

KNOWING GOD THROUGH WATER AND ITS PHILOSOPHY (CHEMISTRY PERSPECTIVE ISLAM)

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Abstrak. Terima kasih kepada Allah yang telah menciptakan air. Al-Quran menjelaskan bahwa air adalah sumber kehidupan. Ia memberikan kehidupan ke bumi setelah kering dan tandus. Air tidak berasa dan tidak berbau. Ia memiliki ikatan kovalen dan merupakan molekul polar. Bersyukur kepada Allah, air memiliki banyak fungsi dalam kehidupan kita. Itu adalah bukti kekuasaan Allah sebagai pelindung dan pemelihara dunia. Kita bisa mengenal Allah lebih dekat dengan memikirkan dan meneliti ciptaan-Nya, salah satunya adalah air. Tujuan dari penelitian ini adalah untuk mengetahui hikmah yang terkandung dalam air. Penelitian ini merupakan penelitian pustaka dengan metode deskriptif analitik. Metode ini menggunakan data non numerik berupa gambar, kata atau gejala yang dijelaskan secara naratif dan argumentatif. Data yang digunakan dalam penelitian ini adalah data kualitatif berupa teks yang terdiri dari data primer, sekunder dan pelengkap. Hasil dari penelitian ini adalah adanya hikmah yang dapat kita ambil dari air diantaranya adalah sikap membantu dan berguna bagi sesama.

Kata kunci: air, viskositas, islam, hikmah

Abstract. Thank to Allah who has created water. The al-Quran explains that water is the source of life. It gives life to the earth after its lifelessness. It is tasteless and odorless. It has covalent bonding and is polar molecule. Glory to God, water has many functions in our life. It is a proven of God, the protector and the sustainer of the world. We can get to know Allah more closely by thinking about and researching his creations, one of which is water. It is a library research with descriptive analytic method. This method uses non-numeric data in the forms of images, words or symptoms described narratively and argumentatively. The data used in this study are qualitative data in the form of texts consisting of primary, secondary and complementary data. The result of this research is that there is philosophy that we can take from water including the attitude of helping and being useful to others.

Keywords: water, viscosity, islam, philosophy

INTRODUCTION

Chemistry is the science of matter and its transformation dealing with the properties, composition, and structure of substances. Every substance, whether naturally occurring or artificially produced, consists of one or more of the hundred-odd species of atoms that have been identified as elements. Anything that has weight and takes up space is called matter. Matter is everything that we can touch and see. There are three kinds of matter: solids, liquids, and gases. We are capable of describing its properties via density, conductivity, magnetism, solubility etc (Chang, 2005).

Water (H₂O) consists of 1 Oxygen and 2 Hydrogen atoms. Pure water is usually described as tasteless and odorless. It has covalent bonding and is polar molecule. Based on valence-shell electron-pair repulsion (VSEPR) theory, water has four electron pairs and the coordination geometry of oxygen is based upon a tetrahedral arrangement of electron pairs. The shape of water is bent. It has a hydrogen bond. It results from the attractive force between a hydrogen atom covalently bonded to a very electronegative atom such as a N, O, or F atom and another very electronegative atom. Water molecule consists of two bonding electron pairs and two lone pairs. Unlike ammonia, water has two lone pairs on the central O atom. These lone pairs tend to be as far away from each other as possible. As a result, the two pairs of electrons in the OH bond are pushed and approach each other. The HOH angle is 104.5°. (Chang, 2005).

By studying a molecule, we can understand the characteristics of a material and its philosophical content from the phenomena created by Allah (Asmara, 2018). Religion and science cannot be separated in Islam. Signs about scientific evidence and philosophical concepts to guide the human mind about the greatness of Allah can be given by the al-Quran and sunnah (Naik, 2016).

