



Research Paper

Al-Kindi from Perspective of Positive Sciences

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ABSTRACT: In this paper, the studies of the first Islamic philosopher, Kindi, in the positive sciences will be discussed. Al-Kindi is a philosopher who has trained himself in the fields of positive sciences such as mathematics, physics, pharmacology, medicine, astronomy, metallurgy, and chemistry and has undertaken studies in these disciplines. In this sense, he was the first to write a treatise on the effects of drugs. In addition, his work, which he wrote with reference to "Euclidean optics" on the subject of seeing, was very effective in recognizing Euclid. He has researched the blueness of the sky and written a work on this subject. He also studies iron types and sword-making. Moreover, he produced an independent work in the field of music.

KEYWORDS: al-Kindi, Positive Sciences, Euclidean Optics, Music, Sword-making.

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I. INTRODUCTION

Abu Yusuf Ibn Ishaq al-Kindi, the first founder of the Peripatetic school and the first philosopher in Islamic civilization, lived in B.C. He lived in the southern Arabian region, which may be traced back to 66 BC. It is believed that he was born in 801 in the city of Kufa as a member of the Kinda tribe. Ishak Ibnu's-Sabbah (d. 808) was the governor of Kufa during the reigns of the Abbasid caliphs Mahdi (775/785), Hâdi (785/786), and Harun Rashid (786/809). His forefathers were the kings of the Kinda region of Southern Arabia prior to Islam, and his grandfather Ibn Qays came to Medina with a delegation in the tenth year of the Hijra and became Muslims, according to historical accounts (Ibn Nedim, 2017, p. 652).

In his work al-Fihrist, Ibn Nedim depicts al-Kindi as a prominent scholar of his time and the "Arab philosopher" who mastered all old knowledge such as logic, philosophy, mathematics, arithmetic, music, and the science of the stars better than anyone else of his time (Ibn Nedim, 2017, p. 652-653).

When considered in terms of articles, master's degrees, doctorates, and books in our country, the studies on Kindi are quite few compared to other philosophers; the value of Kindi in terms of Islamic philosophy is not fully understood; the treatises he wrote were published late, and especially they were translated into Turkish late. Another disadvantage is that the few old articles about him produced in our country do not fully reveal his beliefs. In his famous work al-Fihrist (1997, pp. 652-668), Ibn Nedim did not include any information concerning his translation. Instead, he devoted a lot of space to Farabi and listed his works one by one. However, information about Kindi's translation of Ptolemy's work titled Geography from Greek is provided in the Introduction part of several ancient sources, such as Said el-Work Andalusî's titled Tabakâü'l-Ümem (al-Andulisi (2014), p. 20). For example, Cavit Sunar, one of the first academics in our country to write an article about Kindi, stated that he knew Greek with the sentence, "Since he knew Greek, he was the first to translate and annotate the works of Aristotle and became the leader of those who followed him in philosophy" (Sunar, 1969, p. 29). Ülken further claims that Kindi has many volumes in translation and commentary. (Ülken, 1995, p. 172). Similarly, Kindi from Izmir was described as "a person who gathered all the sciences in himself." With the line "The number of works he translated and wrote surpassed two hundred and seventy," he indicated that he was a translator (Izmirlî, 1997, p. 69). According to Abdurrahman Bedevi, Kindi was not a translator and did not know any languages other than Arabic (Bayrakdar (1997), p. 160). According to today's Kindi studies, he is not a translator but rather the first person to assess the suitability of translations performed during his time in terms of Arabic language and grammar and to impart the philosophy to those who were interested (Franke 2011, pp. 209–210). Gutas explains the incident as follows:

"As the translation movement continued, no one became more important as the patron of philosophy and all other sciences than the Arab Muslim nobleman al-Kindi (d. c. 256/870). Much has been written about

Kindi, but in the context of our topic, what we need to say first is that he had translations made on scientific subjects and that he also wrote independent books on these subjects." (Gutas, 2001, p. 131).

Kindi's removal from the palace during the reign of Caliph Mutawakkil (847-861) in response to charges that he was a Mu'tazili sparked debate about whether he was a Mutazili theologian or the first philosopher of Islamic philosophy (Ívry, 1974; Sunar, 1969, p. 29–49). What role does he play in the Islamic world? This is clearly related to not being able to properly decide what should happen. The fact that the first studies were undertaken, particularly in the Western world, as well as our country's negative attitudes against philosophy, influenced the correctness and trustworthiness of the research conducted on Kindi's assertion that he was a Christian (Muir, 1911).

