

**UNRAVELING HILAL'S CHARACTERISTICS:
(PERCEPTION OF SIMILARITIES THE PHYSICAL MEANING OF HILAL)**

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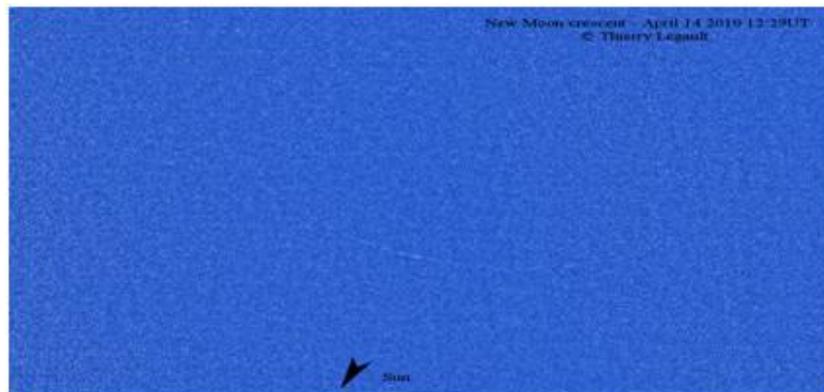
ABSTRACT

This study aims to reveal the real characteristics of the new moon. The study was managed by search on the verses of the Qur'an and the interpretations, al-Hadith and syarah. The opinions of the scholars with a linguistic approach, interpretation, fiqh and astronomy. Scientists attempt to formulate the new moon through rationalization and interpretation of the scriptures to observation and experimentation which ultimately results in two approaches to the new moon, namely theoretical and empirical. The beginning of the Islamic month is determined by the visibility of the new moon. The characteristics are very thin and faint, like threads, white in color. An absolute condition for the occurrence of the hilāl is the occurrence of conjunctions or *ijtima'*.

Keywords: *Unraveling Hilal's Characteristics, Perception of Similarities, Physical Meaning of Hilal.*

INTRODUCTION

Observation of the emergence of a new moon to determine the beginning of the month on the Islamic calendar or the entry of the 1st or new moon occurs when the sun sets earlier than the moon, when the sun sets the moon's position is between the earth and the sun in one astronomical longitude, Muslims call it *ijtima'*. To see it requires expertise and special tools such as binoculars and other tools. So that the success of seeing the beginning of this new moon is the difference in determining the lunar month caused by the new moon (Azhari, 2013). It becomes very important to know the sign of the end of the month in the Islamic calendar to enter the new month. The new moon can be seen at sunset and at that time the moon's position is almost parallel between the sun and the earth, but the moon's position is 2 degrees higher, this position is called the new moon.



Caption: Thierry Legault, Jumadal Ula 1431, Montfaucon, France,
<https://www.astronomycenter.net/record.html#naked>.

The rise of hilal observations by the community is carried out to determine the fall of the month of Ramadan, Shawwal, Dzulhijjah because it is related to the issue of Muslim worship. In the Islamic calendar, the new moon begins with the appearance of the first new moon after conjunction (*ijtima'*) to the west the sun sets. All the dark areas of the moon will face the earth, making the moon's face invisible from the earth. To decide whether the following day marks the beginning of the Islamic new month or

not, the new moon is often seen on the 29th day of the month. There are several phases of the moon, and the new moon is one of them.

Moon-related phenomena that have been observed in no less than the last 26 centuries. The oldest records of observations date back to the Babylonian era, when astronomers relied solely on visual acuity (Sudibyo, 2016). The new moon can be seen with varying heights, starting from 2° above the horizon to even less than 2° above the horizon. Indonesian explorer Muhammad Inwanuddin was able to see the new moon at less than 2°, even though the 2° position is very difficult to observe astronomically (Himayatika, 2019). Understanding of the new moon, techniques for knowing the new moon, and disruption of the Islamic calendar are important factors that contribute to the difference in determining the beginning of the lunar month. These three things are interrelated and cannot be separated. This is where the firmness of *ijtihad*-collective-assertive becomes necessary (Azhari, 2016).

