Jurnal Ilmu Pertanian Indonesia (JIPI), January 2026
(Indonesian Journal of Agricultural Sciences)
ISSN 0853-4217 EISSN 2443-3462

Vol. 31 (1): 114–120
http://journal.ipb.ac.id/index.php/JIPI
DOI: 10.18343/jipi.31.1.114

The Morphology of Seed-Bearing Plants in The Qur'an: A Thematic Analysis of Tantawi Jawhari and Tafsir Ilmi by the Indonesian Ministry of Religious Affairs

Andhiarizqi Mulyawan[1]*, Yudianto Achmad[2], Zakaria Husin Lubis[2], Ahmad Kamaluddin[2]

(Received July 2024/Accepted October 2025)

ABSTRACT

The Qur'an's Natural Phenomena (Āyāt Kauniyyah) verses contain scientific clues, including one on seed-bearing plant morphology. The study aimed to explain Qur'anic references to seed-bearing plant morphology, as well as the interpretation of these verses in Tantawi Jauhari's Tafsir Al-Jawâhir fî Tafsîr Al-Qur'ân Al-Karîm and Lajnah Pentashihan Mushaf Al-Qur'an's Tafsir 'Ilmi Tumbuhan dalam Perspektif Al-Qur'an dan Sains. The qualitative approach used in this study was library research, with data gathered from a variety of relevant sources. The Qur'an is interpreted using the Al-Maudhu'i (thematic) methods. Both methods aimed to generate descriptive data by observing Qur'anic chapters and verses, as well as providing scientific insights into the subject. The Qur'an mentions seed-bearing plant morphology through physical descriptions and metaphors (amthāl) in 26 words throughout 39 chapters and 87 verses. The verses that provide complete interpretation of plant morphology in Tafsir Al-Jawâhir fî Tafsîr Al-Qur'ân Al-Karîm include Al An'am/6:99, which addresses floral morphology; An Naml/27:60, which examines roots, stems, and leaves; and Yasin/36: 80, which concentrates on the leaf. Meanwhile, in Tafsir 'Ilmi Tumbuhan dalam Perspektif Al-Qur'an dan Sains, Al An'am/6:99 is interpreted in terms of the "green substance" in plants, with a full description of the photosynthesis process related to At Takwir/81:17−18, Yasin/36:80, and Al Waqi'ah/56:71−72. Then, Al An'am/6:95 describes seeds as a component of plant development.

Keywords: Al-Qur'an, plant morphology, scientific exegesis, seed-bearing plants, Tantawi Jauhari

INTRODUCTION

The Qur'an possesses the attribute of ṣāliḥ li kulli zamān wa makān (fit for every time and place), indicating its universal nature and ability to accommodate varied civilizations throughout different eras. It possesses the attribute of ḥamālah al-wujūh, allowing it to expose numerous layers of meaning. The Qur'an is a metahistorical text that deals with historical events. Its language contains cultural and local characteristics. As a result, understanding it involves reasonable reasoning and can be tackled scientifically (Kamaludin & Saefuddin 2021). Over 900 verses in the Qur'an refer to scientific and technological truths revealed over time (Khafagi et al. 2006). Among them, 112 verses in 47 chapters reference plants, either expressly or implicitly. Sixteen passages expressly mention plant names, including figs, olives, and date palms. These verses are classed as āyāt kauniyyah, which explain natural occurrences (LPMQ 2010).

Allah SWT endowed humans with sensory facilities, intelligence, and hearts (Achmad 2020). Throughout history, humans have used their intellectual potential to ponder on the *āyāt kauniyyah*, leading to the formation of scientific exegesis (tafsīr '*ilmī*). This style of interpretation developed alongside the expansion of knowledge, particularly under the Abbasid Caliphate, which began in the fourth century AH, when the Islamic world was at its intellectual peak. Exegetes challenged traditional readings and used independent reasoning (*ijtihād*) to connect Qur'anic passages with scientific knowledge (Rubini 2016). One Abbasid caliph, Al-Ma'mun (d. 853 CE), even demanded that the Byzantine Emperor hand up Greek texts as part of a peace treaty. As a result, many scientific books were translated into Arabic, including those by Plato, Aristotle, Galen, Apollonius, and Archimedes (Dawami 2008). These studies have since demonstrated that scientific understanding does not contradict the teachings of the Quran.

