

LITERATURE STUDY: THE ROLE OF ISLAMIC TEACHINGS IN INSTILLING RELIGIOUS ATTITUDES TOWARDS BIOLOGY LEARNING

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Abstract

The objectives of national education are outlined in Undang-Undang No. 20 of 2003 pasal 3, which aims to inculcate a religious attitude in students by integrating Islamic teachings from the Al-Quran into Biology. The integration of Islamic teachings originating from the Qur'an with Biology can produce a science course that achieves the objectives of national education in order to instill and cultivate religious attitudes in students. Al-An'am Ayat 99 contains material on plant morphology; QS. An-Naml Ayats 18-19 and QS.

Keywords: Islam, Biology, Al-qur'an, Education

Abstrak

Tujuan pendidikan nasional tertuang dalam Undang-Undang No. 20 Tahun 2003 pasal 3, yang memiliki tujuan untuk dapat menanamkan sikap religius terhadap peserta didik dengan mengintegrasikan Biologi dengan ajaran Islam yang berasal dari Al-Quran. Integrasi ajaran Islam yang berasal dari Al-Qur'an dengan Biologi dapat menghasilkan suatu kajian ilmu pengetahuan yang dapat mewujudkan tujuan pendidikan nasional dalam rangka menanamkan dan mengembangkan sikap keagamaan pada peserta didik dalam belajar. Pembelajaran Biologi memiliki integrasi dengan Al-Qur'an, yaitu pada materi morfologi tumbuhan yang terdapat dalam QS. Al-An'am Ayat 99, materi serangga ditemukan di QS. An-Naml Ayat 18-19 dan QS. Al-Ankabut Ayat 41, serta materi pertumbuhan dan perkembangan pada manusia terdapat dalam QS. Al-Mu'minin Ayat 14 dan QS. Al-Hajj Ayat 5.

Kata kunci: Islam, Biologi, Al-Qur'an, Pendidikan

Introduction

Education is a means as an effort to support and develop all the potential of students to become better human beings, based on religious values, Indonesian national culture, and is anticipated to be the successor of the nation that is responsive to the development and changes of the times (Ikhwan, 2015). This is consistent with the goals of national education as stated in Law No. 20. Article 3 of 2003, which states that "National education functions to develop the ability and shape the character and civilization of a dignified nation in order to educate the nation's life, aims to develop the potential of students to become human beings who believe and fear God Almighty, are healthy, knowledgeable, capable, creative, independent, and become responsible citizens."

By implementing learning in schools, the objectives of national education can be attained. According to Faiz (2020), in order to eliminate the dichotomy or barrier between behavioral science (morals), character, and general science, there must be an integration (unification) and interconnection (connection) of various scientific studies during the learning process. Biology is one of the fundamental sciences studied in school that deals with the universe and its contents.

Biology is the study of all aspects of life, including the relationships between humans, animals, vegetation, microorganisms, and the natural world. Biology is also a scientific subject because the acquired knowledge can be comprehended through scientific observation or practice, thereby expanding the scope of learning. Biology is expansive because it examines living objects and their interactions with existing phenomena and the surrounding environment (Ikhtiara et al., 2010). Biology is difficult to learn due to its broad scope; therefore, relevant sources of knowledge are required to achieve the aim of national education, which is to instill religious attitudes in students. Therefore, integration and connection from the sources of Islamic teachings, the Qur'an and Hadith, are required.

The teaching of science (general science), including Islamic-based Biology based on the Qur'an, has the potential to transform students into people of faith and piety, thereby achieving the objectives of national education. As instructed by Allah SWT, this Qur'an serves as a guide and reference for humans to interpret and comprehend numerous events in the universe. (Subagiya et al., 2018) The Qur'an can therefore be used as a reference source to elucidate biological theories.

In fact, the purpose of learning general sciences, including biology, in conjunction with the Quran is to be able to comprehend, review, investigate, and locate various types of theoretical topics, which are then developed and incorporated into the educational curriculum in accordance with applicable educational regulations. This is a manifestation of the belief in fostering the religious attitude or character of students. Before expanding the discussion of Biology, it is crucial to cultivate and develop one's character (Rahardjanto and Susilowati, 2018).

According to Yaqin et al.'s (2020) investigation on the Integration of Qur'anic Verses in Science (Biology), Learning According to Thought IAN According to G. Barbour, Barbour was responsible for sparking and categorizing the relationship between religion and science into four types: conflict, dialogue, independence, and integration.

The purpose of integrating religion and science is to integrate or unite the two. The discussion of the study of the integration of religion and science regarding the occurrence of human creation in the Qur'an and in biology is identical, but the explanations and wording are different.