Basically in determining 1 Ramadan and 1 Shawwal every year in Indonesia until now and maybe in the future they will not be united, because the interpretation of the word *hilal* itself to the identification of the beginning of the lunar month there are different techniques used to decide it. The *rukyat* technique, also known as the reckoning method or *imakanul rukyah*, is applied. Seeing the *hilal* or moon in the western sky after sunset before the start of the new moon is called the *rukyatul hilal* method and is used to determine the beginning of the month, although there will always be differences. Especially before the month of Ramadan, Shawwal, and Dzulhijjah (Bashori, 2015).

There are three methods for calculating the new moon: *rukyatul hilal*, reckoning, and *imkanur rukyah*. This diversity may be due to the philosophical differences that underlie how people interpret the writings and how they use the teachings. The Prophet Muhammad SAW only showed us the only true path, namely the path of *rukyatul hilal*. There are those who hold the opinion of the *rukyatul hilal* (that the *hilal* is above the horizon with the provisions of *Imkanu ar-rukyah*) there are also those who hold the opinion of the shape of the *hilal* based on reckoning (that the moon is already above the horizon). The astronomical goal of the reckoning method is to determine the phase of the moon on the 29th day or date of each month (Musonnif, 2011). In line with the opinion of interpreter Tantawi Jauhari who stated that the process of calculating the new moon must use reckoning (calculation), not only using *rukyah* (viewing), this verse 189 emphasizes that a shift has begun in determining the new moon. Relying solely on your natural eye vision isn't going to cut it. Both of these perspectives are used to determine the initial entry of the lunar month (Setyanto, 2008). The three methods used to calculate the new moon in Indonesia are consistent with this. Tantawi Jauhari explained that the *rukyatul hilal* method, reckoning method, and *imkanur rukyah* method were used for its determination. When it turns out that the results of *ijtihad* fall on different days, admit it or not, it will definitely cause problems among the people, especially the general public, who will at least be a little confused, so they have to find a way to ensure that the beginning of Ramadan and the beginning of the month of Shawwal are on the same day every year.

The gap between Eid al-Fitr 1432 and the start of Ramadan 1433 is supported by concrete data. There are also differences in the determination of Eid al-Adha between Saudi Arabia and other Islamic countries, such as the example of Eid al-Adha 1431 H between Indonesia and Saudi Arabia, because the implementation is local. At the beginning of Ramadan 1434/2013, the beginning of Ramadan 1435/2014, and Eid al-Adha 1435/2014, the gap will occur again, at least theoretically (Djamaluddin, 2011). So the study of the *hilal* criteria is interesting because it will be discussed every time the Muslim worship moment enters.

Theoretical and empirical approaches to the new moon have emerged as scientists have attempted to articulate it through reasoning and scriptural interpretation, observation, and experimentation. Nasîr al-Din al-Tûs laid the foundation for the theoretical method during the golden period of Islam (Syarif, 1963), while al-Bîrûnî laid the foundation for an empirical approach (al-Biruni, 2002). Both Bruin and Maunder can be considered the current ancestors of their respective approaches to the field, theoretical by the former and empirical by the latter. The first *hilal* of Ramadan 1416 H (21 January 1991) with a lunar age of 12 hours 07 minutes was seen by Jim Stamm in Tucson, Arizona, United States of America; it is the youngest crescent ever seen with binoculars. Jim Stamm's findings are published in <http://www.icoproject.org>. And also presented at the second Falak Congress in Abu Dhabi (Abu Dhabi: National Center for Documentation & Research, 2010). So far, the constraints of Danjon and Mohammad Ilyas have had a considerable impact on the *hilal* visibility boundary (Ilyas, 1983).

Muhammadiyah in Indonesia uses the theory of wujūd al-hilal to determine the beginning of the lunar month, while Nahdlatul Ulama (NU) uses an empirical method based on sighting of the new moon to determine the beginning of the lunar month through observation. Ghazali Masruri stated that a bright new moon was necessary for NU. In Indonesia, calculating the beginning of the lunar month may be complicated by this difference in methodology (Azhari, 2013).