Due to a rejection of the secularization of knowledge occurring in the West, the idea of integration of science and Islam was made. Science was considered not related to religion. Whereas in its early development in the Islamic life, science is integrated with belief, there is no dichotomy of science. Then to restore science to such conditions at the beginning of its growth and development, the idea of integrating science with Islam was proposed, which was originally started with the idea of Islamization of knowledge. (Zarkasih, 2019).

It is very important in life. This is useful as a source of life. This is in accordance with the al-Quran surah Al-baqarah: 164 which means:

" Most surely in the creation of the heavens and the earth and the alternation of the night and the day, and the ships that run in the sea with that which profits men, and the water that Allah sends down from the cloud, then gives life with it to the earth after its death and spreads in it all (kinds of) animals, and the changing of the winds and the clouds made subservient between the heaven and the earth, there are signs for a people who understand"

Science is the result of human thought that reflects the condition of its value system. It can be seen that western scientists who tend to be secular give birth to laws and theories that are only empirical and rationalistic in nature. Meanwhile, the Islamic world recognizes another method of downloading knowledge, namely by divine revelation which has been proven by the existence of the Prophet and the Prophet. This fact is actually strong evidence that science is inseparable from a value system, including religious values (Asmara,2016)

Masaru Emoto(2006),a researcher from the Hado Institute in Tokyo has conducted research on water molecules that can change according to one's intention or words when drinking it. By having a dialogue with water with positive dialogue, water will also provide positive feedback . According to Sawaluddin and Sainab (2018) water is described as having a vital role in the survival of living things. Many verses explain the benefits of water in terms of life support, means of transportation, spiritual, medical, energy sources etc. Among the signs of Allah's power is the creation of water which provides many benefits to the lives of living things on this earth. This was also discussed by Abdullah (2019) who stated that water is the origin of life and the origin of permanence. Water is also a natural mediator for life. The Prophet's justification in the hadith regarding zam-zam water is a truth. Furthermore, the agenda of reconciling religion and science is not something in vain and must be encouraged (Mahmud and Arafah, 2020). This is also in line with research conducted by Asmara (2016) regarding the values of islamic characters contained in carbon atom through exploring the philosophical charges in the material peculiarities of carbon atoms.

Based on this description, author is encouraged to know God through water by studying covalent bonding,water viscosity, water as a warmer of the earth, and hydrolysis reaction in order to know Allah better and take its philosophy.

METHOD

It is a library research with descriptive analytic method. This method uses non-numeric data in the forms of images, words or symptoms described narratively and argumentatively. The data used in this study are qualitative data in the form of texts consisting of primary, secondary and complementary data. Primary data used are sourced from the al-Quran, Hadith and Raymond Chang: Kimia dasar (2005). Secondary and complementary data are books, journals and the internet.

RESULT AND DISCUSSION

COVALENT BONDING IN WATER

Water has covalent bonding. Two atoms of hydrogen bond covalently with an atom of oxygen. Between atoms, electrons are shared. Oxygen (O) has valence electron 6 and Hydrogen (H) has valence electron 1. To achieve its stability, this must follow the octet rule. This is in accordance with the verses of the al-Quran.

وَمِنْ كُلِّ شَيْءٍ خَلَقْنَا زَوْجَيْنِ لَعَلَّكُمْ تَذَكَّرُونَ

We have created everything in pairs, so that you may learn a lesson from it. (Al-Dzariyat: 49)

God creates everything with a partner. Dead-alive, male-female, sad-happy, day and night, positive and negative, etc. In this verse Allah created something in pairs where in this context the more electronegative oxygen atom is paired with the more electropositive Hydrogen.

Besides the covalent bond, there is a concept of sharing. In this context atom H and O share electrons in order to achieve octet stable arrangement. The philosophical meaning is that our fellow human beings must share and help one another to achieve ultimate happiness and create a harmonious life. This is in accordance with the Al-Quran surah Almaidah verse 2.

