

ZAMZAM WATER: A COMPARISON BETWEEN SCIENTIFIC AND ISLAMIC PERSPECTIVES

Madiha Baharuddin^{1*}, Ahmad Farid Abu Bakar², Yasmeen Aina Alias³

^{1}Senior Lecturer, Department of Fiqh Usul and Applied Sciences, Academy of Islamic Studies, Universiti Malaya, 50603, Kuala Lumpur, Malaysia. Email: madiha@um.edu.my. Corresponding Author*

²Associate Professor, Faculty of Science, Universiti Malaya, 50603 Lembah Pantai, Kuala Lumpur, Malaysia. Email: a_farid@um.edu.my

³Final Year Undergraduate Student, Department of Fiqh Usul and Applied Sciences, Academy of Islamic Studies, Universiti Malaya, 50603 Kuala Lumpur, Malaysia. Email: yasmeenaina98@gmail.com

ABSTRACT

Zamzam water has the same characteristics as other drinking water which is a clear and transparent liquid that serves as the most essential requirement for all living things as a source of life but with high mineral contents. Previous research has found that Zamzam water contains possible hazardous chemicals. Hence, the issue becomes a conflict that may initiate debates and disputes between Islamic scholars and scientists. However, there was scientific evidence and hadith Prophet Muhammad PBUH regarding the health effects of Zamzam water that proved its health benefits. Furthermore, there were also differences between the scientific and Islamic perspectives on Zamzam water which have highlighted other subjects besides the similarity on its health advantages. Scientific views have discussed the chemical profile of Zamzam water and its potability as drinking water whereas Islamic views have focused

on the background history of Zamzam water and the meaning of its name. Thus, there is a comparison between scientific and Islamic perspectives on Zamzam water.

Keywords: chemical composition, health benefit, Zamzam water, Al-Quran, Al-Hadith

INTRODUCTION

Water is necessary for life to exist and is commonly found in the form of a clear and transparent liquid, which becomes the most basic need of all living things on the earth (The Central Board of Muhammadiyah, 2016). Water is also utilized as a transporter and solvent by all living species, from simple to more complex organisms such as humans, as it works in dissolving all the vitamins, minerals, and important nutrients in order to transport them to the cells. Apart from humans, animals and plants also require water to survive on the earth. Similar to the concept of general water that has been introduced before, Zamzam water also has the same characteristics. According to Boshra et al. (2021), Zamzam water is natural alkaline water that includes numerous important mineral salts for the body, providing energy and helping to neutralize its pH, protecting it from sickness and making it a powerful antioxidant agent. Zamzam water is located at Makkah al-Mukarramah, Saudi Arabia in Zamzam well (Ahmad et al., 2018). According to Arab historians, the Zamzam well has been in function for roughly 4,000 years. According to Mufti of Federal Territory (2016), the well represents the location of a spring, where Allah SWT sent Jibril a.s. to scrape the earth, causing the spring to appear when Hajar, Prophet Ibrahim's wife, was urgently searching for water for their baby son, Prophet Ismail a.s, who was dying of thirst and Hajar encircled the spring with sand and stones after discovering it, as she was afraid that it might run out of water.

Based on historical events and Hadith literature, there are advantages and benefits to Zamzam water as it is the best water on earth and Muslims believe that the water from the Zamzam well is divinely blessed and capable of curing sickness as well as satisfying hunger and thirst (Shomar, 2012). Nonetheless, studies have discovered that Zamzam water contains chemical components

that may be harmful to human health. As a result, when there appears to be a disagreement between scientific and Islamic perspectives, it becomes debatable whether it is possible to be intoxicated or not.

To address this issue, this research aims to explore the chemical composition of Zamzam water and examine its virtues from the perspectives of the Al-Quran and Hadith. By reviewing scientific literature alongside Islamic theological texts, this study compares the two viewpoints to identify their similarities and differences. The significance of this research lies in its effort to link scientific data with Islamic insights. It maps the chemical profile of Zamzam water with clinical evidence to support its safety and health benefits as drinking water. Furthermore, this study builds a bridge between science and religion, providing a clear comparison that helps resolve any debates and contributes to the field of interdisciplinary Islamic sciences.

LITERATURE REVIEW

There have been a few previous studies on Zamzam water, but not as many, and they will be used as a reference to bridge the research gap. Therefore, this article reviews a study on the chemical components of Zamzam water, Zamzam water as drinking water, its health advantages, and Islamic views on Zamzam water in order to conduct research on a comparison between scientific and Islamic perspectives on Zamzam water.

