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Research Article

Scientific Exegesis of QS. An-Nahl 68–69 on bees: Integrating Qur'anic Interpretation and Modern Scientific Findings

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Abstract. This study conducts a scientific exegesis (Tafsir 'ilmi) of Qur'an 16:68-69, which describes divine inspiration bestowed upon honeybees and the production of a healing drink from their abdomens. Using a descriptive-analytical qualitative approach and the tahlil method, classical and modern interpretation sources were integrated with contemporary findings in apidology and apitherapy. Major exegetes (Ibn Kathir, al-Tabari, al-Qurtubi, Saayid Qutb, Tantawi Jauhri, et al.) Unanimously interpreted "awha" as divinely instilled instinct accurately anticipating modern discoveries of hexagonal hive geometry, waggle dance communication, and age based polytheism. Scientific evidence confirms that bee products (honey, royal jelly, propolis, pollen, venom, beeswax) contain bioactive compounds with proven antioxidant, antibacterial, anti-inflammatory, immunomodulatory, and wound-healing properties for validating the Qur'anic claim of "healing for people" (Syifaul linnas). The findings illustrate profound harmony between seventh-century revelation and twenty-first-century biology and medicine, affirming the Qur'an's role as both theological guidance and empirically verifiable natural observation while underscoring bee's ecological and therapeutic significance.

Keywords:
Qur'an, *An-Nahl* 68-69, honeybee, Scientific Exegesis, bees.

Introduction

Bees represent one of the highly disciplined animal species in terms of activity division. A bee colony consists of worker bees, a queen bee, and drone bees (Imam Ghazali, 2024). Each member of the colony performs its tasks efficiently without conflict or complaint. Their sustenance comes from the finest natural sources, namely nectar, while all unusable substances are discarded from the hive. From these nutritious materials, bees produce various beneficial substances, particularly bee-derived liquids (Hamka, 2022). Beehives are also known for their exceptional sterility, preventing bacterial contamination and thus ensuring that no decay occurs within the hive. Bee stings function as medicinal agents and are utilized in several therapeutic practices (Hasan Binjai Abdul Halim, 2006). Furthermore, the products excreted from the digestive tract of bees include not only honey but also royal jelly, propolis, beeswax, and bee venom (Abdul Syukur, 2024; Asliah Zainal et al., 2024).

Surah An-Nahl verses 68–69 explicitly highlight the profound significance of bees, emphasizing their indispensable contributions to pollination and honey

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production. These verses underscore the remarkable teamwork and cooperation exhibited by bees, which exemplify the communal and productive values central to Islamic teachings. Bees are creatures created by Allah that confer numerous benefits and pleasures upon humankind. A striking parallel exists between the honey produced by bees and the noble Qur'an: just as honey originates from the essence of diverse flowers and serves as a remedy for various human ailments, the Qur'an encapsulates the core teachings of previous divine scriptures while incorporating guidance essential for all nations throughout time to attain worldly and eternal happiness (Thantawi Jauhari, 1976).

The Qur'anic depiction of bees aligns closely with contemporary scientific understanding of their behavior and ecology. The sacred text emphasizes their critical role in pollination, promotes ethical virtues such as diligence and discipline, and affirms the therapeutic value of honey for human health. Furthermore, the Qur'an portrays bees as organisms that neither damage their environment nor initiate aggression unless provoked, a description that corresponds precisely with observations made by apiculturists such as Muhammad Khotib.

In the contemporary era, studies on Islam reveal a concerning trend: although Muslims constitute the majority population in Indonesia (Sukardi 2023), many Muslim men and women exhibit reluctance to engage with religion through a scientific lens (Apipudin 2024). The current younger generation in Indonesia and globally is closely associated with the concept of the "internet generation" (Anoraga 2023). Recent educational initiatives increasingly adopt distance-learning models, including the Open Islamic Studies Program *(KIT)* delivered via postal and online platforms (Tabroni and Idham 2023). Modern scientific education maintains a strong interconnection with religious values (Abuzar and Mansoor 2024). Nevertheless, the present generation often displays indifference toward the pursuit of knowledge and an attitude that contradicts one of the core recommendations of Islam, largely due to deficiencies in character education (Putra and Erniyati 2022). Education constitutes a fundamental human need, as humans are born without innate knowledge (Putra and Erniyati 2022). Character development represents a critical dimension of education that encompasses not only cognitive aspects but also affective and moral domains (Warsah et al. 2024). Trust serves as a pivotal element in mediating processes (Arminsyah, Dasrianto, and Mahmudi 2025), while education itself is recognized as a basic human right bestowed by the Creator as an inherent gift to every individual (Basid et al. 2024).