يَا أَيُّهَا الَّذِينَ آمَنُوا لَا تَحِلُّوا شَعَائِرَ اللَّهِ وَلَا الشَّهْرَ الْحَرَامَ وَلَا الْهَدْيَ وَلَا الْقَلَائِدَ وَلَا أُمِّيْنَ الْبَيْتِ الْحَرَامِ يَبْتَغُونَ فَضْلًا مِّن رَّبِّهِمْ وَرِضْوَانًا ۖ وَإِذَا حَلَلْتُمْ فَاصْطَادُوا ۗ وَلَا يَجْرِمَنَّكُمْ شَنَاٰنُ قَوْمٍ أَن صَدُّوكُمْ عَنِ الْمَسْجِدِ الْحَرَامِ أَن تَعْتَدُوا وَتَعَاوَنُوا عَلَى الْبِرِّ وَالتَّقْوَىٰ ۗ وَلَا تَعَاوَنُوا عَلَى الْإِثْمِ وَالْعُدْوَانِ ۗ وَاتَّقُوا اللَّهَ ۚ إِنَّ اللَّهَ شَدِيدُ الْعِقَابِ

O you who have believed, do not violate the rites of Allah or [the sanctity of] the sacred month or [neglect the marking of] the sacrificial animals and garlanding [them] or [violate the safety of] those coming to the Sacred House seeking bounty from their Lord and [His] approval. But when you come out of ihram, then [you may] hunt. And do not let the hatred of a people for having obstructed you from al-Masjid al-Haram lead you to transgress. And cooperate in righteousness and piety, but do not cooperate in sin and aggression. And fear Allah; indeed, Allah is severe in penalty.

Rasullullah SAW said:

Abu Huraira reported: The Messenger of Allah, peace and blessings be upon him, said, "Whoever relieves the hardship of a believer in this world, Allah will relieve his hardship on the Day of Resurrection. Whoever helps ease one in difficulty, Allah will make it easy for him in this world and in the Hereafter. Whoever conceals the faults of a Muslim, Allah will conceal his faults in this world and in the Hereafter. God helps the servant as long as he helps his brother. Whoever travels a path in search of knowledge, Allah will make it easy for him a path to Paradise. People do not gather in the houses of God, reciting the book of God and studying it together, but that tranquility will descend upon them, mercy will cover them, angels will surround them, and God will mention them to those near him. Whoever is slow to good deeds will not be hastened by his lineage. (Sahīḥ Muslim 2699)

WATER VISCOSITY

The viscosity of a fluid is a measure of its resistance to deformation at a given rate. For liquids, it can be said as "thickness": for example, syrup has a higher viscosity than water .

Table 1. Comparison of water viscosity to other substances

Asphalt	Glycerin	Olive oil	Sulfuric acid
10	1000	100	25

The viscosity of asphalt is 10 times bigger than that of water. The Viscosity of Glycerine is 1000 times bigger than that of water. The viscosity of olive oil is 100 times bigger than that of water and the viscosity of sulfuric acid is 25 times bigger than that of water.

According to Michael Denton(1998), if the water viscosity is higher, the controlled movement of large macromolecules, especially the arrangement of such mitochondria and small organelles will become impossible and also in cell division. This also applies in the circulatory system whose main constituent is water. Blood can circulate in the veins without stopping. If the water viscosity is higher then there will be obstacles in the process.

This is in accordance with the al-Quran:

إِنَّا كُلَّ شَيْءٍ خَلَقْنَاهُ بِقَدَرٍ

Surely We have created each and everything by (precise) measure (Alqamar: 49)

WATER AS A WARMER OF THE EARTH

Water also has a significant role in life on earth especially as a warmer especially to form a warm and balanced climate. Different temperatures of the hottest and coldest places on land can be as high as 140 °C, while the sea is about 15-20 °C. Day and night temperature difference is greater in the desert-the desert where water vapor less than in the beach where more water vaporizes. Because of this property, temperatures between summer and winter or day and night occur within limits that can still be borne by living things. If these properties change the temperature difference between day and night will change and a lot of land will become a desert. As a result, life will be destroyed.

