



## **SUN IN PERSPECTIVES OF SCIENCE AND AL-QUR'AN**

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**Abstract.** This study aims to find out the function of the sun in the perspective of science and the Qur'an. The research method used is qualitative research methods with the type of library research (Library Research). The results of this study are, scientific theories explain the function of the sun in accordance with what is explained in the verses of the Qur'an. Science explains that the sun as the largest source of light energy for the earth can produce its own energy. This is explained in the Qur'an that the sun is described as siraj and dhiya 'which means sunlight comes from itself, and as the center of the solar system with the sun's gravitational force not static but also moving, this is in the Koran explained in (QS Yasin verse 38; QS Noah verse 16), besides that science and the Koran also equally explain that the sun as a process of photosynthesis (QS At-Takwir verse 18; QS Thaha verse 53) and the sun can be used as a time calculation (QS Al-An'am verse 96).

**Keywords:** *Al-Qur'an, sun, science.*

### **INTRODUCTION**

The sun is one of the celestial bodies whose influence is enormous as the source of life for all creatures on earth [11]. In the solar system the sun is the center of the circulation of celestial bodies around it and is able to emit its own light [8]. Nature has arranged so that the sun's radiation in accordance with what is needed. So many natural events that occur on earth because of the influence of the sun [3].

All natural phenomena on earth are in dire need of solar energy [2]. Starting from the wind can blow due to differences in temperature and air pressure, the presence of clouds and rain fall, the circulation of the water cycle on earth, the distribution and spread on the surface of the earth to form high and low plains, the opening of rivers and streams, water storage below the earth's surface, soil composition, coral reefs and sediments, metal concentration, wave action in

the sea, ocean, strait, and tidal processes and various other phenomena that are driven by solar energy with the permission of Allah Almighty [1].

Therefore, it becomes an interesting study for researchers to study science and the Qur'an in explaining natural phenomena that occur related to the function of the sun. Because al-Qur'an is a guide and guide to human life and one of human relationships with God's creation is with the universe [7]. Allah has given instructions about the state and order of nature in the Qur'an and through science it can be explained theoretically.

### **METHOD**

This research uses qualitative research methods with the type of library research. Library research is a series of activities related to the method of collecting library data through reading, recording and studying research data [24]. To be able to examine and

obtain valid data, primary data and secondary data sources are used. Primary data sources are data sources that directly provide data to researchers. While secondary data sources are data sources that do not directly provide data to data collectors [5].

The data analysis technique that the researchers used is Milles and Huberman's technical analysis model, with the following steps:

- 1) Data reduction;
- 2) data presentation;
- 3) Conclusions [9].

## RESULT AND DISCUSSION

### A. Study of the Function of the Sun in a Science Perspective.

The sun is the biggest celestial body in the solar system. This can be analogous to the sun like a hot gas ball as big as a football field surrounded by planets as big as marbles [22]. The sun has a very important function in maintaining the balance of the solar system and also for life on earth. Based on the results of the analysis conducted by researchers, the following functions of the sun according to researchers in a scientific perspective:

#### 1. In Biology

According to Dwidjoseputro, photosynthesis is a physiological characteristic that is only possessed specifically by plants, namely the ability to use carbon from the air to be converted into organic matter and assimilated in the body of the plant where this event only takes place if there is enough light. (D.Dwidjoseputro, 1989: 6) photosynthesis or assimilation of carbon substances is the process by which inorganic substances  $H_2O$  and  $CO_2$  by chlorophyll are converted into organic carbohydrate substances with the help of light or light.

Photosynthesis is a biochemical process carried out by plants, algae and several types of bacteria to produce energy used (nutrition) by utilizing solar energy. Meritorious photosynthesis produces most of the oxygen found in the earth's atmosphere. Organisms

that produce energy through photosynthesis (photos means light) are called phototrophs. Photosynthesis is a way of assimilating carbon because in photosynthesis free carbon from  $CO_2$  is bound to sugar as an energy storage molecule [12].

#### 2. In Physical Sciences

One of the functions of the sun in physics is as the center of the solar system and as a source of light energy. The sun as the center of the solar system is the brainchild of Nicolaus Copernicus, known as the heliocentric model [5]. Each planet goes around the sun with an ellipse-shaped path and the sun is in one of its fire points [2].

Newton explained that, the earth and the planets could walk around the sun due to gravity. All objects in the universe can interact with other objects because of the gravitational force that is proportional to the size of the object [9]. The sun has a very large mass compared to the planets around it, which makes the sun function to maintain the balance of the solar system by holding the planets circulating in orbit so that they do not collide with each other.