The Qur'an explicitly describes the structural design of beehives, bee behavior, and their collective work system (Seeley, 2010). Bee products possess not only religious and scientific value, but they also play significant roles in the fields of health, cosmetics, agriculture, and food industries. Qur'anic research on bees may stimulate innovations in *halal* and *thayyib* products (Bogdanov, 2011). This study is significant because it demonstrates that scientific knowledge and divine revelation are not contradictory but mutually reinforcing. Such integration enriches the advancement of knowledge grounded in divine values (Ghani, 2020). For future research implications, even non-Muslims frequently discover scientific truths embedded in Islam through observation of the laws of nature *(sunnatullah)*, leading

some to embrace the faith. Consequently, Muslims who deeply engage with scientific disciplines, including chemistry, can elevate their levels of faith and God-consciousness. Based on the foregoing considerations, the present study focuses on the scientific exegesis *(tafsir 'ilmi)* of QS. An-Nahl verses 68–69 concerning bees, integrating classical and contemporary Qur'anic exegesis with modern scientific findings.

Method

This study employed a descriptive-analytical method, which described all data and the conditions of the research subject or object. The analysis proceeds by elucidating every aspect contained within the interpreted verses and clarifying the meanings they encompass (Restu Kartiko Widi 2010). The present work adopts a qualitative approach in the form of library research (Noralizna Abdul Aziz 2025), which served to explore and understand the topic through a systematic review of sources obtained from classical texts, scholarly papers, scientific studies, and other relevant literature. The study also applies a descriptive design that presents factual information about the object under investigation. Accordingly, the analysis focuses on exegetical works concerning honeybees. The analytical framework for interpreting Qur'anic verses follows the *tahlili* (analytical) method (Insan Akbar and Fadhilah Is 2025). Researchers collected relevant data consisting of materials directly connected to scientific exegesis.

Data sources are divided into two categories. Primary sources comprise the Qur'an itself and authoritative works of *tafsir*, including *Tafsir Al-Jawahir fi Al-Quran Al-Karim, Tafsir Al-Misbah, Tafsisr Al-Maraghi, Tafsir Ibnu Kasir,* and *Tafsir Al-Azhar*. Secondary sources consist of supporting books, previous scholarly works addressing honeybees, and methodological studies specifically focused on the *tahlili* approach to *tafsir* (exegesis). Data processing involves two main stages: editing and organizing. The interpretation of Qur'anic verses follows the *tahlili* method, which researchers applied by (a) presenting the relevant verses at the beginning of each discussion, (b) explaining difficult or key terms, (c) outlining the general meaning of the verses, (d) clarifying the context and circumstances of revelation *(asbāb al-nuzūl)*, (e) incorporating authentic reports from the Prophet, his Companions, and the Successors *(Tabi'īn)*, and (f) drawing on insights from relevant disciplines of knowledge (Rohimin 2007).

Results and Discussion

Scientific Exegesis of Surah An-Nahl 68–69 (Bees)

Verse 69 of Surah An-Nahl exhibits a close intertextual relationship with the preceding verse. In verse 68, Allah reveals to the bee the command to construct hives in mountains, trees, or structures erected by humans. Verse 69 continues this revelation by stating that from the bees' abdomens emerges a drink (honey) possessing diverse healing properties for humankind. Although the majority of scholars classify Surah An-Nahl as Madaniyyah (Tantawi Jauhari, n.d.), the surah consists of 128 verses and ranks as the ninth revealed in Madinah.

No specific *asbāb al-nuzūl* (occasions of revelation) have been identified for these verses. However, exegetes establish a clear thematic continuation with verses 66–67, which discuss livestock (milk) and fruit juices. Ibn 'Asyur explains that the Qur'an juxtaposes milk and fruit extracts because both require human intervention-milking and pressing-whereas honey is obtained without such extraction. Al-Baqa'i further argues that the portrayal of divine power manifested through bees surpasses that of the two preceding beverages, and honey is notably scarcer than milk or fruit juice (M. Quraish shihab 2002).

Surat An-Nahl contains 128 verses and is classified primarily as a Makkiyyah surah, except for its last three verses, which are considered Madaniyyah. It was revealed after Surat Al-Kahf. The Surah An-Nahl derives its name from the word al-nahl (the bee), which appears exclusively in verses 68–69. Some scholars alternatively entitle it Surah al-Ni'am (The Favors) due to its extensive enumeration of divine blessings bestowed upon humanity. The designation An-Nahl reflects the extraordinary wonders, wisdom, and benefits inherent in the creation of bees. These verses explicitly describe the bees' dwellings, their sustenance, and their productive output (A. Al-Henif 2002).

In Tafsir Al-Misbah, the designation An-Nahl derives from the word nahlu, which appears in the referenced verses. This is the only occurrence of the term in the Qur'an. Some scholars also refer to the chapter as Surah An-Ni'am, owing to the numerous divine favors described within it (M. Quraish shihab 2002). The term An-Nahl (bees) refers to a creature endowed with blessings and honored by Allah, receiving divine revelation and inspiration that allow it to follow the path prescribed for it. In Lisan al-'Arab, an-nahl is the singular form of النحل, denotes an insect that produces honey. Abu Ishaq al-Zujaj comments on Allah's words, "Your Lord revealed to the bee..." (QS 16:68), noting that the term nahl may have been used because Allah enables humans to obtain honey from what emerges from the bee's abdomenan expression of divine bestowal (M. Quraish shihab 2002).