Chemical composition of Zamzam water

Zamzam water contains high levels of essential minerals that are needed for living organisms, especially humans. Donia and Mortada (2021) conducted research on bottled and directly collected Zamzam water samples to analyze their chemical composition. They determine the chemical composition (pH, TDS, Na, K, Mg, Ca, Fe, Cu, Zn, Cd, Pb, Mn, Al, As, Cl, SO₄²⁻, HCO₃⁻, and PO₄³⁻) of Zamzam water samples by using the standard methods of the American Public Health Association (APHA) and comparing them to the maximum allowable levels (MAL) established by the World Health Organization (WHO) and the Environmental Protection Agency (EPA). Based on the results of the analysis, all of the parameters showed that the concentrations are within the acceptable limit of the drinking water standards

of WHO and EPA except for total dissolved solids (TDS). Besides, in all Zamzam water samples, they discovered that Cd and arsenic concentrations were 0.2 and 3.3 $\mu\text{g/L}$ which is below the instrumental detection limit. However, they stated that the average concentration of arsenic that has been found in another research study has a high level of 27 $\mu\text{g/L}$ which exceeds the MAL of WHO and EPA. Boshra et al. (2021) indicated that the concentrations of 34 elements, including Ca, Mg, Na, and Cl in Zamzam water are higher than in natural water. Sb, Be, Bi, Br, Co, I, and Mo concentrations in Zamzam water were less than 0.01 ppm. In addition, there is a trace amount of Cr, Mn, and Ti that were detected in Zamzam water, yet hazardous elements such as As, Cd, Pb, and Se were also found to be below the risk level for human drinking water. Furthermore, there was a 2% concentration of nitrate in the Zamzam water samples (Al-Barakah et al., 2017). The author also quoted Griffin et al., stating that the Zamzam water has significant levels of F^- , and other elements.

Zamzam water as drinking water

Donia and Mortada (2021) highlighted in their research that arsenic content in Zamzam water became an issue for drinking water as inorganic arsenic is known as a carcinogen and the most common chemical contamination in drinking water around the world, according to WHO. They also found that in all the Zamzam water samples of their research, arsenic content was below the instrumental detection limit. As mentioned before, the concentration of TDS in bottled and directly collected Zamzam water samples exceeds the MAL, 1000 $\mu\text{g/L}$ of WHO, and 500 $\mu\text{g/L}$ of EPA, which is 812 and 814 $\mu\text{g/L}$ respectively. So, it should be a problem to drink Zamzam water. However, TDS does not have a WHO recommendation value since it is not harmful at the levels observed in drinking water. According to Al-Barakah et al. (2017), Zamzam water samples were within the permissible range of dissolved salts, soluble cations and anions, Pb, Cd, As, Zn, Cu, Ni, Co, Fe, Mn, Cr, PO_4^{3-} , NO_2^- , Br $^-$, F^- , NH_4^+ , and Li^+ . On the other hand, the concentration of As and NO_3^- in the Zamzam water was high and exceeded the WHO permitted limit, as mentioned by Shomar (2012). Yet, Al Nouri et al. (2016) noted that Zamzam water is free of As and NO_3^- contamination and its level is within the WHO allowable range. Moreover, Al Nouri et al.

(2014) have concluded that major cation concentrations and trace elements except Na were below the WHO and SASO maximum drinking water standards. Apart from the chemical parameters being an indicator for water drinking standards, biotic growth in the water also plays a role in determining the quality of the water, mainly for drinking purposes, as many people all across the world drink Zamzam water. Therefore, microbial assessment on Zamzam water samples has been assessed, which indicates that they were clear of *E. coli* contamination, and colony-forming units (CFU) for all samples were within legal standards of 500 CFU/mL microbial load with zero Maximum Contaminant Level Goal (MCLG) of *E. coli* cells allowed as referred to a value set by the United States Environmental Protection Agency (USEPA) (Al-Barakah et al., 2017).