Allah says:

الَّذِينَ يَذْكُرُونَ اللَّهَ قِيَامًا وَقُعُودًا وَعَلَىٰ جُنُوبِهِمْ وَيَتَفَكَّرُونَ فِي خَلْقِ السَّمَوَاتِ وَالْأَرْضِ رَبَّنَا مَا خَلَقْتَ هَذَا بَاطِلًا سُبْحَانَكَ قَوْلًا
عَذَابِ النَّارِ

Who remembers Allah while standing or sitting or [lying] on their sides and giving thought to the creation of the heavens and the earth, [saying], "Our Lord, You did not create this aimlessly; exalted are You [above such a thing] then protect us from the punishment of the Fire (Ali Imran: 191)

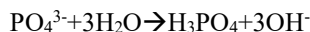
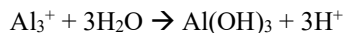
HYDROLYSIS REACTION

Hydrolysis is a chemical process in which a molecule of water is added to a substance. It comes from the word hydro, which is Greek for water, and lysis, which means "to unbind". In practical terms, hydrolysis means the act of separating chemicals when water is added. Some examples of hydrolysis in daily life are the process of purifying water and dissolving soap. The salt used as a water purifier is aluminum sulfate salt (AlPO_4) whose salt component is derived from the weak acid H_3PO_4 and the weak base $\text{Al}(\text{OH})_3$. AlPO_4 will be fully hydrolyzed in water.

Ionization reaction of AlPO_4

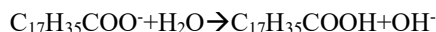


Hydrolysis reaction



$\text{Al}(\text{OH})_3$ compound produced from hydrolysis acts as a water cleaning agent. It binds the dirt and then settles it in the bottom of the pool so that clean water was obtained.

In the process of dissolving soap, a hydrolysis process also occurs.



This reaction produces froth that is useful for expanding the surface area of dirt to make it easier to clean. But if the water used contains hard ions such as Ca^{2+} and Mg^{2+} , the foam will not form much. The soap has a bipolar structure, the head likes water (hydrophilic) and the tail hates water (hydrophobic) so that it is able to bind the dirt. The soap molecule will surround the dirt with its tail and bind molecules of impurities. This process is called emulsification because between molecular impurities and soap molecules form an emulsion. While the head of the soap molecule in the water flushing the molecule pulls the dirt out of the fabric so that the fabric becomes clean.

We can see how much the role of water, one of which is to maintain cleanliness, namely in the use of soap. This is in line with Islamic teachings that advocate cleanliness for adherents. Muslims throughout the world have extremely high standards of personal hygiene because Islam places great emphasis on both physical and spiritual cleanliness and purification.

Allah says:

وَتِيَابِكُمْ فَطَهِّرْ

And clean your clothes. (Almuddasir :4)

Many benefits of this water are in accordance with the Hadith on Friendliness: *The best of people are those who are most beneficial to people (Narrated by Ahmad, ath-Thabrani, ad-Daruqutni. Hasan (fair) according to Al-Albani in Shahihul Jami ' no: 3289).*

In this case we are taught to be like water which is useful for many people.

CONCLUSIONS

Water is proof of God's love for humans. No living thing can survive without water. We can get to know God more closely by thinking about and researching his creations, one of which is water. We can see God's love for humans and universe from water via its covalent bonding, viscosity, function as warmer of the earth, and its reaction.

ACKNOWLEDGEMENT

Praise is to Allah, the merciful who gives me mercy, blessing, healthy, chance and ability to complete this research. Unforgettably, *Shalawat and salam* for the most beloved prophet, Muhammad (peace be upon him) who has enlighten the world with the light of knowledge. I gratefully thank UIN Antasari Banjarmasin, Department of Chemistry Education, Library of faculty of tarbiyah for providing facilities. Then, I would like to extend my sincere gratitude to everyone who supports me and gives me advice.

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