The selection of "the bee" as the surah's title underscores the multiple miracles, wisdom, benefits, and mysteries embedded in its creation. The Qur'an explicitly delineates the bees' homes, food sources, and products in verses 68–69. A noteworthy rhetorical feature is the use of the second-person pronoun "you" *(kaf)* in the phrase rabbuka "your Lord", directly addressing the Prophet Muhammad (peace be upon him) as the representative of humanity. This indicates a profound connection between the human recipient of God's message and the natural instincts and tasks performed by the bees through divine inspiration. The relationship is indirect; the use of the *kaf* pronoun signifies honor and elevation of the Prophet in his relationship with his Lord.

The discussion on the phrase *Fiihi Syifaul linnas* ("in it is healing for humankind") has been cited by scholars of prophetic medicine (*ṭibb al-nabawī*). They explained that if Allah had used the definite form *As-Syifaa* (with the definite article *Alif laam*), the verse would have indicated that honey provides complete healing. The use of the indefinite form *Syifaa* instead implies that honey functions as a remedy only for certain illnesses, such as reducing body temperature. This interpretation is supported by the principle that honey possesses warming properties, and that treatment should

be based on opposing qualities. Concerning the concluding statement *Innafi dzalika la ayatal liqoumi yatafakkarun* ("indeed, in that is a sign for a people who reflect"), Ibn Katsir explained that the divine inspiration granted to an apparently feeble creature such as the bee to execute complex tasks with precision, constitutes a manifest sign of Allah's omnipotence for those who contemplate. All bee activities provide profound lessons for reflective minds, leading to the inevitable conclusion that only Allah could orchestrate such phenomena. Ibn Kathīr concluded his exegesis of these verses with authentic hadiths reported by al-Bukhari that emphasize honey's curative property (*syifa*), including narratives involving Companions of the Prophet. Although he briefly acknowledged scientific dimensions, he did not elaborate on aspects such as the hexagonal structure of beehives, the comprehensive benefits of bee products, or related empirical findings (Abu Fida Ismail Ibn Katsir Ad-Dimasyqi 2000)

The Qur'anic text of Surah An-Nahl verses 68–69 states:

وَاَوْحٰى رَبُّكَ اِلَى النَّحْلِ اَنِ اتَّخِذِيْ مِنَ الْجِبَالِ بُيُوْتًا وَّمِنَ الشَّجَرِ وَمِمَّا يَعْرِشُوْنَۙ
ثُمَّ كُلِيْ مِنْ كُلِّ الثَّمَرٰتِ فَاسْلُكِيْ سُبُلَ رَبِّكِ ذُلُلًاۗ يَخْرُجُ مِنْۢ بُطُوْنِهَا شَرَابٌ مُّخْتَلِفٌ اَلْوَانُه فِيْهِ شِفَاۤءٌ لِّلنَّاسِۗ اِنَّ فِيْ ذٰلِكَ لَاٰيَةً لِّقَوْمٍ يَّتَفَكَّرُوْنَ.

Translated as: "Your Lord inspired the bee: 'Build your homes in the mountains, in the trees, and in what people construct' (Q.S. 16:68). Then, consume from all the fruits and follow the pathways of your Lord made easy for you. From their bellies emerges a drink of varying colors, in which there is healing for humankind. Indeed, in that is a sign for a people who reflect." (Kementrian Agama RI 2019).

The explanation of the term "الخلايا" refers to man-made beekeeping structures, often constructed as elongated rectangular wooden blocks arranged in multi-layered formations for the purpose of housing bee colonies (Tantawi Jauhari 1984).

The findings showed that, according to the exegetical explanation, the bee's hive referred to " الشكل" contains substances such as "العسل" (honey) and "الشمع" (beeswax or propolis). The hive structure is described as consisting of vertical lines forming a hexagonal shape, thereby creating a stable architectural unit capable of storing all bee products. Propolis is identified as a dark, sticky material found within the hive and produced by bees through the collection of resins and plant secretions. This substance functions as a structural component in the construction and reinforcement of the hive. The hexagonal and multi-layered architectural formation of the hive is interpreted as analogous to larger cosmic structures, such as the arrangement of the heavens and the earth (Tantawi Jauhari 1984).

The explanation of "خناثى النحل" refers to bees that are neither female nor male. Their population ranges from 20,000 to 30,000 within a single colony *(qobilah)*. Their responsibilities include guarding the eggs, assisting the hatching process, collecting floral nectar, storing it in their abdomen, and producing honey from their mouths to feed the young bees (Tantawi Jauhari 1984).