Health Benefits of Zamzam water

Numerous studies have discovered the health-positive effects of Zamzam water on humans, animals, and plants. In a previous study, Boshra et al. (2021) reported the anti-radiation action of Zamzam water on gamma-radiated mice bone marrow and have lowered the clastogenic and cytotoxic effects. Besides that, an experiment was conducted to evaluate the antioxidant activity of Zamzam water on toxicity in rats, with normal rats as a control group and rats stressed with gentamicin overdose as a test group, and they were observed after 21 days. Furthermore, there was a significant decrease in blood pressure for hypertensive patients that used Zamzam water as their drinking water compared to those who drank mineral water (Lutfiah, 2020). The statement is proved through the analysis of Zamzam water on human health that has been carried out to survey the level of blood pressure of 20 hypertensive patients by dividing them into two groups of 10 patients each, one drinking Zamzam water and the other 10 patients drinking mineral water. The dropping in the blood pressure level may be related to the Ca content in the Zamzam water.

In another study, Bamosa et al. (2013) carried out research on the effects of consuming Zamzam water on 49 uncontrolled type 2 diabetes mellitus patients. The findings revealed that the antioxidant capacity, superoxide dismutase, catalase, and glutathione concentration of the diabetic patients who consumed Zamzam water had a significant increase, while there was a

decrease in glycated hemoglobin levels and no significant difference in fasting blood glucose levels. In addition, Zamzam water is considered to be a potent potential cancer treatment due to its inherent alkalinity and rich mineral content. Omar et al. (2017) analyzed the cytotoxic and antiproliferative effects of Zamzam water in human lung cancer (A549) and compared it with human skin fibroblast (HSF) cell lines, with results indicating that it may have potential therapeutic value for lung cancer. Their findings revealed that incubating A549 cells with Zamzam water decreased the growth and proliferation of the A549 cell line while also changing the morphology of the cells. However, it had no effect on HSF cells, which seemed undamaged when compared to the control. A study on the assessment of the potential anticancer effect of Zamzam water has also been conducted against another type of cancer, colon cancer, in which the researchers found that the incubation of human colon cancer cells (HCT-116) with both Zamzam water treatments, Z1 with adjusted pH to 7.4 and Z2 without pH adjustment (pH 8), resulted in morphological changes in HCT-116 cells and inhibited the growth and proliferation of cancer cells (Al Doghaither et al., 2016).

Islamic views on Zamzam water

According to Muhammad Nur Lubis (2014), in his book “Air Zamzam untuk apa ia diminum”, the Zamzam water is a creation of Allah SWT and blessed by Him with diverse nutrients, as well as the ability to cure a variety of diseases. This is based on various hadiths, atsars, and stories of individuals who were cured after being treated with Zamzam water. There is a hadith about Zamzam water, Jabir bin ‘Abdullah said, “I heard the Messenger of Allah PBUH said, “The water of Zamzam is for whatever it is drunk for.”” where the author mentioned the meaning of “for whatever it is drunk for” in his book, stating from another scholar that if someone drinks it in order to be healed, then Allah will heal him or her, and if someone drinks it to feel full, then Allah will fill him or her with it. Allah also satisfies someone’s thirst if he or she drinks Zamzam water to quench it. He also mentioned that Zamzam water is a sign of Allah’s Glory as He flows the water through Jibril’s action to provide Hajar and his son, Prophet Ismail a.s., water to drink in the middle of stranded land with no people and no water.

Based on the literature review above, this article tries to make comparison of Zamzam water from scientific and Islamic perspectives.

METHODOLOGY

This study required numerous methodologies in order to attain the research goals. Library-based research, documentary research, inductive approach, deductive method, and comparative method were used to gather knowledge and data as well as analyze Zamzam water from both scientific and Islamic perspectives. This article was mainly based on qualitative descriptive literature reviews. The data and information were gathered through library-based research from published books and accessible online databases provided by the library of Universiti Malaya. The online databases that have been referred to were ScienceDirect, SpringerLink, JSTOR Archive, and PubMed. Furthermore, the data was also collected from other reliable source, including journal articles and research papers that were made available on Google Scholars and ResearchGate. This type of research methodology is employed to study the chemical composition of Zamzam water and evaluate the potability of Zamzam water as drinking water. Documentary research was also used to investigate the hadith interpretations and commentaries on Zamzam water by looking into the Quranic Exegesis and Hadith Commentary. The Quranic Exegesis that has been referred to is Tafsir al-Munir while the Hadith Commentaries that have been used are Fathul Baari Sharh Sahih al-Bukhari and al-Minhaj Sharh Sahih Muslim by Imam al-Nawawi. The document describing the guidelines for drinking water quality has also been referred to as defining the chemical substances that are present in the water.