The central leadership of Muhammadiyah uses a reckoning system based on the premise of the shape of the new moon to determine the first day of each Hijri month. When the sun sets before the moon on the day of *ijtima*/conjunction, this phenomenon is known as the new moon. Although reckoning and rukyat are recognized as equivalent, the practicality and accuracy of the reckoning approach led to their choice. In interpreting the new moon, Muhammadiyah has even used the technique of *ijtima qablal ghurub* (the occurrence of *ijtima*' between the sun and the moon before sunset time) and calculating imkanur rukyat (probability of witnessing the new moon, not just the shape). However, Muhammadiyah returned to the new moon as a calculation tool because the conditions for imkanur rukyat were never set and always ignored. Most of the results of rukyatul hilal bil fi'li or istikmal will still be used, as stated in."

The new moon, after *ijtima*' (conjunction) and just after sunset on the western horizon, is visible to the naked eye when conditions permit (Arabic: imkan ar-ru'yah). One of the ways to determine the first day of the month in the Islamic calendar and the ritual of rukyah is by imkan rukyat. There has never been a single, unchanging norm for the imposition of rukyah among Muslim astronomers in the past, hence the debate around it is always evolving. Faith in the rukyah is defined and formulated differently by each astronomer. Variations in observational contexts and methodologies, followed by variations in the analysis and examination of rukyah faith, explain some of the differences in accepted norms of rukyah beliefs.

Imkan rukyat transfer (naql ar-ru'yah) describes the current phenomenon where imkan rukyat is adopted and practiced on a global scale from a regional main focus. Imkan rukyat transfer refers to the phenomenon where the knowledge that a new moon has been sighted in one part of the world is extended to encompass the entire planet. Similar to the contemporary debate on the global Islamic calendar, which has been actively discussed in Indonesia and the Islamic community around the world, the idea of exporting the common religion is evolving. Although the removal of the rukyah or imkan rukyat is not visible at all in the hilal region, it is still enforced globally within the limits of the Islamic calendar. It is clear that this latter behavior ignores the *zahir* requirements of the hadith sources, making it dangerous and open to controversy.

Research on the criteria for the visibility of the crescent moon is widely carried out among Muslims because the Islamic New Moon requires the appearance of the new moon after sunset in the 29th Hijri month. If the new moon is sighted after sunset on 29 Hijri, the next day will start as a new Hijri month (Faiz, et al, 2022). The scientific research required for visibility calculations requires the collection of moon sighting information on a global scale and its subsequent analysis according to the calculable parameters associated with the crescent affecting visibility (Ilyas, 1919).

Characteristics of The New Moon in Islamic Literature

There are several verses of the Koran that contain the word "hilal", but only QS. al-baqarah/2: 189 which describes in detail the signs of the new moon.

يَسْأَلُونَكَ عَنِ الْأَهِلَّةِ ۖ قُلْ هِيَ مَوَاقِيْتُ لِلنَّاسِ وَالْحَجِّ ۗ وَلَيْسَ الْبِرُّ بِأَنْ تَأْتُوا الْبُيُوتَ مِنْ ظُهُورِهَا
وَلَكِنَّ الْبِرَّ مَنِ اتَّقَىٰ ۗ وَأْتُوا الْبُيُوتَ مِنْ أَبْوَابِهَا

The meaning of the verse is they ask about the crescent moon. Entering the house from behind is not a virtue; rather, that is the virtue of those who are pious. The crescent moon is a time sign for humans and (for the service of) Hajj. And enter the houses through doors or gates.

It was revealed by the companions of the Prophet that many people during Hajj enter their homes through the back door rather than the front door when they enter ihram, that's how this verse appears. In

the commentary book of Sayyid Qutb Fi Zhilal al-Qur'an that the Hilal is a sign for the habits of uneducated people who enter their house through the back door which they are not allowed to pass after worship. Finally, with this new moon, Muslims at that time know exactly when Hajj and Umrah will be performed as determined by Islam itself, enabling those who do not know when war is permitted and when it is not. (Sayyid Qutub, 1998)