Based on the preceding explanation, the purpose of this article is to review or discuss significant aspects of the role of Islamic teachings in learning Biology and the significance of cultivating religious character. In order to achieve the goals of national education, which are to instill and develop religious attitudes in students, there is a need for a discussion study that can stimulate thought and understanding that Islamic teachings play an important role in science, including Biology, and that these two things can be integrated and connected for the realization of these goals.

Method

This research method employed the technique of literature study (literature review) or literature review using a qualitative approach, and it was described in detail. This literature study method is a research method related to collecting data from literature reviews, reading and recording the results of accumulating data sources obtained, and processing data in order to use it as research material (Sari, 2021).

The author must consider the following rules when employing this method of literature review: first, he or she must use only extant data or studies and not field-specific knowledge. Second, the library data acquired is ready-to-use and not sourced from the field, so that researchers do not need to go directly to the field but instead interact directly with processed data sources. Thirdly, the data obtained from the library is a secondary source, meaning that

the author receives information from a third party and not directly from the first party in the field. Fourth, the obtained library data is not constrained by space or time (Yaqin et al., 2020).

Using a qualitative descriptive approach, the results of the conducted research studies are described in greater detail and clarity in an effort to enhance the reader's understanding. This technique of data collection is also useful for comprehending and analyzing data sources derived from journals, articles, proceedings, books, printed and electronic documents, and other pertinent library sources (Kartikasari, 2020). The results from these stages will then be analyzed, and a conclusion will be drawn. The primary source of information used to write this research article is journals, followed by articles, books, and the web or other pertinent sources.

Result and Discussion

The function of Islamic teachings derived from the Qur'an is incorporated into various types of Biology-related content. The biological material that can be incorporated with the Qur'an includes plant and insect morphology as well as human growth and development. The findings of research on this topic are presented in Table 1.

Table 1. Integration of Biological Materials with the Al-Qur'an

No.	Biological Material	Qur'anic Verses
1.	Plant Morphology	QS. Al-An'am Verse 99
2.	Insect	QS. An-Naml Verse 18-19 QS. Al-Ankabut Verse 41
3.	Growth and Development in Humans	QS. Al-Mu'minun Verse 14 QS. Al-Hajj Verse 5

In accordance with the objectives of national education, the integration of Biology content with the Qur'an is essential for instilling and developing the religious attitude of students so that they become the successors of a nation that believes in and fears Allah SWT. This article discusses the morphological material of plants, invertebrates, and human growth and development as it pertains to the discussion of integrated Biology learning in the Qur'an.

A. Integration of the Qur'an on Plant Morphological Material

Plant morphology is one of the topics frequently covered in Biology courses. This plant morphology material is the basis for researching the outermost structure of plant body constituents, which includes the most observable structure of plant body constituents, namely roots, stems, leaves, flowers, and fruits (Fuadi, 2018).

1. Root (*Radix*)

The main function of plant roots is to act as a buffer or support for the plant body and to absorb nutrients and water, which are then transported to the stems and foliage in order for metabolic processes to take place (Fuadi, 2018).

2. Stem

The stem is an integral element of the plant's body, so it plays a crucial role. The stem is typically cylindrically elongated and extends upwards toward the sun (Husni, 2017). The stem is responsible for transporting water and other nutrients from the roots to the leaves and assimilation from the leaves to the roots. In addition to storing sustenance, the stem serves as the plant's main support structure (Fuadi, 2018).

3. Leaves

The stem is an integral element of the plant's body, so it plays a crucial role. The stem is typically cylindrically elongated and extends upwards toward the sun (Husni, 2017). The stem is responsible for transporting water and other nutrients from the roots to the leaves and assimilation from the leaves to the roots. In addition to storing sustenance, the stem serves as the plant's main support structure (Fuadi, 2018).

4. Flower

Stems and leaves undergo metamorphosis in order to produce flowers. Nonetheless, blossoms are the primary structure of plants that serve as a tool for plant breeding. Flowers typically have brightly colored petals because they are designed to attract insects that aid in pollination (Fuadi, 2018).

5. Fruit

The pollination process of the pistil and also the stamens in the flower, or the fertilization process of the flower, can produce fruit. Following fertilization, the flower will transform into a fruit containing seeds. Fruit plays an essential role for plants, specifically as a tool for plant breeding through its seeds (Fuadi, 2018).

The integration of the Qur'anic Verse on plant morphology is found in the Qur'an Surah Al-An'am Verse 99.