This study intends to investigate and interpret passages about the morphology of seed-bearing plants, thereby contributing to the advancement of scientific exegesis and reinforcing faith in the Qur'an as a source of scientific knowledge. The study aims to: (1) Examine Qur'anic signs related to seed-bearing plants. (2) Compare scientific interpretations in Tantawi Jawhari's Al-Jawāhir fī Tafsīr Al-Qur'ān Al-Karīm and the Indonesian Ministry of Religious Affairs' Tafsir Ilmi.

[1] University of Qur'an Science College Jakarta, Jakarta Selatan 12210, Indonesia
[2] Pelita Bangsa University, Bekasi 17530, Indonesia
* Corresponding Author:
Email: andhia.rizqi14@gmail.com

(3) Highlight spiritual messages embedded in these morphological references in the Qur'an.

METHODS

This study used a qualitative method that does not include statistical analysis. The data sources were textual and descriptive, taking the form of words and phrases. The discussion is descriptive in nature, presenting, explaining, and reporting observable phenomena while also revealing interrelationships between the parts under consideration. The main source was the Qur'an. Plant-related verses were identified and categorized according to their morphology, which included roots, stems, leaves, flowers, fruits, and seeds. References included Tantawi Jawhari's Al-Jawāhir fī Tafsīr Al-Qur'ān Al-Karīm and the Indonesian Ministry of Religious Affairs' *Tafsir Ilmi: Tumbuhan dalam Perspektif Al-Qur'an dan Sains.*

Each tafsir was evaluated according to its approach, methodology, and interpretation of the pertinent verses. The rationale for selecting these two tafsir works stems from their relation to the research topic. Tantawi Jawhari provides an early twentieth-century scientific perspective on Qur'anic signs, whereas the Ministry's tafsir reflects a more current, integrative approach that connects divine revelation with modern science. This study also depends on prior scholarly publications, including The Qur'an's Perspective on Plant Morphology (2017) and Plants in Scientific Tafsir: Analysis of the Ministry of Religious Affairs' Interpretation (2023). These works make significant contributions to scientific tafsir, particularly in explaining *āyāt kauniyyah* regarding plant structure and function.

RESULTS AND DISCUSSION

This analysis discovered 26 plant morphology-related phrases mentioned in 39 chapters and 87 verses of the Qur'an (Table 1). These references explain the physical form of plants and are also used metaphorically to highlight good and wicked behaviors or to convey spiritual teachings in Qur'anic narratives. Tantawi Jawhari and the Ministry of Religious Affairs interpret various verses that clearly address plant morphology, including Al-An'ām/6:95, 6:99, An-Naml/27:60, Yā Sīn/36:80, Al-Wāqi'ah/56:71−72, and At-Takwīr/81:17−18.

Tantawi Jawhari explains that the plant morphology addressed in Surah Al-An'am (6/99) comprises flowers and leaves. He went into depth on flowers' reproductive systems, describing the stamen as the male organ and the pistil as the female organ. He also discussed the variance of floral sepals based on plant species (Figure 1). For example, the cotton blossom has green sepals and a corolla that can be yellow, white, or red, suggesting a royal palace. It contains stamens and a pistil, from which the stamens discharge pollen, resulting in fertilization, similar to how animals and humans reproduce (Jawhari 1931). In contrast, the Ministry of Religious Affairs' Scientific Tafsir interprets this passage as referring to the "green substance" in leaves (Figure 2), which is scientifically known as chlorophyll (LPMQ 2010). Chlorophyll is the principal photosynthetic pigment present in all green plants. It also provides various health benefits to people, such as treating brain, lung, and oral malignancies, as well as acting as a disinfectant, antibiotic, and dietary supplement (Hendriyani *et al*. 2018).