This study will use inductive, deductive, and comparative methodologies to analyze the data. The inductive technique is used to generate a general conclusion about Zamzam water from the Hadith Commentary by describing the interpretations of the Islamic scholars. The deductive method is used to obtain specific information from a broad perspective. This is used to evaluate the possible causes of cured illnesses by analyzing the actions of chemical substances that exist in Zamzam water on particular diseases. Whereas the

comparative method is applied to describe the similarities and differences between scientific and Islamic perspectives on Zamzam water.

RESULTS & DISCUSSION

Chemical composition of Zamzam water and its potability as drinking water

Safe drinking water is crucial for humans. Assessing the composition of water is important for monitoring water quality and preserving the good health of living organisms. This is also included in assuring the quality of Zamzam water by analyzing its chemical composition. Water quality is required for survival, hygiene, health, and development. As a result, WHO has set guidelines for drinking water quality in order to offer safe drinking water by defining drinking water standards. This may also be used to determine the composition of Zamzam water, demonstrating that there have been previous studies analyzing its composition, and it is undeniably a consumable water that has been used for a very long time since the early days of Ismail a.s. As has been stated about the chemical composition of Zamzam water as well as its maximum limit allowed by drinking water standards, the concentration of chemical elements in the Zamzam water is below the maximum limit, indicating the water is indeed drinkable.

According to data from earlier studies, Zamzam water has a high mineral content, which is why it is referred to as "alkaline water." The total mineral salts in Zamzam water are 2000 mg/L, compared to other waters' 130-160 mg/L concentration (Boshra et al., 2021). The pH range of Zamzam water is 7.6 to 8.2. It has been discovered that TDS, which consists of inorganic salts, mostly Ca, Mg, K, Na, HCO_3^- , Cl^- , and SO_4^{2-} and minor amounts of dissolved organic materials, are present in Zamzam water. Besides, there are also trace elements PO_4^{3-} , NO_3^- , NO_2^- , Br^- , F^- , NH_4^+ , Li^+ , and heavy metals which are Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Cd, and Pb that may also contribute to the healing properties of Zamzam water. All of these chemical substances are within the allowable limits of the drinking standards defined by WHO and EPA. The TDS levels of Zamzam water are higher than the MAL set by the EPA (500 mg/L) but lower than the MAL set by WHO (1000

mg/L) as stated before. The different mineral solubilities in different geological regions may be the cause of the varying TDS concentrations in Zamzam water. Despite that, the TDS levels seen in drinking water are not of concern for health, hence the WHO does not recommend a guideline value for it.

However, there is research found that Zamzam water is contaminated with NO₃⁻ and arsenic. There is one water sample (2% of the water samples) with NO₃⁻ concentrations of 52.8 mg/L, which is slightly above the permissible limits set by WHO (50 mg/L). Nevertheless, the small percentage of NO₃⁻ presence in Zamzam water may indicate that the source of contamination may interfere with the water composition during the sampling, preparation, or analysis. Mahmoud et al. (2020) mentioned that the presence of NO₃⁻ in Zamzam water is regarded to be safe and they also quoted Chow and Hong, that Se reduces the amount of tissue-damaging peroxynitrites (ONOO-) generated when nitrate and superoxide anion interact to form a protective action against nitrate effects by activating selenoenzymes, a substance that is responsible for counteracting the oxidative damage to the brain and endocrine tissues. Therefore, the excessive NO₃⁻ may be eliminated by the presence of Se to counter the unnecessary oxidation. Arsenic, a substance that poses a high risk to health and whose high concentration has been found in a study of Zamzam water to be above the allowed level, has become a concern for drinking water because it is a heavy metal, and according to the WHO, inorganic arsenic is known as a carcinogen, which is highly toxic. It is also the major chemical contamination in drinking water worldwide. Arsenic is usually present in high concentrations in the groundwater.

Donia and Mortada (2021) noted that the discrepancies between studies could be explained by a number of reasons, including differences in procedures applied in the laboratory for water analysis as well as differences in the material used due to varying water samples and methods of collection. Furthermore, it is probable that in the vicinity of the well, the arsenic concentration in Zamzam water is influenced by human activity, and in several field research on arsenic content, inhabitants' negative impacts were not found even though the arsenic concentration exceeds the maximum

threshold of international standards. This suggests that estimation of cancer risk associated with varied arsenic exposures may be overestimated.