وَهُوَ الَّذِي أَنْزَلَ مِنَ السَّمَاءِ مَاءً فَأَخْرَجْنَا بِهِ نَبَاتَ كُلِّ شَيْءٍ فَأَخْرَجْنَا مِنْهُ خَضِرًا نُخْرِجُ مِنْهُ حَبًّا مُتَرَاكِبًا وَمِنَ النَّخْلِ مِن طَلْعِهَا قِنْوَانٌ دَانِيَةٌ وَجَنَّاتٍ مِّنْ أَعْنَابٍ وَالزَّيْتُونَ وَالرَّمَّانَ مُشْتَبِهًا وَغَيْرَ مُتَشَبِهٍ انظُرُوا إِلَى ثَمَرِهِ إِذَا أَثْمَرَ وَيَنْعِهِ إِنَّ فِي ذَٰلِكُمْ لَآيَاتٍ لِّقَوْمٍ يُؤْمِنُونَ

Means: "And it was He who sent down rainwater from heaven, and We grew all kinds of plants with that water, and We harvested green plants from them." We removed numerous kernels from the verdant plant, as well as the protruding stalks from mayang korma and the vineyards, as well as olives and pomegranates of the same and dissimilar varieties. When the tree bears fruit, pay close attention to the produce and its maturity. "Indeed, there are signs (of God's dominion) in such things for those who believe"

Thanthawi Jawhari interprets the aforementioned verse to mean that Allah Almighty has sent down rainwater from the sky, from which all types of vegetation will flourish. Then Allah SWT extracted something green (chlorophyll) from the plant, and from that something green developed a stalk that can produce grains such as rice or wheat. Then, God commanded that attention be paid to the various types of plants once they had produced fruit, as well as how different florals and hues were produced. (Husni, 2017) This is a very essential discussion regarding the structure of plant forms, which are typically covered in plant morphology content found in Biology courses.

B. The Integration of the Qur'an into Insect Material

Insects are the dominant animal group on the planet. Insects belong to the phylum of arthropods, which comprises of the Greek words arthos = internodes and podos = legs. Insects are therefore defined as animals with segmented or jointed appendages.

The majority of insects have six appendages and four wings on their bodies. The body of insects consists of three major parts: the head, the thorax, and the back (Ni'mah, 2019).

In the Qur'an, up to nine species of insects are discussed, including bees, ants, spiders, mosquitoes, flies, grasshoppers, fleas, laron, and termites. In Surah An-Naml, verses 18 and 19, the Qur'anic verses that discuss ant invertebrates can be found.

حَتَّىٰ إِذَا أَتَوْا عَلَىٰ وَادِ النَّمْلِ قَالَتْ نَمْلَةٌ يَا أَيُّهَا النَّمْلُ ادْخُلُوا مَسَلِكَكُمْ لَا يَحْطَمَنَّكُمْ سُلَيْمَنُ وَجُنُودُهُ
وَهُمْ لَا يَشْعُرُونَ ۗ فَتَبَسَّمَ ضَاحِكًا مِّن قَوْلِهَا وَقَالَ رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَىٰ
وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ ۝

Means: "And when they came to the valley of the ants, an ant said, 'O ants, enter your nests, lest Solomon and his army step on you while you are unaware' (18). Therefore, he laughed after hearing the ant's remarks. And he prayed, "O my Lord, inspire me to remain grateful for Your blessings, which You have bestowed upon me and my two fathers, and to perform the righteous deeds with which You are pleased; and admit me by thy grace to thy righteous servants (19)"

Based on the aforementioned verse, Allah has described Prophet Solomon's ability to comprehend all animal languages, including the language of ants. During this period, the prophet Solomon and his army traversed a valley in the Levant and encountered a swarm of ants. Their queen, upon learning of the arrival of Prophet Solomon's army, commanded her retinue to enter the nest immediately in order to avoid being trampled by Prophet Solomon's entourage (Amir, 2013). When viewed from the perspective of Biology, the explanation in the Qur'an is pertinent to his social behavior, which involves cooperation and mutual defense (Ni'mah, 2019).

The type of insect that is also mentioned in the Qur'an is about spiders, this is listed in the Qur'an Surah Al-Ankabut Verse 41.

مَثَلُ الَّذِينَ اتَّخَذُوا مِن دُونِ اللَّهِ أَوْلِيَاءَ كَمَثَلِ الْعَنْكَبُوتِ اتَّخَذَتْ بَيْتًا وَإِنَّ أَوْهَنَ الْبُيُوتِ لَبَيْتُ الْعَنْكَبُوتِ
لَوْ كَانُوا يَعْلَمُونَ ۝

Means: "The parable of those who take a protective protector other than God is like a spider making a house. And surely the weakest house is the house of spiders if they know."