#### 3. In Mathematics

Julius Caesar and Gregory XIII, based their calendar year calculations on the annual motion of the sun, and this had nothing to do with the synodic circulation of the moon, as it had in the past. The calendar is named after the solar calendar year or syamsiyah. Pope Gregory XIII, when he was head of the church in Rome, made changes to the calendar system in Rome called "Gregory XIII's Budget", namely the "New Style" calendar. Then set the monthly arrangements as follows: January 31 days, February 28-29 days, March 31 days, April 30 days, May 30 days, June 30 days, July: 31 days, August: 31 days, September 30 days, October 31 days, November 30 days, December 31 days [10]. The renewal of the calendar which is now used as a calculation of days, months and calendar years BC (QS.Syamsiyah).

## B. Study of the Function of the Sun in the Qur'anic Perspective.

The sun is a gift bestowed by Allah Most High on this universe. In the Qur'an the sun is called the word *Shams* and is repeated 33 times [13]. Based on the results of the analysis conducted by researchers, the following functions of the sun according to researchers in the perspective of the Qur'an:

### 1. The Sun as a Sign of Allah's Power.

Among the many letters in the Qur'an there is one letter that Allah Almighty called the sun that is QS *Asy-Shams*. At the beginning of this letter Allah Almighty mentioned His oath in the name of His creature. Allah Almighty says which means:

*"(1) For the sake of the sun and its light in the morning, (2) For the sake of the moon when accompanying it, (3) For the sake of the day when it has appeared, (4) For the sake of the night when covering it (pitch black). (QS ash-Sham [91]: 1-4)*

The verse explains the word of Allah Almighty: I swear by the sun and its light in the morning and by the moon which reflects the sun's radiance when it accompanies it so that the reflected light is in accordance with its position towards the sun and by the afternoon when it has appeared that is showing the sun clearly, when rising daylight, the sun is more clearly visible, and for the night when covering it is covering the sun with darkness [16]. Regarding the oath of Allah Almighty in the first verse in this letter certainly raises the question for us why Allah SWT as the Creator swears in the name of the sun which is the creature he created?

Abdullah believes that things related to the oath of God mean to have a great case and have a very large value for life [1]. That is, the meaning of the vows of Allah in the verse gives a signal to us that the sun is one of Allah's special creatures with many benefits to it. The enormous and unlimited solar energy belongs to Allah, all that majesty. Allah

Almighty says in QS *Fushshilat* verse 37 which means:

*"And part of the signs of His greatness are night, day, the sun and the moon. do not bow to the sun and not (also) to the moon, but bow to God who created it, if you only worship Him "(QS Fushshilat [41]: 37)*

Quraish Shihab interpreted, that in the verse Allah reminded about His power through heavenly bodies. The verse states: And among the verses the signs of His Oneness and His authority are night and day, and sun and moon. do not bow down to the sun and not to the moon either, because they are creatures of His creation, but prostrate to Allah who created the four, namely night, day, sun and moon, if indeed you only worship him [19]. Therefore we can understand that the beauty of the sun is so extraordinary with the energy of light that is so big does not mean we can make it as something that is worthy of our worship. The sun can provide great benefits for life, none other than the will of Allah as a sign of His power.

### 2. The Sun as a Source of Light Energy.

The radiant sunlight is the light that originates from itself. This is described by the Qur'an where the Qur'an states that Allah has made the sun a lamp. Thayyarah explains that something is not called *siraj* (lamp) except because it has heat and can shine (Thayyarah, 2013). Allah Almighty says in QS *Noah* verse 16 which means:

*"And there He created the moon that shines and makes the sun a (bright) lamp?" (QS Noah [71]: 16)*

The Quraish Shihab explains the word of God: making the sun a lamp in the verse after previously stating that He made the moon as *nur* implies that there is a difference between the sun and the moon. The sun is used as a lamp meaning the source of sunlight comes from itself while the moon is called *nur* (light) because the moon cannot reflect its own light [20]. Besides that the Qur'an also mentions the

sun as dhiya 'which is contained in the word of Allah QS Jonah verse 5 which means:

*"It was he who made the sun shine and the moon shine, and It was he who determined the places of his orbits, so that you know the number of years, and calculations (time). Allah did not create it that way but correctly. He explained the signs (His greatness) to those who knew. "* (QS Yunus [10]: 5)

The verse explains that Allah made the sun as dhiya, which means that the rays that emanate from the sun are very blinding. In QS Noah verse 16 mentions that the sun is a lamp and in QS Jonah verse 5 the sun is called dhiya 'both of which have the same essence explaining that the sun radiates light that comes from itself.

As the lamp emits light from itself, that is from the fire that burns the lamp [13]. Based on this it can be understood that God made the sun as siraj or dhiya 'to show that light emitted from the sun is not only able to illuminate but also has heat. The Sun as a Calculation. Allah Almighty says in Surah Al-An'am verse 96 regarding the sun as a calculation:

*"He dawns in the morning and makes the night to rest, and (makes) the sun and moon for calculation. That is the provision of Allah Almighty, Omniscient "*(QS Al-An'am [6]: 96).