Tantawi Jawhari sees Surah An-Naml (27/60) as referring to plant roots, stalks, and leaves. This verse emphasizes Allah SWT's power, which created the heavens and earth, brings down rain, and makes plants grow, resulting in magnificent gardens (Jawhari 1931). He then went into detail on root types (Figure 3), stem forms like grape stem (Figure 4), and leaf varieties, giving roles and examples (Figure 5). He provided numerous images to supplement his discussion. Meanwhile, the Scientific Tafsir assigns Surah An-Naml (27/60) to the general concept of agricultural progress rather than specific plant forms. The material is like Al-Jawāhir fī Tafsīr Al-Qur'ān Al-Karīm, particularly in terms of plant growth and development from rain-soaked soil to the emergence of numerous plant species (LPMQ 2010). Photosynthesis, as illustrated in Figure 6, allows these plants to grow and eventually produce their own sustenance.

Photosynthesis emphasizes plants' fundamental significance in the food and energy chains of all living organisms, as they can produce their own food. The chemical process is: $6CO_2$ (carbon dioxide) + $6H_2O$ (water) → $C_6H_{12}O_6$ (glucose) + $6O_2$ (oxygen), which is enhanced by sunlight absorbed by chlorophyll. This happens in two stages: the light and dark reactions. The light reaction converts H_2O into O_2 using sunshine and the enzyme $NADP^+$ (oxidoreductase). The enzyme splits oxygen and binds hydrogen and ADP (adenosine diphosphate) to produce ATP (adenosine triphosphate) and NADPH. These compounds promote the dark response and cellular respiration. The dark reaction produces glucose. The enzyme rubisco (ribulose-1,5-bisphosphate carboxylase) converts CO_2 into 3-phosphoglycerate, which is then reduced to G3P (glyceraldehyde-3-phosphate), combining with hydrogen and carbon to make $C_6H_{12}O_6$ (glucose). The rubisco enzyme is regenerated to continue the cycle (Stirbet *et al*. 2020).

Tantawi Jawhari explained that Surah Yā Sīn (36/80) focuses on the shape of leaves. He described leaf variations over the seasons (Figure 7). The leaves naturally began to dry in autumn, fall in winter, then sprouted in spring and summer, restoring the tree's attractiveness. He described these phenomena as a

Table 1 Morphology of seed-bearing plants verses

Morphology of seed-bearing plants	Morphology of seed-bearing plants verses	Words in verses
Root (weak root)	14/26	جتث
Root (strong root)	14/24, 37/64, 59/5	أصل
Tree	2/35, 4/65, 7/22, 14/24, 14/26, 16/10, 16/68, 17/60, 20/120, 23/20, 27/60, 28/30, 31/27, 36/80, 37/62, 37/64, 37/146, 44/43, 48/18, 55/6, 56/52, 56/72	شجر
Trunk (of a tree)	19/23, 19/25, 20/71	جذع
Stumps/lower parts (of palm–trees or plants)	54/20, 69/7	أعجاز
Ear/spike (of grain, like wheat or corn)	2/261, 12/43, 12/46	سنبلة
Clusters (of dates or fruits)	6/99	قنوان
Trees from the same root/rooted together	13/4	صنوان
Branch	14/24	فرع
Stalks/stems	48/29	سُوق
Shoots/blade	48/29	شطء
Branches	55/48	أفنان
Soft date-palm	59/5	لِينَة
Leaf/leaves	6/59, 7/22, 18/19, 20/121,	ورق
Dry stubble/broken dry plant remnants	18/45, 54/31	هشيم
Dry, withered scum/ debris/plant residue	23/41, 87/5	غثاء
Spadix/early fruit of palm (flower-cluster)	6/99, 26/148, 37/65, 50/10	طلع
Sheaths/husks/coverings (of flower buds or fruits)	41/47, 55/11	أكمام
Fruit	2/22, 2/25, 2/126, 2/155, 2/266, 6/99, 6/141, 7/57, 7/130, 13/3, 14/32, 14/37, 16/11, 16/67, 16/69, 18/34, 18/42, 28/57, 35/27, 36/35, 41/47, 47/15	ثمر
Fruit clusters/bunches (often hanging low)	69/23, 76/14	قُطُوف
Fruits	23/19, 36/57, 38/51, 43/73, 44/55, 52/22, 55/11, 55/52, 55/68, 56/20, 56/32, 77/42, 80/31	فَاكِهَة / فَوَاكِه
Arranged in layers/laid in order (e.g., bananas)	56/29	مَنضُود
Fresh/moist (especially fresh dates)	6/59, 19/25	رَطْب / رطبا
Dry seed (as opposed to fresh)	6/59, 12/43, 12/46	يَابِس
Grain/seed	2/261, 6/59, 6/95, 6/99, 21/47, 31/16, 36/33, 78/15, 80/27	حب
Stone/pit/seed (usually of dates or fruits)	6/95	نَوَى

