

The Benefits of Stars in the Perspective of Quran and Science

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Abstract: Modern science has proven that stars are the real source of light in the sky. This is because stars are the objects in the sky that have the life of fire and their temperature reaches millions of degrees. Therefore, light is born from stars by itself and the light is radiated to the outside. This study focuses on the relationship between the Qur'an and science in discussing the benefits of stars. This research is a study that uses qualitative data analysis methods using literature study method techniques based on literature review (library research). The results showed that stars when viewed from the point of view of the Qur'an have benefits including stars as a sign of doomsday, stars as a means of swearing, stars as decorating the sky, stars as directions, stars as a pointer to the expanse of the sky, and stars as a devil thrower. This is in line with the scientific point of view which also mentions several similarities such as the Qur'anic review. In conclusion, the Qur'ān is the word of God, which is the first source of reference from the past, present and future.

Keywords: Library Research, Science, Benefits of Stars, Quran

Introduction

Islam comes as a religion that brings mercy to all beings in the universe, or as rahmatan lil 'alamin. Islam teaches care, attention, and teaching to its people so that they can process and develop to explore the potential of nature and the environment to become the center of civilization. In this discussion, there is no conflict between science and Islam, both of which are mutually connected to create a scientific treasure and human civilization that is brighter than before.

As Kalamulloh revealed to the Prophet Muhammad SAW, the Qur'an is the main light of Islamic education. The Qur'an is a complete guide for humans that teaches all aspects of life that are universal. The universality of the Qur'an includes various sciences revealed by Allah as a guide for humans towards a better direction.

Science is defined as things related to how to find out about nature systematically. Science is a knowledge that is facts, concepts, principles, and also contributes to a process of discovery. Science is

also known as scientific facts and hypotheses, but more than that, science also includes things that play a role in extracting scientific facts and the development of scientific hypotheses (Imron, 2019).

Stars are objects in the sky that have their own light (Hasan, 2015). Stars according to KBBI are defined as objects in the sky consisting of flaming gas like the sun, especially visible at night. Nebula or cloud clumps consist of dust and gas. The thick part of the nebula condenses and that is what later becomes a star. Then in the book *Miracles of Al-Qur'an and As-Sunnah*, that stars are objects that are spread across the sky, they are round or semi-round, gaseous, flammable, emit light and are connected to each other through gravity even though their formation structure is gas according to Bayong in (Agus Hidayat, 2022).

Phenomena or events in the universe are important to understand because they are part of human life. The idea of integrating religion and science to the idea of developing religion-based science has in fact narrowed down and has reached the formation of a scientific building in the form of

a scientific paradigm. If the Qur'an is the source of all knowledge, of course, any knowledge scattered on this earth can be found in the Qur'an, as well as the benefits of stars which are also explained in the Qur'an, which science is then also able to explain scientifically (Nabilah, 2020).

Materials and Methods

According to Sugiyono, data collection techniques are the most strategic step in writing, because the main goal of the writer is to present writing that is in accordance with the correct data or information. Without knowing the data collection technique, the writer will not get data that meets the specified data standards (Nabilah, 2020).

The data collection technique used in this paper is use a qualitative data analysis method, which is literature (library research). This research presents data without manipulation. The main source of this research is previous scientific papers or journals that discuss the benefits of stars both in the view of the Quran and science.

The qualitative data analysis method according to Made Winarta in (Ridwan, 2021) is a method that contains a process of analyzing, describing and summarizing various conditions taken from a collection of information derived from interviews or direct observations in the field of the problem being studied.

This study has a goal that readers can understand more deeply the benefits of stars in the study of the Qur'an and science comprehensively. So it is hoped that readers can be motivated to add insight and be able to conduct further research with various methods and concepts that apply literature review in their research properly and correctly, and then will give birth to quality papers.

Results and Discussion

Modern science has proven that stars are the real source of light in the sky. Stars are objects that have flames and temperatures reaching up to millions of degrees. Star light is born from the star itself so that

the light it emits goes out to radiate the earth's surface (Fitria, 2016).

While the light from the planet is not a ray that radiates from the planet itself, but gets light from the star then reflected to the earth. This is because the planet is a cold celestial body and does not have a flame so it is unable to shine its own light (Fitria, 2016).