Quraish Shihab interprets the word *husbanan* in the verse from the word *reckoning*. The addition of the letters *alif* and *nun* gives the meaning of perfection so that the word means perfect and meticulous calculation. Some scholars think about fragments of the verse in the sense that God makes the circulation of the sun and moon as a means of calculating the time, year, month, week, and days and even minutes and seconds. [17]. Based on these explanations, we can know that the existence of the sun in the universe can be made as a calculation as has been said by Allah in the verse. Because in this life the calculation of time is very important for us to know.

### C. Relationship Study of Sun's Functions in the Perspective of Science and the Qur'an

The sciences of God spread throughout heaven and earth. Even heaven and earth itself is the reality of God's knowledge. This is then studied by humans in the form of science and technology [12]. The Qur'an provides many indications for the power of Allah, one of which is through what is in the universe. The uniqueness and benefits of heavenly bodies and the natural phenomena that occur in nature are not spared because of His dominion over the world and all of its contents. Therefore many verses in the Koran command people to find these instructions.

Based on the results of the analysis conducted by researchers about the function of the sun in the relationship between the perspective of science and the Qur'an that they both have an interrelated relationship. The existence of the sun in nature has been mentioned in the Qur'an from centuries ago. The sun in science is called a star because it is able to emit its own light, with this light the sun functions as a source of light because of its enormous energy. While in the Qur'an the sun is described as *siraj* and *dhiya* 'which both have the same meaning which is equally explained that the source of solar energy comes from itself and the light emitted from the sun functions as a light. Solar energy arises from the division (fusion) of helium atoms and hydrogen atoms [4].

The solar energy that comes from itself as explained by science is in accordance with what the Qur'an explains where the Qur'an calls the sun as *siraj* yang contained in (QS. Noah verse 16) and is called *dhiya* yang contained in ( QS. Jonah verse 5). In the two editors the mention of the sun with different terms in the two verses above does not change the essence of the sun as a celestial body that radiates its own light. Based on this we can understand that science and the Qur'an alike explain that the function of the sun is as a source of light that not only illuminates but

can also provide heat. As with the moonlight which is only able to illuminate but cannot provide heat so the moonlight is not as bright as the sun. Large solar energy makes objects that are exposed to the light can emit shadows. With this shadow we can determine the position or direction of a place with the sun above the zenith of the city [5].

Astronomy states that the sun is the center of the solar system according to the heliocentric theory put forward by Nicolaus Copernicus. The sun as a center is not static (silent) but also moving. The sun has two motions, namely the circulation motion on its axis and the motion of circulation along with its system around the center of the Milky Way galaxy [6]. Allah SWT says in Surah Yāsin verse 38 which means:

*"And the sun goes in its circulation. Such is the determination Allah Almighty, Omniscient."* (QS Yāsin [36]: 38).

In this verse Allah explains about His power, namely the circulation of the sun which circulates in its orbit, in harmony according to the provisions of Allah. If the orbits of the sun diverged even a little, there would have been a collision with other celestial bodies that we could not imagine how chaos would have turned out [15]. The sun can also be used as a calculation. In the science of solar pseudo annual motion can be used for calculations to determine the calendar year and season [16]. Regarding how the sun can be made as a calculation, this is explained in the Qur'an (Sura Al-An'am verse 96). This shows us that there is a good correlation between science and the Qur'an

### CONCLUSION

Based on the writing of this paper, it can be concluded that:

1. The perspective of science on the function of the sun, namely a) In biology, one of the functions of the sun as a process of photosynthesis is that CO<sub>2</sub> is bound (fixed) into sugar as an energy storage molecule. The synthesis process is carried out by absorption

of sunlight by pigments, so plants are green. b) In physics, one of the functions of the sun is as the center of the solar system with the force of gravity and sunlight, a source of light energy for the earth. c) In mathematics the function of the sun is to guide the calculation of the time and direction of a place.

2. The function of the sun based on the perspective of the Qur'an is in the QS. At-Takwir (81): 18, Q.S Thaha (20): 53, and Q.S Al-An'am (6): 99 which explains that the sun as a process of photosynthesis and the formation of chlorophyll. and QS. Yasin (36): 38 and QS. Noah (71): 16 states that the sun concerning His power, namely the circulation of the sun that circulates in its orbit as the center of the solar system and sunlight as a source of light energy for the earth. Surah Al-An'am (6): 96 states that the sun is a guide to calculating the time and direction of a place.

3. The theories that science explains are related to the function of the sun in accordance with what is also explained in the Qur'an. Science explains that the sun as the greatest light source for the earth can produce its own energy. This is explained in the Qur'an that the sun is described as siraj and dhiya 'which means the sun's rays originate from itself, as the center of the solar system the sun is not static but also this move in al-Qur'an is explained in verse 38S, besides that science and al-Qur'an also explain that the sun can be used as a time calculation.

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