Oil Using Simplex Lattice Design Method," *Journal of Food and Pharmaceutical Sciences* 10, no. 1 (September 7, 2022): 666–80, <https://doi.org/10.22146/jfps.5302>.

¹¹ Robert Tungadi et al., "Formulasi dan Evaluasi Sediaan Masker Lumpur Ekstrak Bunga Rosella (*Hibiscus Sabdariffa* L.) menggunakan Basis Bentonite dan Kaolin," n.d.

¹² Tobing et al., "Potensi Formulasi Sediaan Sabun Padat Minyak Kelapa dengan Pengisi Bentonite sebagai Media Pembersih *Najis Mughallazah*."

other tissues to form a white solid tissue.¹³ Cheese whey is a waste from cheese production that is useful as a carbon source by microbes. The largest component of whey is lactose which ranges from (4.5-5%) so that this cheese liquid waste has great potential as a fermentation substrate.¹⁴

A lot of cheese companies dispose of whey, causing environmental pollution. The utilization of cheese whey aims to increase its useful value, as this liquid waste contains lactoferrin which functions as an antimicrobial agent.¹⁵, and can be an easily accessible source of fermentation media ¹⁶. Cheese waste processing is in accordance with the values of maqashid syari'ah (the goals of Islamic law that Muslims want to achieve), especially in terms of hifdz al-mal, namely obtaining wealth in a good way through the management of liquid cheese waste which is usually thrown away, which can be used as a fermentation medium so that it is more valuable.

Based on this knowledge, the researchers innovated to combine bentonite with cheese liquid waste fermented with grain kefir (whey kefir) into a liquid soap that serves to clean dirt. This innovation is expected to prevent infections from dog saliva and help Muslims in maintaining cleanliness.

Formulation of bentonite liquid soap and kefir whey is an implementation of Islamic law in the pharmaceutical world, especially pharmaceutical technology. The utilization of land shows the greatness of Allah SWT in creating earth elements with specific functions, which not only function physically but also contain spiritual values. The correlation between health and fiqh *thaharah*

¹³ Asri Nursiwi et al., "Fermentasi Whey Limbah Keju Untuk Produksi Kefiran Oleh Kefir Grains," *Jurnal Teknologi Hasil Pertanian* 8, no. 1 (February 27, 2015), <https://doi.org/10.20961/jthp.v0i0.12794>.

¹⁴ E Taufik, S Purwantiningasih, and B P Purwanto, "Kajian Potensi Whey Yogurt Sebagai Bahan Alami Pencegah Jerawat" 02, no. 1 (2014): 238–42.

¹⁵ Solikah Ana Estikomah et al., "Antimicrobial Activity of Natural Solid Soap with a Combination of Liquid Cheese Waste, Turmeric (*Curcuma longa*), and Dragon Fruit (*Hylocereus polyrhizus*) Peel," *Molekul* 18, no. 3 (November 20, 2023): 434, <https://doi.org/10.20884/1.jm.2023.18.3.8039>.

¹⁶ Yudhistira pratama, Wulandari Eka, and Hartati Chairunnisa, "Karakteristik Minuman Fermentasi Dari Bahan Baku Whey Keju Dengan Penggunaan Kedelai Bubuk Pada Penyimpanan Suhu Rendah," 2024.

emphasizes the importance of maintaining cleanliness to prevent disease in Islam. Research regarding bentonite as an adsorbent has been conducted by Atikah in 2017, and the manufacture of soap as a remover of *najis mughallazah* has been carried out by Maria Grace in 2021 with a solid preparation which in its use can reduce hygiene in the soap itself, because bar soap is more easily contaminated with bacteria due to direct contact with skin and water.

Choosing this liquid soap dosage form is based on its advantages, such as being more hygienic with a closed container so that liquid soap is safer from the risk of germ contamination and more practical to bring. Bentonite and whey kefir liquid soap is formulated to optimize washing after *thaharah* using soil and water. The ability of sirtu to remove *najis* dog DNA by the mechanism of eroding DNA particles, then DNA is bound by silica contained by bentonite and then cleanly carried away by water after rinsing.

1.2. Research Problems

1. What are the physical characteristics of liquid soap formulations with a combination of bentonite and kefir whey?
2. Which is the best soil liquid soap formulation among variations of bentonite soil?
3. Did bentonite liquid soap with bentonite-kefir whey liquid soap have antibacterial activity against gram-positive bacteria (*Staphylococcus. Aureus*) that found in dog saliva?

1.3. Research Objectives

1. Formulating bentonite kefir whey liquid soap as a *najis mughallazah* cleaner and knowing the characteristics of the liquid soap.
2. Knowing the best formula from 4 liquid soap formulations
3. Measuring the antibacterial activity of liquid soap on gram-positive bacteria (*Staphylococcus. aureus*)

1.4. Research Benefits

1. Theoretical Benefits

Provide scientific information and an overview of the formulation of bentonite liquid soap preparations combined with whey kefir as an antiseptic agent on *mughallazah najis*.

2. Practical Benefits

The results of this study can add to the wealth of science, especially pharmaceutical technology, it is hoped that this preparation is a form of contribution to the Muslim community which is one of the halal product innovations that can be produced commercially.

1.5. Authenticity of Research

Table 1. Research Authenticity

Research Title	Research Methode	Variabel	Result	Research Differences
<i>Mughallazah</i> Potential Formulation of Coconut Oil Solid Soap Preparations with Bentonite Filler as a Cleaning Media for <i>Mughallazah</i> <i>Najis</i> ¹⁷ .	Eksperimental Laboratorium	independent: Coconut oil, bentonite dependent: <i>Najis</i> <i>Mughallazah</i> solid soap	Solid soaps with 17.5% (50 °C) and 15% (60 °C)bentonite fillers have the potential to remove <i>mughallazah</i> (pig DNA) <i>najis</i>	Liquid soap combination of kefir whey and bentonite as antiseptic agent with bacterial colony count test on dog saliva ()

¹⁷ Tobing et al., "Potensi Formulasi Sediaan Sabun Padat Minyak Kelapa dengan Pengisi Bentonit sebagai Media Pembersih Najis Mughallazah."

Research Title	Research Methode	Variabel	Result	Research Differences
Effectiveness of Kefir Curd Addition on Soap Quality and Growth Inhibition of <i>Escherichia coli</i> in Tallow-based Natural Soap. ¹⁸	Eksperimental Laboratorium	independent: <i>Curd Kefir</i> tallow dependent: bacterial growth inhibition, soap quality	The results of the inhibition test on F0 were (7.48 mm), F1 (15.33 mm), F2 (16.73 mm), and F3 (19.13 mm).	Liquid soap combination of kefir whey and bentonite as an antiseptic agent with bacterial colony count test on dog saliva (<i>najis</i>).



¹⁸ D T Marya, A Sofiana, and N A Usman, "Efektifitas Penambahan Curd Kefir terhadap Mutu Sabun dan Daya Hambat Pertumbuhan *Escherichia coli* pada Sabun Alami Berbahan Dasar Tallow," *PETERPAN (Jurnal Peternakan Terapan)* 4, no. 2 (December 25, 2022): 38–44, <https://doi.org/10.25181/peterpan.v4i2.2771>.