Zamzam water as a beneficial water

Zamzam is natural alkaline water that has been taken by millions of people during the Hajj pilgrimage to the holy city of Mecca in Saudi Arabia due to their religious belief in Hadith Prophet Muhammad PBUH in its therapeutic power for a variety of illnesses. The mineral enrichment in Zamzam water plays a huge role in curing diseases that have been proven by scientific evidence with the explanations and justifications of Islamic scholars on the Hadith of the Prophet Muhammad PBUH. In general, alkaline water may generate an acid neutralization condition in the body and its ability to scavenge and neutralize cellular radicals explains the health advantages connected to its consumption (Lim & Muthuraman, 2020). Bamosa et al. (2013) reported that Zamzam water has the ability to increase antioxidant capacity. According to the National Center for Complementary and Integrative Health, antioxidants are an important substance in the body that may be able to prevent oxidative stress, which is a process that involves an imbalance between free radical activity and antioxidant activity that may result in cell deterioration, including diseases such as cancer, diabetes, high blood pressure, and aging.

Based on a scientific perspective

Zamzam water and diabetes

The alkaline profile of Zamzam water has been observed to promote hypoglycemia in a type 2 diabetic or insulin-independent diabetes rat strain, potentially via upregulating the hexokinase enzyme. Hexokinase catalyzes the phosphorylation of glucose in glycolysis, boosting cellular glucose uptake (Roberts & Miyamoto, 2015). Previous research has focused on the impact of Zamzam water on glycemic control and lipid profile in healthy rats. As a result, consuming Zamzam water for ten weeks resulted in significant reductions in fasting blood sugar, serum insulin, and insulin resistance compared to tap water. However, Zamzam water has no impact on the lipid profile, which means it has no apparent change in the levels of cholesterol

and triglycerides. Based on the relationship between glucose and lipid metabolism, the lipid profile should drop when insulin resistance is reduced since if the glucose levels are elevated, it will lead to an increase in triglyceride-rich lipoprotein synthesis (Aljuwaie et al., 2020). Therefore, LDL cholesterol may be significantly reduced with extended treatment time. The reduction in blood glucose and insulin levels is driven by Zamzam water may account for a significant decrease in insulin resistance. Insulin resistance is when cells in muscles, fat, and the liver do not respond well to insulin and cannot use glucose from the blood for energy (National Institute of Diabetes and Digestive and Kidney Diseases, n.d.). Hyperglycemia, which results from excessive insulin resistance of the cells, causes high blood glucose levels (hyperglycemia), which eventually causes prediabetes and type 2 diabetes. Thus, it indicates how insulin resistance, blood sugar, and insulin levels are related.

Zamzam water and high blood pressure (hypertension)

In addition, there was also a decrease in blood pressure for hypertension patients who drank Zamzam water instead of mineral water. It showed a positive outcome of consuming Zamzam water as a hypertension medication. The dropping of the blood pressure level may be related to the Ca content in the Zamzam water. Kim et al. (2012) noted in their study that the hypertension group's dietary calcium intake was lower than the normotension group and that Ca consumption was found to be adversely correlated with high blood pressure. According to the study published by Harvard Medical School (2019), Ca is necessary for maintaining healthy blood pressure because it allows blood vessels to tighten and relax as needed, regulating the production of hormones and enzymes and providing healthy bones. Kim et al. (2012) also mentioned that Ca helps regulate blood pressure by controlling the contractility of vascular smooth muscle cells. Thus, the benefits of Ca intake are significant in the prevention and treatment of hypertension. Based on these findings, it shows that there is a relation between the Ca content in Zamzam water and the aid of Ca in reducing the level of high blood pressure. Thus, these reactions prove the role of Zamzam water as an antioxidant agent in the body, as diabetes and hypertension are effects of oxidative stress.