The study also described the category of worker bees "الشغالة", which represent the largest group within a colony. Worker bees develop from fertilized eggs but possess underdeveloped ovaries, rendering them incapable of reproduction. They are responsible for the overall welfare of the colony. Aside from reproductive

functions, which are exclusive to the queen bee, all tasks in the honeybee colony are performed by worker bees. Their duties progress according to age. From emergence until three days old, they serve as cleaners. From days 3 to 12, they act as larval nurses. From days 13 to 18, they construct and polish the combs. Between days 18 and 20, they work as guards and regulate airflow within the hive. From day 20 until death, they forage for nectar, pollen, propolis, and water. In their later stage of life, worker bees guide younger bees in locating sources of nectar, pollen, propolis, and water (Tantawi Jauhari 1984).

The findings also included the explanation of اليعسوب النحل. This term refers to the bee that lands on and consumes the nectar of various flowers. What it stores in its abdomen produces a sweet liquid that contains medicinal properties for humans, as stated in Allah's command in the verses above. Its physical characteristics include a medium-sized body and two relatively short wings. The queen bee serves as the leader of the colony and is responsible for maintaining its unity and stability. Her primary task is egg production for colony development, with these eggs giving rise to "الشغالة" or العاملة (worker bees). Each colony contains only one queen capable of laying eggs every three weeks, producing between 6,000 and 12,000 eggs. During a mating season, the queen mates with several drones. Copulation occurs multiple times until the queen accumulates an adequate amount of spermatozoa, which she stores in the spermatheca. Two to three days later, the queen begins continuous egg-laying, which may last for 3–5 years or until the stored sperm supply is depleted (Tantawi Jauhari 1984).

The study also described *al-dhakar* الذكر (male bees or drones), which originate from unfertilized eggs. Their primary role is to mate with virgin queens. If successful, a drone mates only once in its lifetime because it dies immediately after copulation. Due to their limited function and low productivity, drones are often killed by worker bees during periods of food scarcity. Their population within a single colony typically ranges from 500 to 1,000 individuals (Tantawi Jauhari 1984).

Although Harun Yahya is not a classical exegete (mufassir), his explanation of the verses concerning bees provides a strong scientific perspective. He interprets the "revelation" *(waḥy)* given to the bees as divine guidance enabling them to perform their natural tasks such as foraging for nectar, storing food, regulating hive temperature, and maintaining hive cleanliness and ventilation. He also highlights the uniqueness of the systematically constructed honeycomb structure, as well as the nutritional composition of honey, which contains natural sugars, minerals, and vitamins. His analysis includes the benefits of honey its digestive ease, low caloric content, rapid absorption into the bloodstream, and antibacterial properties as well as the regenerative function of royal jelly. He interprets the bees' abilities and the superior qualities of their products as evidence that bees are created to provide substantial benefits to human life (Harun Yahya 2004).

The findings also included the explanation in *Tafsir Al-Quran Al-Azim*, which stated that the term "revealed" *(awḥa)* in this verse refers to Allah's bestowal of instinctive guidance or intuition to the bees. This divine inspiration directed them to build their hives in mountains, in trees, and in human dwellings. It also guided them in constructing their hives with remarkable diligence and artistic precision, gathering

food from fruits and flowering plants that grow in distant fields, deep valleys, and high mountains, and returning to their hives without losing their way. Through this process, bees produced honey in varied colors such as white, yellow, and red as a sweet, pleasant beverage endowed with healing properties for humans (Al-Imam Abul Fida' Isma'il Ibnu Kasir Ad-Dimasyqi 2003).

Al-Ṭabary similarly explained the phrase *wa auhaa*, stating that it signifies Allah's inspiration to the bees, addressed indirectly to the Prophet Muhammad to build their hives in mountains, trees, and places constructed by humans. He cited parallel views from earlier exegetes, such as al-Mujahid, who understood *Wa auha robbuka ilan Nahli* to mean that Allah endowed the bees with instinctive guidance. Likewise, Ma'mar stated that Allah inspired the bees specifically regarding their hive construction in mountainous areas. Ibn 'Abbas added that Allah commanded the bees to eat from fruits and follow the paths made easy for them by their Lord. Concerning the phrase *Ya'risyuna*, al-Ṭabary interpreted *Waminma ya'risyun* to refer to elevated structures or roofs built by humans (Ja'far Muhammad bin Al-Thabary 1984).

The study also examined the phrase *Anit Takhizi minal jibali wamina asy-Syajari wamin maa ya'risyuun*. Allah designated three types of habitats for bees: first, trees; second, mountains; and third, structures built by humans. The term *Ya'risyuun* derives from the root *'Arasya*, which according to Qurtuby denotes meticulous and deliberate preparation, typically applied to the arrangement of branches and foliage. The term resembles *Ar-Arisy*, a temporary shelter constructed by the Prophet during the Battle of Badr. Thus, *'Arasya* here signifies the intricate and extraordinary construction of the beehive. The final issue addressed in this section concerns the hexagonal structure of the hive, which contains no gaps and displays remarkable geometric precision. It is described as an architectural marvel composed from multiple angles yet unified in form. Qurṭuby cited Ibn al-'Araby, who emphasized the astonishing nature of Allah's creation in An-Nahl, particularly the way beehives support one another even when attached to dense clusters of tree branches. This complexity reflects the extraordinary engineering embedded within the natural architecture of the hive (Ja'far Muhammad bin Al-Thabary 1984).