Sabab al-Nuzul"hilal" as a determining factor for the time and beginning of the new lunar month of Hijri month is discussed in surah Al-Baqarah verse 189. *يَسْأَلُونَكَ عَنِ الْأَهِلَّةِ* as a benchmark for the times of worship of Muslims around the world. There are several asbabun nuzul al-Baqarah verse 189, First, the companions of ibn Abbas Mu'ad bin Jabal and Tsa'labah bin Ghamaimah once asked the Prophet: "Why does the new moon look small like a thread, then it becomes bigger so it is round (like a full moon), then gets smaller and smaller and shrinks back to its original state?" It's not like the sun in any way. History explains how this passage was revealed in response to a Jew's question about the new moon. (Al-Zuhayli, tt)

Second, another tradition claims that Ibn Abu Khatim picked up the habit of observing the month of Ibn Abbas simply by observing how it was done. Once upon a time, Muslims consulted the Prophet regarding the new moon (Al-Suyuthi, 2002). Then this verse was revealed to explain the questions Muslims have about the importance of the new moon and its knowledge. Ibn Abu Hatim also reports that Abu Aaliyah claimed that he had met the Muslims, and that they told the Prophet, "O Messenger of Allah, the new moon has not yet occurred," which also contributed to the revelation of this verse.

Third, Mu'ad bin Jabal was narrated to have stated, "O Messenger of Allah, in fact the Jews regularly associate with us, and they often ask us about the crescent moon (hilal): why does the new moon appear (at first) small, then it becomes smaller? big, so perfect and round?" The moon then begins to gradually return to its previous size. Furthermore, Allah explains this verse (al-Qurtubi, 1993). Or, this verse was revealed because a group of Muslims asked Rasulullah why the crescent moon is muhaq (perfect) and how it differs from the sun. This opinion was expressed by ibn Abbas, Qatadah, and Ar-Rubai.

According to the fourth theory, the verse was revealed when Muslims asked the Messenger of Allah questions about halal. Therefore, Allah sent down this verse to explain that the new moon is really used as an indicator of Allah's power to serve the benefit of mankind in determining the times of prayer, fasting and pilgrimage, or as a pillar of Islam itself. In Muntakhab's commentary it is explained that this is due to the fact that the orbit of the sun is fixed and does not change, but the movement of the moon is very different. Even though the Moon's orbit is always shifting, it will start to look like threads and grow in size until it forms a beautiful crescent. As usual, the moon will begin to contract and thin after reaching its peak.

The next step is the description in the hadith. Here are some hadiths that explain the new moon as time:

لا تصوموا حتى تروا, ولا تفطروا حتى تروه, فإن غمى عليكم فاقدروا له. وفي رواية فاقدروا له ثلاثين

According to the hadith, the history of Muslim hadith above states that if the moon is cloudy, keep fasting until you reach the age of thirty. If you missed the new moon, wait to break your fast until you see it again.

The new moon is used in the Qur'an to calculate the time of year and Hajj. According to a hadith attributed to the Prophet, Ramadan should begin and end with the appearance of a new moon. That first glimmer of moonlight, signaling the start of a new lunar month, as shown here, is crucial for accurate lunar calendar calculations.

The word "hilal" and its meaning are widely discussed by Ibn Manzur in Lisan al-'Arab. On the first and second day of the lunar month, or on the last two nights of the lunar month, the crescent moon is what he meant when he said "hilal." Abi Haitham is the source of this view (Ibn Manzur, tt). In addition, al-Qâmûs al-Muhit explained that the new moon is meant by the word "hilal" (2-3 nights from the beginning of the month and 7-2 nights from the end of the month). Upon hearing this, Kamus Al-Munawwir adopted it as their own. However, many nuances of the word "hilal" are covered in al-

Munawir's Dictionary. There are twelve interpretations of the new moon in his opinion. Consider the following interpretations (Warson, tt):

- (1) crescent moon,
- (2) stamp, solar on camels,
- (3) the visible moon at the beginning of the month,
- (4) the lean camel,
- (5) rainfall,
- (6) snake skin cladding,
- (7) the beginning of the rain,
- (8) dust,
- (9) a little water,
- (10) male snake,
- (11) white color at the base of the nails, and
- (12) nice young man.