According to astronomy, the definition of stars is all massive objects (with masses between 0.08 and 200 solar masses) that are and have been generating energy through nuclear fusion reactions. The history of astronomy and geology explains that stars vary greatly in size, mass and temperature. Their diameters range from 450 times smaller to more than 1000 times the diameter of the sun. Their masses range from 1/20th to more than 50 times that of the sun. Surface temperatures range from 3000°C to over 50,000°C. The color of a star is determined by its temperature. The hottest stars are blue, the coldest stars are red. The energy emitted by shining stars is obtained from nuclear fusion at the core of the star . (Fitria, 2016)

Star clusters form in the dense parts ("clumps") of molecular clouds. They are then destroyed by several processes, starting with the expulsion of residual gas by massive young stars ("feedback"), further mass loss from intermediate and low-mass stars, tidal disruption by passing molecular clouds, and stellar escape driven by the relaxation of two internal bodies. These processes disperse stars from the cluster into the surrounding stellar field. Star clusters are therefore an intermediate stage in the transformation of the clumpy interstellar medium (ISM) of galaxies into a relatively smoother distribution of stars (Chandar, 2012)

The clustering behavior of stars is a direct observable result of the physics of star formation. Early in star formation, young stars inherit a highly structured spatial distribution of the gas molecules from which they are made. Newly formed stars immediately break away from the gas due to stellar feedback processes. Since star formation is an inefficient process (~1% per free-fall time), the dispersion of gas removes most of the gravitational potential binding a region. This results in the distribution of stars expanding and dispersing, creating characteristic stellar associations and

complexes with sizes in the tens to hundreds of parsecs. In some cases, however, the stellar mass concentration is high enough that the collection of stars remains gravitationally bound and tightly clustered beyond the initial phase of embedded gas, creating the long-lived stars (≥ 10 Myr) that we observe today. Observations of star clusters provide a means to constrain theoretical descriptions of star formation. The formation of star clusters depends on a complex interplay between: (1) star formation efficiency, which determines how much gas reserves are transformed into possible cluster members; (2) stellar feedback, which drives the transition from gas-rich to gas-poor local environments; and (3) environmental energetics, which determines the kinematics of the star and gas components within the star formation region. As a result, accurately reproducing the observed stellar behavior of star clusters, and the distribution of young stars in general, is a key challenge for any theoretical star formation model (L. Clifton Johnson, 2016).

The Qur'an has explained in full the benefits of the stars in the sky for the benefit of human beings on earth, including functioning as a sign of the doomsday, as a means of swear, directions in the darkness of land and sea, decoration for the sky, indication of the expanse of the sky, and throwing devils.

1. Stars as a sign of the doomsday

The first mention of stars in the Qur'an is related to the destruction of the universe or the end of the world. One of the verse in the Qur'an discusses the doomsday by using the stars, namely:

وَإِذَا النُّجُومُ انْكَدَرَتْ

"When the stars fall," QS.At-Takwir: 2

In addition to QS At-Takwir, the news about the doomsday using stars is also found in other verse such as in QS Al-Infithar: 2

وَإِذَا الْكُوَاكِبُ انْتَبَرَتْ

"And when the stars fall apart"

The Tafsir Ilmi Kemenag team explains the words "the stars fall apart" in the second verse of Surah at-Takwir can mean that the stars appear to fall when many meteors rain down on the earth (Agus Hidayat, 2022).

2. Stars as a means of swearing

It's not just humans who swear. God as the creator also swears. However, the swear pronounced by Allah is different from the swear pronounced by His creatures. The swearing in the Quran is a form of attracting the attention of Muslims in particular and humans in general to the content of the swear. Allah's swearing means that Allah emphasizes something that is used for swearing in order to get attention (Agus Hidayat, 2022).

Among them, Allah swears by the names of His created objects. One of them is with stars, which is found in QS An-Najm: 1

وَالنَّجْمِ إِذَا هَوَىٰ

"By the star when it sets"

In addition to QS An.Najm the swearing by mentioning the name of the star can also be seen in QS Al-Waqi'ah:75-76 which reads

فَلَا أُقْسِمُ بِمَوْقِعِ النُّجُومِ ۖ وَإِنَّهُ لَقَسَمٌ لَّوْ تَعْلَمُونَ عَظِيمٌ

"Then I swore by the place where the stars are orbited. And that is indeed a great swearing if you know."

With this swear, Allah SWT informs the Arabs to understand, that the stars have a great contribution to their lives in determining the seasons, when they prepare to find grassland and go to these places after rain, or when they want to plant what they can plant, they also feel optimistic about the existence of others. Then the swearing by mentioning the stars reminds us that there are still other natural and sky objects that we must know, so that with these objects we can prove how great the power of the creator is, and how beautiful His creation is (Lestari, 2018).