Understanding Kindi correctly entails understanding Islamic philosophy accurately as well. Because, when Kindi, who is often regarded as the first philosopher in the Islamic world, is analyzed in terms of the sources he employed, it is conceivable to assert that he gave the first formation of philosophy in the Islamic world, distinguishing philosophy from Kalam. More importantly, there is a link between his way of dealing with themes and the subjects of today's Islamic Philosophy.

Butterworth's criticism (2015, p. 294–300) of Kindi's pamphlet, "Ways to Get Rid of Sorrow," claims that he stated the subject too simply, considering that, in addition to being the first philosopher, he authored works according to the philosophical level of the people of the age he lived in. I believe it is vital to respond by emphasizing that it should not be disregarded. At the end of his dissertation "On the Proximate Causes of Creation and Decay," for example, he writes: "All of what we have stated is known to those who are knowledgeable of the science of astronomy and physical entities." However, individuals who are not at that level do not comprehend these concepts." (1994, p. 111) describes the problem. In his works, he also employs the phrase "This is enough for the issue you are asking" (Kindi, 1994, p. 76, 130). "This is enough (for you) on the problem we promise to explain in this book," for example (Kindi, 1994, p. 82). "We will not explore the complex points that demand extensive elaboration because we are concerned about misinterpretations by people who are far from the truth, notwithstanding their reputation as philosophers of our time." "We had to shorten it." As expressed in Kindi (1994, p. 4), the fact that Kindi had to examine both the structure of society, the educational position of the interlocutor, and the negatives in the scientific environment might be interpreted as a sign of the discomfort of being the first.

Concerning the criticism that the understanding of metaphysics is based solely on the understanding of Tawhid, it is worth noting that we only have a portion of his work called *On First Philosophy*; the other portion or portions do not yet exist, and it would be unfair to criticize without knowing what he is talking about in these portions. However, based on the works we have available, we may conclude that this claim is correct (Kindi, 1994, pp. 21–56; Sulul, 2003, pp. 39–72; Gorkas, 2021, pp. 41-62). Adamson (2008, p. 39) has the same cause. It would be unfair to blame Kindi for not comprehending Ibn Sina's metaphysics before reading Farabi's commentary. Because there is no clear evidence that Ibn Sina read Kindi's book.

On the other hand, when we consider the books he wrote and the studies he did in the positive sciences, we can see that Kindi had a scientific side that was ahead of his time. This article will concentrate on the firsts that Kindi proposed in terms of both characteristics.

Furthermore, the difficulties described above may be issues that everyone is aware of nowadays. It should be noted, however, that Kindi was the first philosopher to discuss these concerns and the first to be referenced in the literature. While it is tough to be the first, the first narrative also risks remaining simplistic in terms of explaining and expanding on the subject in later times. Those who are uninformed of the threat underestimate Kindi's leadership. This risk is always present in Kindi readings. Therefore, in reading Kindi, we must accurately calculate the scientific level and philosophical dimension of the period in which he lived. Kindi's leadership and significance can only be exposed in this scenario.

II. KINDI IN TERMS OF POSITIVE SCIENCES

Muslim philosophers, in general, are not purely philosophical scientists. Perhaps it does not appear possible to discuss scientific specialization within the time in which they lived. Because as different biographical books and their writings and works that have survived to this day demonstrate, Muslim philosophers are scientists who generate works in many disciplines of science.

Muslim philosophers, on the other hand, did not choose to teach philosophy for a fee. However, they had to find a way to survive. In this regard, to meet their daily necessities, they also worked as doctors and pharmacists, which the public demanded and required a price to be paid for treatment (Nasr, 2006, p. 154). Kindi was the first philosopher to act within the framework of this idea. In this regard, Kindi is not only a philosopher who wrote works in the field of philosophy, but he also wrote works in other branches of science, though their numbers differ. For example, using Ibn Nedim as a criterion, among his works are 22 treatises in the field of medicine, 19 treatises in the field of astronomy, 7 treatises in the field of music, and 11 treatises in

the field of mathematics. There is information on 23 treatises in geometry, 14 treatises in meteorology, 12 treatises in politics, and 5 treatises in psychology that have survived to this day (Ibn Nedim, 2017, p. 652-668).