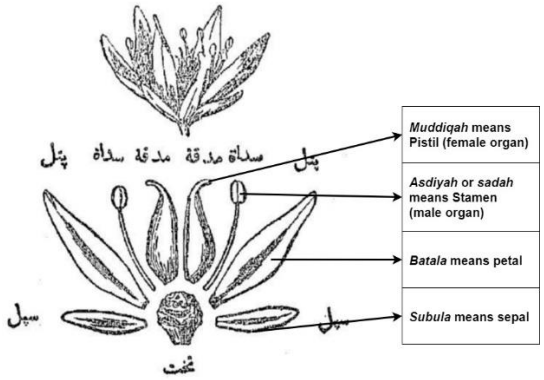

Figure 1 Flower components in Tantawi Jawhari's tafsir.

representation of Allah's magnificent power (Jawhari 1931). He mentioned the cherry blossom (sakura) in Japan, which blooms wonderfully in spring but loses its leaves and becomes reddish yellow in fall (Kori *et al*. 2019). His discussion also included an explanation of leaf morphology, as well as a description of leaf stomata (Figure 8), which are microscopic organelles that absorb air and facilitate the exchange of fluids and metabolic substances between the leaf's interior and exterior (Putriani *et al*. 2019). The Scientific Tafsir

provided a more detailed description of leaves as the site of photosynthesis, which produces carbohydrates and oxygen. These substances are "burned" by the plant for usage by itself and other living organisms. Carbohydrates are transformed into stored food like proteins, lipids, nucleic acids, and other organic compounds, allowing for the growth of green leaves, fruits, and seeds (Setyanti *et al*. 2013).

Oxygen is necessary for respiration. It permits glucose to be "burned" in the body to produce energy for a variety of functions, including physical effort, food absorption, immunity, recuperation, and toxin degradation. Chemically, glucose reacts with fatty and amino acids in the presence of oxygen to produce energy by converting AMP and ADP into ATP via aerobic metabolism. This system has three stages: glycolysis (converting glucose to pyruvate), the Krebs cycle (oxidizing acetyl-CoA), and the electron transport chain ($NADH_2$ and $FADH_2$ releasing electrons and H^+ to create H_2O and CO_2 in mitochondria). Dewangga *et al*. (2021) confirmed that plants utilize H_2O for photosynthesis while expelling CO_2. Oxygen is also a fire stimulant; without it, combustion is impossible. For example, welding businesses use precise oxygen levels to melt metals (Syaripudin 2017). Surah Yā Sīn (36/80) is interpreted similarly to Surah Al-An'ām (6/99), At-Takwīr (81/17−18), and Al-Wāqi'ah (56/71−72), all of which focus on photosynthesis. Al-An'ām (6:99) highlights the "green substance" (chloroplasts), whereas Yā Sīn (36/80), At-Takwīr (81/17−18), and Al-Wāqi'ah (56/71−72) emphasize the continuity of the photosynthetic process.