3. Stars as directions

The Qur'an has shown that the directions in the darkness are the stars, not the planets, although the planets also shine like the stars at midnight. The Qur'an emphasizes the role of stars in the sky is to help humans find the direction of travel on land and at sea. As explained in His words:

وَعَلَّمَتْ^٤ وَبِالنَّجْمِ هُمْ يَهْتَدُونَ

"And (He created) signs. And by the stars they are guided." QS.An-Nahl:16

The same thing is shown in Allah's word QS Al-An'am verse 97 which reads:

وَهُوَ الَّذِي جَعَلَ لَكُمُ النُّجُومَ لِتَهْتَدُوا بِهَا فِي ظُلُمَاتِ اللَّيْلِ وَالْبَحْرِ ۗ قَدْ فَصَّلْنَا آيَاتِنَا لِقَوْمٍ يَعْلَمُونَ

"And it is He Who made the stars for you, that you may take guidance in the darkness of the land and the sea. Indeed, We have explained the signs of Our greatness to those who know."

In the Tafsir Ilmi Kemenag team, the stars that are spread out in the sky can be used as guidance, both for determining direction and time. The fishermen, travelers, or people whose profession requires him to move from place to place really need guidance, especially at night.

One of the guides for determining direction, both at sea and on land, are the stars. In the past, before compasses and other navigation tools were invented, humans used the stars as directions (Fitria, 2016).

In addition, a collection of stars that when viewed from the earth form a particular pattern or commonly called constellations, can be used to determine the Qibla direction and determine the beginning of prayer time. Among them are the ursa major constellation to determine the north direction, the crux constellation to determine the south direction, the orion constellation to determine the west direction and the scorpio constellation to determine the southeast direction. In the view of falak science that can be used in determining the Qibla direction, namely the ursa major constellation and the orion constellation (Ahmad Zuhaj Bimasakti, 2023).

4. Stars as decorations of the sky

Allah gifted His servants with the creation of the beauty of the stars that spoil every pair of eyes that see it. Among the beauties that Allah has created on this earth are the stars that light up the darkness of the night and replace it with beauty. If the night is clear then we will see a group of stars in the

sky that is very dazzling. As in the word of Allah,

وَلَقَدْ جَعَلْنَا فِي السَّمَاءِ بُرُوجًا وَزَيَّنَّاهَا لِلنَّاظِرِينَ

"We have created the stars in the sky and made them beautiful for those who look at them." QS. Al-Hijr:16

The same thing is shown in the word of Allah QS. Ash-Shaafat verse 6 which reads:

إِنَّا زَيَّنَّا السَّمَاءَ الدُّنْيَا بِزِينَةِ الْكُوَاكِبِ

"Indeed, We have decorated the nearest sky with decorations, the stars."

Allah mentions the decoration of the sky as mashabih (stars) as lamps implying that these objects have light that can be seen at night (Purwati, 2018).

5. Stars as an indication of the expanse of the sky

وَالسَّمَاءِ ذَاتِ الْبُرُوجِ

"By the sky that has a clusters of stars" QS Al-Buruj:1

Allah swears by the sky, which has a large number of stars, some of which are very large groups and some of which are relatively small groups. Some of them are so far away from the earth that their light is in the ordinary calculation. The Verse explains that the existence of clusters of stars in the sky, if the stars and clusters are so many then the sky or the universe becomes a vehicle for its existence. The extent of the sky is directly proportional to the number of star clusters (Purwati, 2018).

6. The star as a devil-throwing tool

Belief in a prediction is something that still cannot be separated in this era, especially in the past. The mention of the function of stars in the Qur'an is as a tool for throwing devils who hear and steal news from the sky as found in QS. Ash-Shaafat: 6-10 and QS. Al-Mulk: 5.

The word of Allah SWT, in QS. Ash-Shaafat: 6-10

إِنَّا زَيَّنَّا السَّمَاءَ الدُّنْيَا بِزِينَةِ الْكُوَاكِبِ (6) وَحَفِظْنَا مِنْ كُلِّ شَيْطَانٍ مَارِدٍ (7) لَا يَسْمَعُونَ إِلَى الْمَلَأِ الْأَعْلَى وَيُقْفَضُونَ مِنْ كُلِّ جَانِبٍ (8) دُخُورًا وَلَهُمْ عَذَابٌ وَاصِبٌ (9) إِلَّا مَنْ خَطِفَ الْخَطْفَةَ فَأَتْبَعَهُ شِهَابٌ ثَاقِبٌ (10)

"(6) Indeed, We have decorated the nearest heaven with ornaments, the stars. (7) And have maintained it (truly) from every disobedient

shaitan. (8) The shaitan cannot hear the speech of the angels, and they are stoned from every direction. (9) To drive them away and for them an everlasting punishment. (10) But whoever (among them) steals (the conversation), he is pursued by a bright torch of fire.”