Zamzam water and cancer

Cancer is transformed when healthy cells mutate and proliferate abnormally. These cells will develop into growth or tumor that differs from the original tissues. Since a tumor depletes nutrition and oxygen and infiltrates the adjacent tissues, it is harmful to the body. This causes the tissue to get harmed or lose its ability to operate normally. Lung and colorectal cancers are cancers that are common in Malaysia. As another alternative method of treatment, the high pH value of Zamzam water may be a potential anticancer agent due to its therapeutic efficacy profile for lung and colorectal cancers. This is based on earlier studies that evaluated the anticancer and antiproliferation effects of Zamzam water incubation with human lung cancer cell lines (A549) and human colon cancer cell line (HCT-116). It has been identified that Zamzam water has depleted the viability of A549 and HCT-116 cells by inhibiting their proliferation and altering their morphologies. However, Zamzam water treatment had no influence on the growth of HSF cells, raising the possibility that the water has specific cytotoxic effects with an undiscovered exact cause. These studies used different samples of Zamzam water, Z1-(A549) and Z1-(HCT-116), with pH adjusted to 7.2 and 7.4 respectively, and both Z2, with no pH adjustment. The results showed that Z1 did not trigger cell death but Z2 did, suggesting that alkaline mineral characteristics are a crucial component in the treatment of cancer. Although the exact mechanism underlying the effect is unclear, it is thought that the combined ionic activities of a number of minerals, including Ca, Mg, Pb, AsO_4^{3-} , Li, Cd-Zn combinations, and Se, may be crucial in the prevention of the growth of cancer cells. Moreover, cell death in A549 cells may be triggered by a combination of minerals in Zamzam water, As, and Cd. Mahmoud et al. (2020), quoted from Liao et al., found that high Ca and Mg levels in drinking water, as found in Zamzam water, may interfere with the nitrate effect to reduce the risk of colon cancer. Therefore, the consumption of Ca and Mg is essential for maintaining human health since Ca consumption lowers the incidence of colon and breast cancer, where Ca has been linked to the production of apoptosis, the process of cell death by removing unwanted cells in early development via caspase 12 activation, while Mg deficiency promotes the spread of cancer cells. So, this demonstrated the benefit of drinking the Ca and Mg-rich Zamzam water.

Based on the Islamic perspective

Muhammad Nur Lubis (2014) has indicated that when someone drinks Zamzam water to feel full, Allah will fill them with it, and if someone drinks it to be healed, Allah will make them healthy. If a person drinks Zamzam water to quench their thirst, Allah then satisfies that person's thirst. As mentioned in the hadith of Prophet Muhammad PBUH:

It was narrated that Jabir bin 'Abdullah said: "I heard the Messenger of Allah (ﷺ) say: "The water of Zamzam is for whatever it is drunk for." (Sunan Ibn Majah, 3062).

There is hadith that told the story of Hajar, the Jurhum tribe, and Zamzam water. In his Commentary in the Chapter on the distribution of water, Ibn Hajar al-Asqalani (1997) stated that Al-Kaththabi noted that the hadith became a mark to address anyone who generates water in a place where there is no resident, so, he has the right to have it with no one partnering with him except voluntarily. The issue is just that he cannot hold the water when he does not need it anymore and Hajar simply requests that they not have it. This showed that Zamzam water is beneficial for others to be consumed too.

Narrated Ibn `Abbas: The Prophet (ﷺ) said, "May Allah be merciful to the mother of Ismail! If she had left the water of Zamzam (fountain) as it was, (without constructing a basin for keeping the water), (or said, "If she had not taken handfuls of its water"), it would have been a flowing stream. Jurhum (an Arab tribe) came and asked her, 'May we settle at your dwelling?' She said, 'Yes, but you have no right to possess the water.' They agreed." (Sahih al-Bukhari, hadith 2368).

Name of Zamzam water

The meaning of Zamzam in Arabic is abundant (Zulkifli Mohamad Al-Bakri, 2022).

Narrated Anas bin Malik that Abu Dhar said: Allah's Messenger (ﷺ) said, "The roof of my house was made open while I was at Makkah (on the night of Mi'raj) and Jibril descended. He opened up my chest and washed it with the water of Zamzam. He brought the golden tray full of Wisdom and Belief and poured it into my chest and then closed it. He took hold of my hand and ascended to the

nearest heaven. Jibril told the gatekeeper of the nearest heaven to open the gate. The gatekeeper asked, "Who is it?" Jibril replied, "I am Jibril." (Sahih al-Bukhari, hadith 1636).

In this Hadith Commentary, Ibn Hajar al-‘Asqalani (1997) described the names of Zamzam. He quoted Ibn Hisham, and stated that the Zamzam water is referred to as "Zamzam" due to the abundance of water there. It says "maa Zamzam (ماء زمزم)" which is a lot of water, or "Zamzam water." There are others who said that Zamzam earned its name as it accumulates. While Mujahid said that it is Zamzam because it comes from the word 'hazmah', which means dug out the earth with the heel into the soil to reveal the water (Zamzam water).