The findings also included the interpretation presented in *Aiysar Al-Tafaasir Li Kalaami Al-'Aliyi Al-Kabir*, where the exegete applied the *bil-Ma'tsur* method. He cited a hadith narrated by al-Bukhari concerning a Companion who sought the Prophet's advice regarding an illness and was instructed to consume honey. He also quoted a statement attributed to Ali's friend, who said that the most honorable clothing for humans is formed from the saliva of worms (silk), and the most noble drink is the excretion of bees (honey). In interpreting the verse, he explained that the phrase *Wa Awhaa Rabbuka Ilan Nahli* signifies Allah's inspiration to the bees, guiding them in performing their tasks. Thus, the actions of bees are understood as being directed by divine inspiration. Concerning the phrase *subula rabbika dhululan*, he stated that the "paths of your Lord" are made easy and facilitated, ensuring that bees encounter no difficulty or confusion in their movements. The term *Syaraabun* refers to the drink produced by bees namely, honey. The phrase *Fihii syfaun linnas* is interpreted to mean that honey contains healing properties for humans and may

treat various diseases when consumed with the intention of seeking cure or when mixed with other substances. He further elaborated on the three types of dwellings commanded for bees: mountains, trees, and structures built by humans. In conclusion, he emphasized the power and wisdom of Allah in creating the bee such that from its abdomen emerges honey in diverse colors, each capable of providing healing. This serves as evidence of Divine Oneness and as a lesson for those who reflect upon natural phenomena and their underlying causes (Abu Bakar Jabir Al-Jazairi 2011).

Asy- Syanqathi similarly stated that the word "*auha*" denotes inspiration. In Arabic usage, ilhām refers to communicating something subtly or internally. Thus, *wa auhaa* may carry meanings of sign, writing, or inspiration. He interpreted it as Allah's inspiration to the bees, comparable to the divine signs mentioned in Surah Maryam (19:11) and Surah al-Zalzalah (99:4–5), where the word conveys the meaning of a divine command (Abu Bakar Jabir Al-Jazairi 2011). Abu hatim al-Razi also explained this verse by beginning with the key phrase Wa auha robbkua ilan nahli, citing ibnu abbas, who affirmed that Auha here signifies that Allah inspired the bees (Abi Hatim Al-Razi 2009).

The findings also included Al-Suyuti citation of a hadith narrated by Ibnu mas'ud and transmitted by Bukhari ibn Majah, and Ibn Abbas, in which the Prophet stated that there are three remedies: cupping, drinking honey, and cauterization with fire, although he discouraged the third practice. Bukhari, Muslim, Ibn Mardawayh, and Abi Said Alkhudri additionally narrated an incident in which a young man approached the Prophet to seek advice concerning the illness of his companion (Jalaluddin Al-Sayuthi, 2011).

Abdullah Yusuf Ali produced an English commentary titled The Holy Qur'an: Text, Translation and Commentary. He employed the *bil-Ra'yi* method with an *Al-Adab ijtima'i* approach. His discussion on bees focused on several key concepts. First, regarding the term *Auhaa/Wahyun*, he interpreted it as divine inspiration as a form of guidance implanted by Allah into the soul or instinct of the bee. Here, the natural instincts of the bee are linked to divine instruction, which he argued is precisely the intention of the verse. He further emphasized that the honeycomb, with its precise hexagonal network, represents the most perfect geometric form and an extraordinary architectural structure. The term *buyuut* (houses), the plural of *bayt*, denotes the dwellings constructed by bees whether in trees, mountains, or human-made structures. He regarded these as manifestations of natural wonder and evidence of the Creator's power. Yusuf Ali also described the foraging behavior of bees, noting that bees search for food individually but return to the hive to contribute collectively for the welfare of the entire colony. In this, he observed a profound lesson in cooperation and selflessness. Regarding the phrase *Dzululan*, he proposed two interpretations: (1) It refers to pathways that are easy and spacious, alluding to the precise and unfailing routes traveled by bees over long distances when returning to their hives, and (2) It conveys humility and obedience, reflecting the bees' innate submission to the divine order (Abdullah Yusuf Ali 2009).

The findings also included Sayyid Qutb's interpretation, in which he emphasized the Oneness of Allah as reflected in the creation of the universe and in

His Lordship (Uluhiyah), whereby various potentials are endowed to all His creatures, including bees. He explained that bees work under the impulse of divine inspiration (ilham) implanted within their natural instincts *(fiṭrah)*. Bees exhibit extraordinary precision in all their activities so exceptional that human intellect is unable to fully comprehend the sophistication of their hive construction, their organized division of labor, and the production of a pure liquid containing medicinal properties. Sayyid Qutb further described the beehive in a manner consistent with other exegetes, stating that its construction is a manifestation of the innate nature bestowed upon bees by Allah and of the natural order of their surrounding ecosystem. Similar to other commentators, he cited a hadith narrated by Bukhari and Muslim concerning a Companion who came to the Prophet seeking treatment and was cured after the third administration of honey. Sayyid Qutb interpreted this account as a reminder that a Muslim must maintain certainty in the divine resolution of difficulties. Although empirical circumstances may appear contradictory, the truth of the Book of Allah remains superior to observable reality; ultimately, reality itself will affirm the truths contained in the Qur'an (Sayyid Quthb 2004).