Figure 9 illustrates how Surah Al-An'ām (6/95) explains plant development from the seed, as per the Scientific Tafsir. Plants' fundamental reproductive units are seeds, which contain embryos and allow for proliferation across regions. Initially quiescent (a state known in science as dormancy), seeds go through a chemically simple phase with little activity (Gustian *et al*. 2024). With water, they germinate and grow into whole plants with roots, stems, leaves, flowers, and fruits capable of self-sustaining by photosynthesis

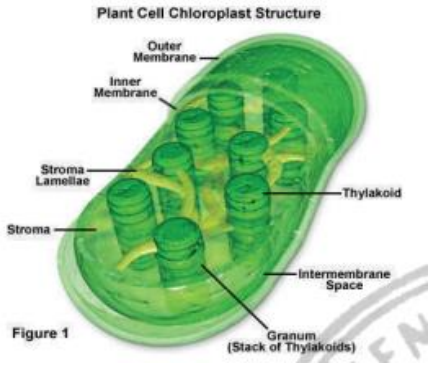

Figure 2 Structure of the chloroplast in the scientific tafsir.

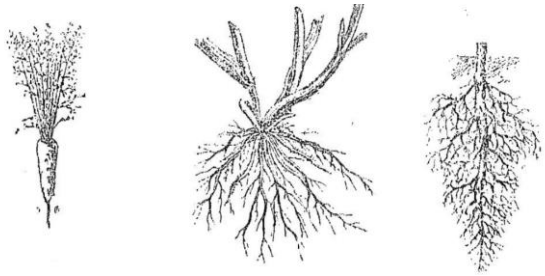

Figure 3 Types of roots (tubers, taproots, fibrous roots) in Tantawi Jawhari's tafsir.

Figure 4 Grape stem in Tantawi Jawhari's tafsir.

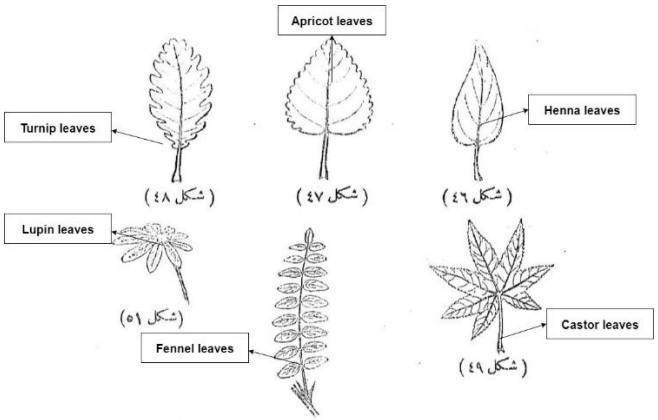

Figure 5 Various types of leaves in Tantawi Jawhari's tafsir.

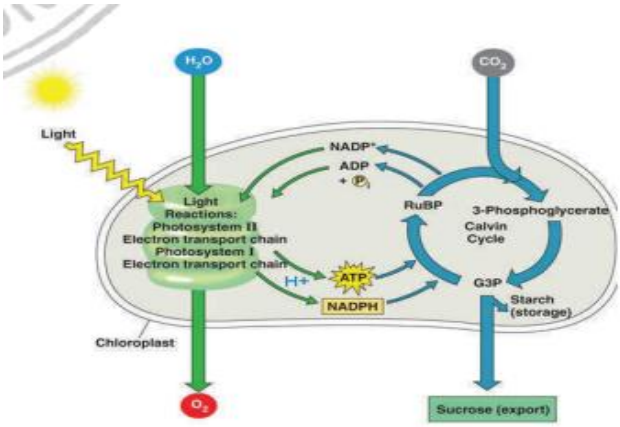

Figure 6 Photosynthesis process in the scientific tafsir.