He was the first scientist to recognize the association between the severity of the condition and the dosage of the treatment, as well as the first to demonstrate that the drug's side effects would be decreased in this manner (Phinio, 2002, pp. 17–20).

Kindi is one of the scientists who authored a book on the relationship between astronomy, astrology, and medicine (Nasr, 2006, p. 176). We also know that he has written about vision and optics (Koçin, 1990, p. 58). In this way, Kindi's work on optics, which he published at a relatively early time using Euclid as a source, was translated into Latin under the term "De Aspectus" and therefore contributed to Euclid's optics being recognized in the West. He wrote a paper on why the sky seems blue due to light refraction (Nasr, 2006, p. 140).

Kindi published "Risale fi envâ el-cevahir es-semine ve bilghâ" (Risale on Precious Stones and Other Stones) and "Risale fi envâ el-Hijara" (Treatise on Various Stones) about mineralogy, which was previously a branch of geology but eventually became a branch of study in its own right. He is the author of two works (Ibn Nedim, 2017, p. 666). Kindi, on the other hand, makes no mention of classification.

Risale fi envâ es-suyuf el-Hadid (Ibn Nedim, 2017, p. 666), a book about metallurgy and sword making that he wrote and had translated into English by Robert G. Hoyland and Brian Gilmour and published by Oxford Publications On Swords and Their Kinds (Treatise on Steel Sword Types) is the first work of its kind written in Arabic (Nasr, 2006, p. 53). Kindi gives information about the iron mine, sword types, and the names and qualities of swords used in his time in this work, which he stated he wrote at the request of the Abbasid caliph Mutasim Billah (Yılmaz 2019, pp. 553-558). He also wrote "Risale fima Yutrah ala el-Hadid ve's-Suyuf fela Tetesellem vela Tekille" (The Treatise on Those Who Prevent Iron and Swords from Breaking and Dulling When Thrown on Them) (Ibn Nedim, 2017, p. 666). This treatise, like many of his other works, has yet to be discovered.

Kindi is the first person in Islamic history to express the connection between music and notes. Again, he may have expressed guiding ideas about the impact of music, particularly on Ihvan-i Safa. Kindi claims that music has an effect on human psychology in various tonal modes. At the same time, he should be regarded as the Brotherhood's pioneer in claiming that music has a positive effect on various diseases (Çetinkaya, 1995, p. 67).

He revealed the understanding that there are seven types of musical sounds and that these represent the seven planets, in addition to comparing the strings of instruments used in music to the four natures of the universe. Furthermore, he classified music into twelve steps (Çetinkaya, 1995, p. 64). At the same time, Kindi developed the Islamic world's first alphabetic musical notation scale (Çetinkaya, 1995, p. 65). Among the seven treatises that Kindi wrote on music, Risale fi Hubr Ta'lif el-Elhan is the one in which he tried to reveal the relationship between the Arabic alphabet and the seven notes for the first time. Three of his works have survived: Risale fi Ecza' Habariyye el-Mûsîka, which is his treatise on the musical differences between non-Arabs and Arabs, and Risale fi'l-Luhân (Ibn Nedim, 2017, p. 656).

Kindi employs Aristotle's atomicity by stating that matter is not composed of indivisible small atoms and that moment and time can be divided. Kindi, on the other hand, claims that not every branch of science can be studied in the same way. For example, he claims that most researchers in the field of metaphysics have misapplied the method and confused abstract concepts with concrete concepts obtained through sense organs. Similarly, those conducting research in the field of physics, i.e., the natural sciences, will make method errors and will be unable to reach the correct result. because everything natural is made of material. As a result, using the mathematical method in the material field does not lead to the correct result. He expresses the issues that scientists should consider in order to avoid making such a mistake: "Those who conduct research in any branch of science must first investigate the causes of the things that fall within that field of science" (Kindi, 1994, p. 10). Furthermore, Kindi believes that when conducting mathematical research, the proof method must be used. He claims that success will be achieved when the sense and analogy methods in metaphysics and the comparison method in natural science are used (Kindi, 1994, p. 11).