According to the Arabic-English Dictionary by Hans Wehr, the word "hilal" can refer to the new moon (new moons) or crescent moon in its plural form, ahillah or ahâilil (crescent moon) (Echols, et al, 1986). This meaning is also developed in English-language publications, including by Muhammad Baqir Behbudi, Collin Turner, and A. Yusuf Ali, who wrote *The Holy Qur'an Text, Translation, and Commentary* (Behbudi, 1997) and A. Yusuf Ali in his work *The Holy Qur'an Text, Translation and Commentary* (Ali, 1403 H).

The definition of the word and the meaning of "hilal" are both explained in *The Encyclopaedia of Islam* by Orientalists B. Lewis, VL Menage, Ch. Pellat, and J. Schacht as a new moon or crescent. Al-Ahillah's book: *Nazrah Shumûliyah wa Dirasah Falakiyyah* by 'Adnan 'Abd al-Mun'im Qadi is another one that is arguably the most thorough in defining the term hilal. This book examines the significance of the hilal in determining the initial hilal from a sharia perspective (Adnan, 2005).

During the reign of Fatimiyyah, after the determination of the city of Cairo was completed in 359/969, General Jauhar determined the beginning of the astrological month for the new moon. Sunni Muslims, on the other hand, strictly forbid this technique, seeing it as a form of heresy and a source of confusion. Calculating the new moon from a physical perspective was more difficult than it seems, just as it is today, because the Fatimiyyah had to take into account not only the ecliptic but also the relativity of the horizon in their calculations (Glasse, tt). It seems that conjunction, or *ijtima'*, which occurs when the moon and sun are on the same longitude, is the definitive definition of a new moon. In the language of astronomy, this is called the "new moon". There is no denying that the astronomical event known as "ijtima" marks the end of one lunar month and the beginning of the next. As a result, astronomers usually begin their calculations for a new moon with *ijtima'*, or conjunction, or new moon (Azhari, 2008)

The entire dark side of the moon will face Earth when the moon is in relation to the sun (*ijtima'*), thus making the moon's face invisible from Earth. In other words, the Moon will be in relation to the Sun as seen from Earth if and only if the difference between the latitudes (elongations) of the Moon and the Sun is zero. The location of the new moon is not always in a straight line from the earth to the sun because the moon's orbit does not match the plane of the ecliptic. A solar eclipse occurs when the new moon aligns with the ecliptic, the imaginary line that passes through the Earth and the Sun. Due to the invisibility of their faces, astronomers call *ijtima'* or conjunction the "new moon" or "dead moon". That is, lunar conjunction occurs on a new moon night. Basically, both the astronomical hill and its visibility are the result of collaborative excavations between *hisab* and *ru'yat* methodologies to arrive at an anthropological interpretation of the *fiqh* arguments used. As long as both sides were prepared to compromise, it would be a bit difficult to unite from an astronomical perspective.

Since the Babylonian period, the advent of the Prophet has been used to coincide with the new moon to mark the beginning of each new month. The young crescent, often known as the "child of the moon", is still seen as a more important indicator than the conjunction itself, even in modern times. Therefore, new moon and new month must be distinguished from each other. Known as the "child of the moon", is still seen as a more important indicator than the conjunction itself, even in modern times. Therefore, new moon and new month must be distinguished from each other. Therefore, the new moon and new month must be distinguished from each other (Putri, 2012). The Moon takes exactly 29 days, 12 hours, 44 minutes and 2.8 seconds to complete its full orbit around the Earth and the Sun. This phase

is called conjunction. One of them is a month. In astronomy, the new moon (hilal) occurs when the moon is on the same longitude as the sun and the earth. Immediately after conjunction, the Moon enters a phase in which only a small portion of its disk is visible. The arrival of the new moon is signaled by a small portion of the moon being visible in the sky (Musa, 2012).