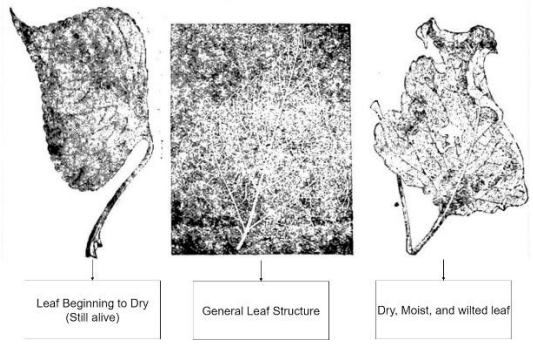

Figure 7 Leaf morphology in different seasons in Tantawi Jawhari's tafsir.

(Stirbet *et al*. 2020). Tantawi Jawhari does not elaborate on plant morphology in this verse.

CONCLUSION

Based on the research and analysis done, the following conclusions can be drawn. (1) The Qur'an includes *āyāt kauniyyah* that describe the anatomy of seed-bearing plants, such as roots, stalks, leaves, flowers, fruits, and seeds. These indicators have detailed meanings for each morphological part. (2) Al-Jawāhir fī Tafsīr Al-Qur'ān Al-Karīm interprets these passages via a spiritual lens, emphasizing divine creation as evidence of God's omnipotence, but also including classical scientific principles. Meanwhile, the Ministry of Religious Affairs' Tafsir Ilmi takes a modern scientific approach, connecting the passages to concepts like photosynthesis and seed growth. (3) The study's principal weakness is a lack of access to current botanical and agronomic literature, which could have improved biological analysis. Nonetheless, this research makes an important contribution to the advancement of scientific understanding, notably in

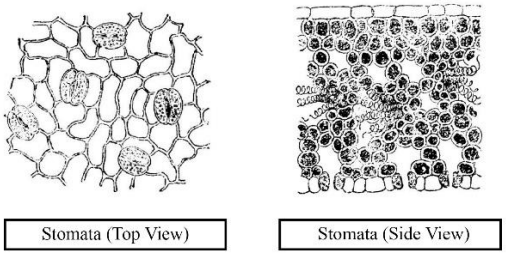

Figure 8 Leaf stomata in Tantawi Jawhari's tafsir.

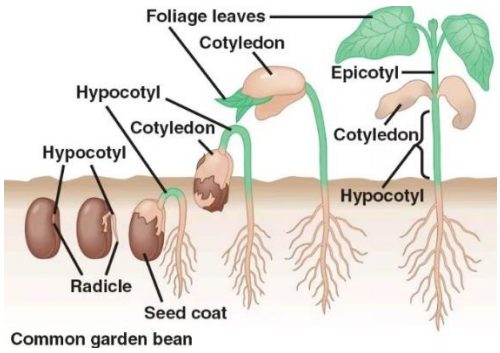

Figure 9 Germination process in the scientific tafsir.

agriculture and plant morphology. The findings are expected to serve as a platform for future research on the intersection of divine revelation and agronomic science, as well as to encourage the merger of Islamic and natural sciences in the development of spiritually and ecologically sound agricultural practices.

REFERENCES

Achmad Y. 2020. Konsep pendidikan karakter indigenous alam perspektif Al-Qur'an. *Jurnal Pendidikan Karakter*. 11(1): 119–142. https://doi.org/10.21831/jpk.v10i1.29002

Darzi G. 2022. The relation between the language of the Qur'an and science. *Journal of Interdisciplinary Quranic Studies.* 1(1): 109–125. https://doi.org/10.37264/jiqs.v1i1.7

Dewangga MW, Nasihun T, Isradji I. 2021. Dampak olahraga berlebihan terhadap kualitas sperma. *Jurnal Penelitian Kesehatan Suara Forikes.* 12(1): 58–61.