Historical background of Zamzam water

The history of the origin of Zamzam water has been mentioned in the Quran. Allah SWT has said in the Quran, surah Ibrahim verse 37:

37. "Our Lord, I have settled some of my descendants in an uncultivated valley near Your Sacred House, our Lord, that they may establish prayer. So, make hearts among the people incline toward them and provide for them from the fruits that they might be grateful."

In Tafsir al-Munir, Wahbah al-Zuhaili (2013) stated that Ibrahim a.s has left his wife, Hajar, and their infant son, Ismail, who was still nursing, close to the Kaaba, under a shady tree with water and supply bags from Ibrahim a.s on the site which become the location of Zamzam, according to a narration of Bukhari reported by Ibn Abbas. In fact, Makkah was actually still desert-like at that time, with no people and no water. Then, when the accessible water supplies ran out, Hajar and her son were thirsty, so Hajar urgently searched for water by running between Safa and Marwa Hills seven times. While Hajar on the Marwa Hill, Jibril a.s appeared and dug into the ground with either their feet or their wings until water began to gush out which is known as Zamzam water. Wahbah al-Zuhaili (2013) also mentioned a hadith narrated by ad-Daraquthni that was reported by Ibn Abbas r.a, "The water of Zamzam is for whatever it is drunk for. If you drink it as means of treatment, Allah SWT will heal you with it. If you drink it to get tasteful, Allah SWT will fill you up with it. And if you drink it to quench thirst, Allah

SWT will quench your thirst with it. Zamzam is the hazmah of the Jibril a.s. (the source of the water gushing out due to stomping Jibril's feet) and drinking water which Allah SWT gave to Ismail. Besides that, Zamzam water has been used to wash Rasulullah's heart at the age of four years old and during the Isra and Mi'raj event.

It is narrated on the authority of Anas bin Malik that the Messenger of Allah (ﷺ) said: "(the angels) came to me and took me to the Zamzam and my heart was opened and washed with the water of Zamzam and then I was left (at my place)." (Sahih Muslim, hadith 162b).

Another story that is related to Zamzam water is the ethics of drinking Zamzam water where the hadith below introduced that Prophet Muhammad PBUH drank Zamzam water while standing. Ibn Hajar al-'Asqalani (1997) stated in his Commentary as if Ikrimah denies that the Prophet PBUH drank while standing because he was forbidden to do so. However, since Ali r.a was mentioned and narrated by al-Bukhari that Prophet PBUH drank while standing, so this must be comprehended in order to explain the permissibility of the behavior.

Narrated Ibn `Abbas: "I gave Zamzam water to Allah's Messenger (ﷺ) and he drank it while standing. `Asim (a sub-narrator) said that `Ikrimah took the oath that on that day the Prophet (ﷺ) had not been standing but riding a camel." (Sahih al-Bukhari, hadith 1637).

CONCLUSION

After conducting this study and reviewing the literature, there is a similarity between scientific and Islamic perspectives with also some differences. The perspective of science on Zamzam water that has been found through this study is focused on the health effects of consuming Zamzam water on several diseases such as diabetes hypertensive, lung cancer, and colorectal cancer. Besides, by assessing scientific research on Zamzam water experimentally which consists of the sampling, observation, hypothesis, experimentation, results, and repeating of the experiment, its chemical profile may be determined. Meanwhile, the Islamic perspective on Zamzam water has introduced subjects on the names of Zamzam water, its historical story, and

also its advantages. Moreover, the differences between these two views on Zamzam water that have been got learned throughout the study are the different methods and interpretations of the health benefits of Zamzam water. Based on the scientific view, the health benefits of Zamzam water were determined by evaluating the composition of the water experimentally to acquire scientific evidence but in the Islamic view, the information is obtained from the commentaries and interpretations of knowledgeable Islamic scholars. Furthermore, Zamzam water is analyzed by referring to the drinking water standard established by the authority organizations such as WHO to measure the allowable limit of the chemical component present in the water. On the other hand, a similarity in the efficacy of the Zamzam water can be concluded in this research study which is that Zamzam water is beneficial to human health. For future recommendation, it is suggested to fill the gap between the two perspectives on the Zamzam water to build a bridge that may strengthen the knowledge and information gathered.

SCIENTIFIC PERSPECTIVE	ISLAMIC PERSPECTIVE
Health benefits of Zamzam water	
Chemical profile may be determined.	Meaning of Zamzam water
Scientific method	The historical story that relates to Zamzam water

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