The study also noted that the healing properties of honey correspond to the Qur'an, which functions as a form of spiritual healing. The term *yatafakkarun* signifies the act of contemplating Allah's creation, particularly the intricate design of bees. Even a scientist cannot replicate the complexity of what bees produce, underscoring the divine power manifest in their creation (Wahbah Al-Zuhaili 2009).

Muhammad Umar Nawawi al-Jawi explained that the phrase *yakhruju min buthunihaa* refers to honey, whose colors vary black, red, white, or yellow, depending on what the bees consume or extract. These variations may also be associated with the age strata of the bees or the hierarchy of their assigned tasks. The transformation of what bees ingest into honey was described as occurring through the divine power of Allah. He stated that honey is expelled from the bees' mouths in a form resembling saliva. The phrase *Fiihi syifaul linnas* indicates that honey contains healing properties for humans and can cure various illnesses, including *al-bulghoymah*, as honey reportedly possesses substantial therapeutic benefits for such ailments. Ibn Mas'ud stated that "honey is a remedy for every disease, and the Qur'an is a cure for ailments of the heart; therefore, use these two remedies namely honey and the Qur'an." Al-Jawi emphasized that "*Innafii Dzalika*" the unique attributes of bees, particularly their deep knowledge demonstrated in the production of various types of honey from diverse plants and leaves, serve as a profound lesson. The expression *Liqoumi yatafakkarun* suggests that anyone who reflects upon the world of bees will inevitably recognize that these creatures have a Creator who is All-Powerful, All-Wise, and the One who inspires them (Muhammad Umar Nawawi Al-Jawi 1997).

Muhammad Al-Syaukani also discussed the emergence of honey from the bee's body, reporting two differing views among scholars: the majority held that honey exits from the bee's mouth, while others argued it emerges from the bee's posterior. He asserted that regardless of its point of exit, the miraculous nature and therapeutic qualities of honey remain unaffected. Al-Syaukani further examined the variations in honey color, stating that these differences result from distinctions among

bee species, which can also be linked to the bees' ages. He added that the multiplicity of honey colors reflects Allah's will, while all types retain their medicinal functions as remedies for various diseases. Commenting on the word *syifa*, Al-Syaukani noted that its indefinite form (without the definite article al-) indicates that honey possesses healing properties but not in an absolute or exclusive sense; certain illnesses do not require honey as their treatment. He concluded that the extraordinary nature of bees will expand understanding among *ulil abshor*, those endowed with insight thereby strengthening their faith (Muhammad Al-Sauqani 1990).

Hamzah interpreted the phrase *yakhruju minbutuniha syarobun mukhtalifun alwanuh*, mean that from the bees' bodies emerges a drink of diverse varieties, exhibiting colors such as yellow, red, black, white, and others. He explained that the colors and flavors of honey vary significantly, depending on the region and the type of soil in which the bees build their hives. He argued that among these regions, honey from the Arabian Peninsula has become particularly renowned for its darker color and superior therapeutic properties. Regarding the phrase *Fiyhi Syifaul linnas,* interpreted it as indicating that honey contains medicinal benefits capable of curing various diseases. According to him, this therapeutic value has long been acknowledged not only by traditional healers and Eastern herbal practitioners but also by modern physicians trained in contemporary pharmacology (Hamka, 2002).

'Aidh al-Qarni, in his Tafsīr Muyassar, elaborated on the term yatafakkarun, stating that the creation of bees, their activities, their hives, the fruits they consume, and the honey they produce all contain signs of divine greatness. These manifestations of God's wisdom become evident to those who reflect, contemplate, and draw lessons from the remarkable world of bees (A'idh Al-Qorni 2013).

Findings from Modern Research on Bee Secretions

Modern studies have established that bees emerged approximately 100 million years ago, coinciding with the appearance of fully developed flowering plants. Within the ecological system created by God, bees and flowering plants have demonstrated a profound mutual dependence. The scents and diverse colors of flowers serve not primarily as a source of aesthetic pleasure for humans, but rather as mechanisms to attract bees and facilitate pollination. Bees belong to the order Hymenoptera and are closely related to ants, wasps, and hornets (Dantje T. Sembel 2009).

As pollinating insects, bees have played a primary role in the reproductive processes of plants. Insect-mediated pollination has occurred for more than 200 million years. The earliest form of pollination by insects likely happened when plant-eating insects accidentally touched the anthers, became contaminated with pollen, and subsequently transferred some grains to the next plant they visited. Because pollination through directed insect vectors is significantly more efficient than random wind dispersal, it is evident that strong selective pressures must have encouraged plants to develop more effective pollination mechanisms (Mochamad Hadi 2009).