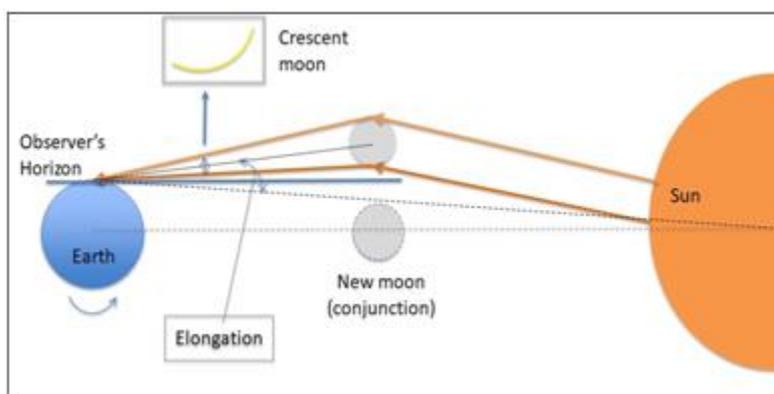
According to astronomers, the Moon is always in orbit around the Earth, and its precise location can be determined (though it may not always be visible) by observation or calculation. It is therefore rare in astronomy to discuss objects that have sunk below the horizon. In astronomy, the new moon is not a matter of existence (because of the measured or calculated position of the moon), but of visibility (which varies according to the point of view of the observer). The new moon is the physical manifestation of an idea. The moon may look like a new moon from one perspective and like a full moon from another. An important position in astronomy, as well as appearance. In astronomy, reckoning (computing) and ru'yat (observation) are treated as equal tools and support each other. Simply put, the new moon does not exist as a phenomenon (Djamaluddin, 2017).

The condition of the new moon visibility is very important in determining whether the new moon is actually observed or not. Perhaps because it is still relatively unpopular, the hilal visibility criteria are not often applied in reality. The height of the moon above the horizon is the most common and generally accepted criterion for the appearance of the hilal. Information from the Ministry of Religion of the Republic of Indonesia in charge of calculating and sighting shows that the 2-degree crescent is indeed ru'yat. Using accurate data about the location of the new moon obtained from the latest astronomical almanac can help simplify the problem (the result of refinement of the astronomical almanac throughout the history of its development). By calculating the time when a solar eclipse occurs, which is basically an ijtim' observed in reverse, the accuracy of the astronomical almanac in determining ijtim' (astronomical new moon) has been tested (observable new moon). If the location of the hill is known, then at least it won't be mistaken for something else. It is usually impossible to see the hill before the time calculated by reckoning. Weather and other air obstructions can prevent sighting of the new moon, so the time for viewing the hill may be a day later than the time given by reckoning (Djamaluddin, 2005).

By using the ru'yat al-hilal data in Indonesia (1962-1997) documented by the Ministry of Religion of the Republic of Indonesia and the results of astronomical studies conducted by the National Institute of Aeronautics and Space (LAPAN), two existing criterion "hilal" were found, with the formula simplified in accordance with the practice of reckoning-ru'yat in Indonesia. When these conditions are met, we know it is the first month. The conditions for reckoning in Indonesia are as follows, one of which is ignored because it is not listed in the date: First, the hilal must be at least 8 hours old, second, the angle between the moon and the sun must be greater than zero so that the moon is at the lowest possible altitude. Minimum height of 2.3 degrees if the moon is over 6 degrees. However, the minimum altitude is 8.3 degrees if it is directly over the sun (Djamaluddin, 2000).

CONCLUSION

From various theoretical and empirical definitions of the new moon put forward by jurists, the new moon is the first sighting of the crescent after ijtima', which occurs at the beginning of each new month on the first night. Examining the Qur'an, Sunnah, and language brings one common conclusion: the new moon (crescent) must have a visible light from the earth at the beginning of the month, not just a thought or suspicion of its existence. This shows that the appearance of the new moon marks the beginning of the Islamic month. It was threadlike, extremely fine and translucent, and the color was pure white. The phenomenon of conjunction or ijtima' is the moon and sun are at nearly identical longitudes in the west after sunset.



Captions: Global view of the geometrical variables of the sun and moon after hours of conjunction; The elongation is the angle between the centers of the sun and the moon when viewed from the earth and reflected light from the moon after a few hours of conjunction is called the crescent (Ahmad, 2020).

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