Fahimah S, Lestari DA. 2023. Al-Jawāhir fī Tafsīr Al-Qur'ān Al-Karīm karya Tanthawi Jauhari: Kajian tafsir ilmi. *Al Furqan: Jurnal Ilmu Al-Qur'an dan Tafsir*. 6(1): 136–149. https://doi.org/10.58518/alfurqon.v6i1.1779

Gustian M, Wulandari S, Anggraini S, Yustina I. 2024. Teknik perkecambahan terhadap jumlah pertumbuhan benih kopi robusta (*Coffea canephora*). *Jago Tolis: Jurnal Agrokompleks Tolis.* 4(2): 97–103. https://doi.org/10.56630/jago.v4i2.562

Hendriyani IS, Nurchayati Y, Setiari N. 2018. Kandungan klorofil dan karotenoid kacang tunggak (*Vigna unguiculata* (L.) Walp.) pada umur tanaman yang berbeda. *Jurnal Biologi Tropika.* 1(2): 38–39. https://doi.org/10.14710/jbt.1.2.38-43

Jauhari T. 1931. *Al–Jawāhir fī Tafsīr Al–Qur'ān al–Karīm*. Kairo (EG): Musthafā al–Bābī al–Ḥalabī.

Kamaludin A, Saefudin. 2021. Pola implementasi tafsir maqāṣidī. *Mumtaz: Jurnal Studi Al–Qur'an dan Keislaman.* 5(2): 181–200. https://doi.org/10.36671/mumtaz.v5i02.211

Khafagi I, Zakaria A, Dewedar A, El–Zahdany K. 2006. A voyage in the world of plants as mentioned in the holy Qur'an. *International Journal of Botany.* 2(3): 242–251. https://doi.org/10.3923/ijb.2006.242.251

Kori PSD, Suartini NN, Sadyana IW. 2019. Analisis perbandingan lintas budaya pada buku *Nihongo Kirakira 3*. *Jurnal Pendidikan Bahasa Jepang*. 5(3): 425–436. ttps://doi.org/10.23887/jpbj.v5i2.18689

[LPMQ] Lajnah Pentashihan Mushaf Al-Qur'an. 2010. Tumbuhan dalam Perspektif Al–Qur'an dan Sains. Jakarta (ID): Balitbang & Diklat Kemenag RI, LIPI.

Lubis ZH. 2016. Relasi ekonomi dengan hukum dan agama. *Al Ashriyyah.* 2(1): 1–24.

Putriani A, Prayogo H, Wulandari RS. 2019. Karakteristik stomata pada pohon di ruang terbuka hijau Universitas Tanjungpura Kota Pontianak.

Jurnal Hutan Lestari. 7(2): 746–751. https://doi.org/10.26418/jhl.v7i2.33629

Rubini. 2016. Tafsir ilmi. *Jurnal Komunikasi dan Pendidikan Islam.* 5(2): 89–115. https://doi.org/10.36668/jal.v5i2.37

Setyanti YH, Anwar S, Slamet W. 2013. Karakteristik fotosintetik dan serapan fosfor hijauan alfalfa (*Medicago sativa*) pada tinggi pemotongan dan pemupukan nitrogen yang berbeda. *Animal Agriculture Journal.* 2(1): 86–96.

Stirbet A, Lazar D, Guo Y, Govindjee G. 2020. Photosynthesis: basics, history and modelling. *Annals of Botany.* 126(4): 511–537. https://doi.org/10.1093/aob/mcz171

Syaripudin. 2017. Karakteristik hasil pengelasan oxy asetileSn welding (OAW). *Jurnal Konversi Energi dan Manufaktur* 4(1): 20–24. https://doi.org/10.21009/JKEM.4.1.4

Yuliarto U. 2011. *Al–tafsīr al–ʿilmī* antara pengakuan dan penolakan. *Khatulistiwa: Journal of Islamic Studies.* 1(1): 34–43.