Suheriyanto and Utami explained that worker bees cooperated closely in foraging activities. These bees began their work at dawn, led initially by scout workers who acted as guides in locating food sources. Other worker bees did not depart from the hive until the scout returned. Once a scout bee discovered a food source, it returned to the hive and communicated information regarding the distance, direction, and quality of the resource through the round dance and the waggle dance (Suheriyanto dan Utami 2006).

Through these dances, the scout bee also conveyed information about the food it had collected, enabling other workers to recognize the source through their communication mechanisms. Variations in honey color were attributed to differences in habitat and foraging sources. Honey contains several types of sugars, primarily fructose and glucose, which comprise approximately 85–95% of its total sugar content. The sugars in honey can be categorized into twelve primary and secondary forms, including acetic acid, butyric acid, and phosphoglycerol. In addition, honey contains a wide range of minerals, such as sodium (Na), potassium (K), calcium (Ca), chromium (Cr), lanthanum (La), zinc (Zn), and osmium (Os). Numerous studies have demonstrated that honey possesses therapeutic potential in treating various illnesses (Yusuf dan Durrah 2007).

A synthesis of the main findings on bee-derived substances including honey, royal jelly, propolis, beeswax, and bee venom from an scientific exegesis perspective revealed that honey exhibited significant medicinal potential. Research showed that honey, when mixed with foods containing vitamin K, was highly effective in reducing bleeding (Thayyarah 2014).

Several bee-derived substances appear in liquid form. First, honey is a syrup-like liquid, thicker in consistency and sweet in taste, produced by honeybees and other insects from floral nectar. When the honeybee returns to the hive, the nectar is released from the honey sac located in the abdomen and is then chewed collaboratively by other bees. Once the nectar becomes sufficiently refined, it is placed into the cells. After the cells are filled, they are sealed, allowing fermentation to occur (DTH Sihombing 2015).

Honey was found to serve as an effective carbohydrate substitute during physical training (Ilia et al. 2021). It slows the absorption of sugar into the bloodstream, thereby improving digestive health and ensuring a steady supply of carbohydrates during exercise. Its bioactive components enhance glycemic control by inhibiting PTP1B (Protein Tyrosine Phosphatase) and stimulating the expression of insulin receptors in liver cells (G. Lori 2019).

In traditional medicine, Greek and Roman communities pioneered the use of honey for treating nasal congestion, while ancient Egyptians were among the earliest to apply honey for wound care. They prepared ointments from honey to treat burns and puncture wounds (Thayyarah 2014). Honey functions as a natural antibiotic capable of eliminating dangerous bacteria. Its high acidity inhibits bacterial growth and reproduction. Moreover, honey produces hydrogen peroxide, a highly effective antiseptic. Through osmotic action, the low-water composition of honey draws moisture out of bacteria in wounds and burns, much like a sponge

absorbs water, thereby dehydrating and suppressing bacterial growth (Almasaudi 2021 : Mayer et al. 2014).

Honey has also been reported to prolong lifespan, increase stamina in older adults, delay visible signs of aging, prevent the appearance of facial wrinkles and graying hair, and alleviate physical fatigue when consumed regularly (Thayyarah 2014).

Second, royal jelly also known as the queen bee's special diet or bee milk is a white, milk-like fatty substance. It is a liquid secreted from two food glands located in the heads of worker bees, commonly referred to as the royal jelly glands (Thayyarah 2014). The queen's diet is rich in chemical compounds composed of approximately 66% water, 12.5% carbohydrates, 12% mineral salts, and 3% unidentified substances. Royal jelly is also abundant in vitamins and hormones that stimulate prostate gland activity.

Royal jelly was reported to alleviate joint disorders and blood-related cancers by lowering cholesterol levels, inhibiting bacterial effects, protecting the kidneys from diabetes and kidney stones, preventing cellular and vascular blockages, treating psychological and neurological disorders as well as impotence, healing gastrointestinal wounds, enhancing intestinal performance, preventing obesity and fatigue, accelerating child growth, addressing various postpartum conditions, tightening the skin, reducing wrinkles, rejuvenating the skin, and protecting the heart and brain from stroke and angina pectoris. Propolis also exhibits strong medicinal properties. It functions as a local anesthetic or sedative, acts as an antibiotic effective against bacteria-induced illnesses, and has been used to treat smallpox, joint disorders, rheumatism, mild forms of cancer, and gangrene by regenerating decayed or necrotic cells. Additionally, it strengthens the immune system, treats food poisoning, alleviates colon disease, and addresses a variety of other conditions. Bee pollen likewise provides significant health benefits. It is used to treat physical fatigue, enhance appetite, and support coping with stress due to its content of rare minerals such as zinc, selenium, and silicon (Thayyarah 2014).

Third, propolis is a wax-like substance collected by worker bees from cotton trees or other botanical sources. Bees gathered a dark, resinous material from the tips of plants (Thayyarah 2014). Propolis served to narrow the openings of hive cells, reinforce the frames and roofs of their hives, and prevent the decomposition of small animals that entered the hive and were subsequently killed by bee stings. It exhibited the ability to regenerate and heal damaged tissues.