The above Qur'anic verse reveals that Allah has given a parable comparing a person who seeks refuge in an idol (image) to a spider that guards its own house. According to the Qur'an, this is a weak argument because they chose the incorrect form of protection. It is explained from a biological standpoint that spider webs are strong and possess extraordinary elasticity. According to a number of zoologists, spider web filaments are more durable than human-made fibers (Ni'mah, 2019).

C. The Integration of the Qur'an into Human Growth and Development

Human growth and development is characterized by an increase in physical dimensions and body structure, which can be measured in terms of length or weight. In addition, there is a process of pattern change that begins with fertilization. Verse 14 of Surah Al Mu'minun demonstrates the incorporation of Qur'anic verses regarding growth and development.

ثُمَّ خَلَقْنَا النُّطْفَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْغَةً فَخَلَقْنَا الْمُضْغَةَ عِظْمًا فَكَسَوْنَا الْعِظْمَ لَحْمًا ثُمَّ أَنشَأْنَاهُ
خَلْقًا آخَرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ ۝

Means: "Then the sperm We created a clot of blood, then a clot of blood we created a mass of flesh, and from the mass of flesh we created bones, which we then encased in meat. Then We shaped him into another being. Then Allah, the Most Blessed Creator, is Blessed."

Based on the above verse, a process of human growth and development is described, which is known in biology as the prenatal period or the period before birth. Specifically, this verse explains that the first stage of human growth and development begins with a drop of sperm, which then transforms into a blood clot and then a mass of flesh. Then, the bones that make up his body will reappear and grow along with the epidermis that covers it and the development of organs that continue to grow and develop until it is ready to be born (Mahfiroh and Munadi, 2021).

The next verse that discusses growth and development in humans is found in the Qur'an Surah Al-Hajj Verse 5.

يَا أَيُّهَا النَّاسُ إِن كُنْتُمْ فِي رَيْبٍ مِّنَ الْبَعْثِ فَإِنَّا خَلَقْنَاكُمْ مِّن نُّرَابٍ ثُمَّ مِّن نُّظْفَةٍ ثُمَّ مِّن عَلَقَةٍ ثُمَّ
مِّن مُّضْغَةٍ مُّخَلَّقَةٍ وَغَيْرِ مُخَلَّقَةٍ لِّنُبَيِّنَ لَكُمْ وَنُقِرُّ فِي الْأَرْحَامِ مَا نَشَاءُ إِلَىٰ أَجَلٍ مُّسَمًّى ثُمَّ نُخْرِجُكُمْ
طِفْلًا ثُمَّ لِيَبْلُغُوا أَشَدَّكُمْ وَمِنْكُمْ مَّن يُتَوَفَّىٰ وَمِنْكُمْ مَّن يُرَدُّ إِلَىٰ أَرْذَلِ الْعُمُرِ لِكَيْلَا يَعْلَمَ مِن بَعْدِ
عِلْمٍ شَيْئًا وَتَرَىٰ الْأَرْضَ هَامِدَةً فَإِذَا أَنزَلْنَا عَلَيْهَا الْمَاءَ اهْتَزَّتْ وَرَبَتْ وَأَثَابَتْ مِّن كُلِّ زَوْجٍ بَهِيجٍ .

Means: "O man, if you doubt the resurrection (from the grave), then verily We have made you from the earth, then from a drop of semen, then from a lump of blood, then from a lump of flesh that is perfect and imperfect, that We explain to you and We set in the womb, what We will until the appointed time, then We brought you out as infants, and among you some died and (some) among you were extended to senility, so that you may reflect. And you saw that the earth was parched, but after We rained water on it, it came to life, flourished, and sprouted all types of beautiful plants."

According to the perspective of biology, the above verse can be interpreted to mean that, following the prenatal period, there will be a birthing process that marks the commencement of the period of human existence in the world. This is the time during which the infant transitions to life outside the womb. During this period of adjustment, the baby's growth and development will cease and regress. This is due to the fact that infants must make four adjustments during this period, including adjustments to breathing, temperature variations, swallowing, and sucking (Mahfiroh and Munawi, 2010).

Based on the preceding description, it can be demonstrated that the integration of Islam derived from the Qur'an and Biology is a study of science that can see things from different angles or perspectives, which not only increases students' knowledge, but can also increase their faith and foster religious attitudes.

Conclusion

The integration of Islamic teachings derived from the Qur'an with biology can result in a study of science that can achieve the objectives of national education in order to instill and cultivate religious attitudes among students. Plant morphology material is contained in QS. Al-An'am Verse 99, insect material is contained in QS. An-Naml Verses 18-19 and QS. Al-Ankabut Verse 41, and the material of human growth and development is contained in QS. Al-Mu'minin Verse 14 and QS.

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