And His words in Surah al-Mulk: 5

وَلَقَدْ زَيَّنَّا السَّمَاءَ الدُّنْيَا بِمَصَابِيحَ وَجَعَلْنَاهَا رُجُومًا لِلشَّيَاطِينِ
وَأَعْتَدْنَا لَهُمْ عَذَابَ السَّعِيرِ

“Indeed We have decorated the near sky with stars, and We have made them tools for throwing devils, and We have prepared for them the punishment of a flaming Hell.”

The word *ja'alnaha* (we made them) is understood by many ulama in the sense of making the *mashabih* (stars) as *rujuman* (tools for throwing).

According to Abdurrahman Shahab, the understanding of "throwing" in the Verse above is the cosmic rays that come from the stars that are distributed in the universe. Cosmic rays of the proton type consist of ultraviolet rays of low power to powerful X-rays of more than 50,000 electron volts (Izal, 2019).

Conclusions

Stars are objects that radiate their own light which has many benefits including stars as a sign of doomsday, as a means of swearing, as a decoration of the sky, as a direction, as an indication of the expanse of the sky, and as a devil thrower. From the many benefits of stars, it can be concluded that stars hold great wisdom or an important role in human life, the role and benefits of stars can be explained both from the view of science and the Qur'an. This proves the greatness of the Al-Quran which is able to explain the benefits of stars long before science proves the truth related to the benefits of the stars themselves, which between the two are related and mutually reinforcing. So that after reading this paper, it is hoped that the reader can realize the greatness of Allah so that it makes us always get closer to Allah.

References

Journal:

- Agus Hidverse, S. M. (2022). Stars in the Perspective of The Al-Quran. *Journal of Ullum Al Qur'an and Tafsir Studies* .
- Ahmad Zuhaj Bimasakti, A. M. (2023). Rasi Bintang dalam Penentuan Arah Mata Angin Perspektif Ilmu Falak . *Jurnal Hisabuna*.
- Chandar, S. M. (2012). SIMILARITIES IN POPULATIONS OF STAR CLUSTERS. *The Astrophysical Journal*.
- Hasan, M. (2015). Benda Astronomi dalam Al-Qur'an dan Sains . *Jurnal Teologia*.
- L. Clifton Johnson, A. C. (2016). PANCHROMATIC HUBBLE ANDROMEDA TREASURY. XVI. STAR CLUSTER FORMATION EFFICIENCY AND THE CLUSTERED OF YOUNG STARS. *The Astrophysical Journal*.
- Purwati, F. (2018). Penafsiran Verse-verse Astronomi Agama. *Jurnal al-Fath*.
- Ridwan, M. S. (2021). Pentingnya penerapan literature review pada penelitian ilmiah. *Jurnal Masohi*, 2(1), 42-51.

Proceeding:

- Nabilah, N. A. (2020). Kriptografi Al-Qur'an: Teori Awan Debu (*The Dust Cloud Theory*) Perspektif Numerologi Variabel Al-Qur'an. *Prosiding Konferensi Integrasi Interkoneksi Islam dan Sains* , 103-106.

Thesis, Dissertation:

- Fitria, I. (2016). Manfaat Benda-Benda Langit Menurut Al-Qur'an (Analisa Kritis Terhadap Tafsir Ilmi Kementerian Agama RI) . (*Bachelor's Thesis, Fakultas Ushuluddin Universitas Islam Negeri Syarif Hidverseullah Jakarta*).
- Imron, M. (2019). Meteor dalam Perspektif Al-Qur'an dan Sains. (*Doctoral Dissertation, Universitas Islam Negeri Raden Intan Lampung*).
- Izal, M. (2019). Bintang Syi'ra dalam Perspektif Mufassir dan Sains. *Bachelor's Thesis, Fakultas Ushuluddin Universitas Islam Negeri Walisongo*.
- Lestari, W. (2018). Bintang dalam Al-Qur'an. *Bachelor's Thesis, Fakultas Ushuluddin Universitas Islam Negeri Alauddin Makassar*.