Fourth, bee pollen, commonly known as "bee bread" or pollen grains, constitutes an essential source of food and nutrition for bees and their larvae. Bee pollen contains a mixture of honey and pollen gathered by worker bees during nectar foraging. During this process, pollination often occurred, whether intentionally or unintentionally, as workers scraped or dislodged pollen from the stamens of flowers. Workers collected pollen using their mandibles or forelegs, and once the pollen adhered to their hind legs, honey and bee saliva, rich in enzymes that helped compact the pollen into comb-like structures resembling pollen sacs (M. Thayyib Ibrahim 2010). The construction of hexagonal hive units required more than one hundred worker bees. Bee pollen has been widely recognized for its substantial

health benefits, including enhancing immunity, increasing energy, improving liver function, reducing inflammation, boosting fertility, accelerating wound healing, improving digestion, and lowering cholesterol. Its rich nutrient composition makes it one of the most potent bee products from a health perspective (Liu et al., 2020 : Owayss et al., 2020).

Fourth, bee venom (apitoxin) is produced by worker bees. Apitoxin is secreted by the venom glands as a clear liquid with a sharp odor, a bitter and pungent taste, a distinct aroma, and rapid drying characteristics. Several diseases were reported to be treatable with bee venom, including rheumatism, neurological disorders, sciatica, hypertension, and migraines. In addition, it reduced body temperature more effectively than common antipyretic drugs such as aspirin or acetylsalicylic acid. Bee venom has been employed to treat joint diseases and rheumatism, as well as syringomyelia, a spinal cord cystic disorder (Thayyarah 2014). Beeswax was also shown to alleviate anal fissures, reduce hemorrhoidal inflammation, and treat Tinea corporis.

Fifth, collagen, an essential protein for the health and development of tissues, skin, hair, nails, bones, muscles, and the walls of various internal structures, contains a series of key enzymes such as superoxide dismutase, catalase, peroxidase, and glutathione peroxidase. Its nucleic acids include DNA (deoxyribonucleic acid) and RNA (ribonucleic acid) (Musthafa Abdul Mun`in 2010). Bee-derived collagen has been scientifically demonstrated to enhance collagen synthesis, accelerate skin regeneration, inhibit aging, promote wound healing, protect the skin through antioxidant and anti-inflammatory activities, and strengthen hair, nails, and connective tissues (Simuth, 2001: Kocot, dkk, 2018).

Sixth, beeswax is a waxy substance produced by worker bees to store food, including honey, pollen, and eggs. Beeswax has been used to treat seasonal allergies, often occurring in winter and exerts a substantial effect on the skin and the reduction of nasal mucus accumulation when gargled up to five times daily (Thayyarah 2014). Beeswax contains 14% hydrocarbons, 1% polyester acids, 8% hydroxy polyesters, 4% hydro monoesters, 35% monoesters, 1% ester acids, 3% triesters, 14% diesters, 12% free fatty acids, and approximately 6% other compounds (Musthafa Abdul Mun`in 2010). Scientific evidence confirms that beeswax provides multiple therapeutic benefits, including wound healing, anti-inflammatory effects, skin moisturization, skin barrier protection, antibacterial and antifungal activity, allergy relief, lip care, and cellular antioxidant protection (Fratini, dkk, 2016 : Miskovic,dkk 2019).

Conclusion

Verses 68–69 of Surah An-Nahl depict the remarkable nature of the bee as a creature endowed with divine inspiration to construct its hives, gather food, and produce honey that serves as a healing substance. Classical exegetes such as Ibn Kathir, Al-Ṭabari, Al-Qurṭubi, Al-Jazairi, Sayyid Qutb, and others converge on the understanding that the "revelation" bestowed upon bees signifies divine inspiration or innate instinct implanted by God. This inspiration enables bees to work with extraordinary precision, construct hexagonal hives, organize sophisticated division of

labor within their colonies, and produce honey of varying colors with therapeutic benefits. These exegetical interpretations also emphasize that honey is not described as a cure for every ailment, but rather as a remedy for many illnesses according to God's will. The verses are thus regarded as evidence of divine power, comprehensible only to those who engage in thoughtful reflection.

Modern scientific findings reinforce the Qur'anic explanation, demonstrating that bees have existed for hundreds of millions of years and play an essential role as pollinators. The substances they produce honey, royal jelly, propolis, bee pollen, beeswax, and bee venom have been shown to contain natural sugars, vitamins, minerals, enzymes, and a range of bioactive compounds with broad therapeutic potential. These include enhancing immunity, accelerating wound healing, functioning as natural antibiotics, improving glycemic control, supporting tissue regeneration, and serving as treatments for various diseases.

Taken together, these verses not only affirm God's blessings and the marvels of His creation but also illustrate a profound harmony between revelation and modern scientific discoveries concerning the biological and medicinal benefits of bee-derived products

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