Kindi's method is also unique in that he claims that not all rational knowledge can be proven. Because the proof must also come to an end at some point so that it does not continue indefinitely and does not cause any overlap (Kindi, 1994, p. 11), Kindi explains the situation.

"However, proof should not be required for every perceived piece of information, because not every rational piece of knowledge has proof. Although some things can be proven, it is not possible to prove everything. Because if every proof had a proof, the proof process would have to go on forever. In that case, nothing would have to exist. For that which is not encompassed by the knowledge of its principles is unknown. Of course, the unknown has no knowledge. Let's say we want to describe a human being as follows: "The speaker is a mortal creature." He explained: "If we do not know the concepts of speaker, living, and mortal, we cannot define them." (Kindi, 1994, p. 11).

Kindi methodically reveals God's existence, also known as "the method of reduction to the impossible" or "hulfi qiyas (the method of reducing the possibility or reaching the non-existent)" in the science of logic, which means refuting all possibilities, from the most absurd to the most logical, while proving the wrongness of any proposition. He used this method to attempt to prove the existence of God. Kindi, for example, focuses on four possibilities when discussing the proposition, "A thing cannot be its own cause." These are "being is that which is not." "There is no being; that which is is." "There is no being, and that which is is not." "There is no being, and that which is is not," and "Being is, and that which is is." Kindi comes to his conclusion by considering each of these four possibilities in turn. As a result, if we accept the first proposition as true, neither existence nor existence exist. As a result, we cannot discuss either the cause or the reason. Because both the concepts of cause and reason cannot exist independently, Because there is no absolute reason, nothing can be the cause of its own existence. So, it is obvious that a claim like "The reason for a thing's existence is itself" is impossible. Because it is impossible for something to be the cause of its own existence if there is no existence and nothing exists (Kindi, 1994, p. 21). If we accept the second proposition as true, we can conclude that when there is nothing, there is neither cause nor effect. It would be impossible for something to be the reason for its own existence in this case. The same is true for the third proposition. Because "There is no being, what exists is" contains a contradiction in the sense of "It is that, it is not that." As a result, the proposition "Existence exists; that which exists does not exist" is illogical. "Being is, and what is also is," says the fourth proposition. Although it appears to be a positive proposition at first glance, when considered in terms of "Existence is the cause of its own existence," something becomes the cause that creates its own existence. As a result, the entity is the cause of its own existence. However, cause and effect are not the same thing. As a result, a possible being cannot be both its cause and its effect. This characteristic can only be found in ancient beings. He also happens to be God. When considered in terms of possible entities, the proposition "Existence exists, existence exists, and existence is the cause of its own existence" is logically impossible (Kindi, 1994, pp. 21–22).

Kindi, on the other hand, wrote his works with the scientific level of his addressee in mind, as evidenced by statements he made sometimes in the introduction and sometimes at the end of the treatises he wrote. In his treatise "On Infinity," for example, he wrote, "I understood the question you asked about what infinity is, what type it can be attributed to, and what is impossible to infinity; I wrote enough for you while keeping your mental state in mind." It is critical that he begin with the expressions (Kindi, 1994, 83), as this demonstrates that he has written a work appropriate for his interlocutor's level. Similarly, at the conclusion of his treatise *On the Finitude of the World*,

"This is enough (for you) regarding the issue we promised to explain in our book. I wanted this book, along with my previous writings, to be sufficient on its own. However, in our other books, we have made many comparisons on this subject and presented accurate evidence based on physics. In this book, we wanted to lighten your burden by using the mathematical method, which is in a middle ground between sciences based on experiment (al-hiss) and reason." (Kindi, 1994, p. 82)

As can be understood from his expression, it is understood that he explains the subject according to the scientific level of his interlocutor. Kindi stated at the end of his treatise titled "About Sleep and the Nature of Dreams": "This is enough for those who think at your level on the issues you ask about." (Kindi, 1994, p. 148). This sentence is very important in terms of taking into account the scientific level of the addressee.

Kindi developed his own scientific interpretation of citation. He stated the views he received from other philosophers in his works by mentioning the philosopher's name. To give a few examples, in his treatise *On the Self*, Plato said, "As for Plato, he also said in this sense..." (Kindi, 1994, p. 134; Erdoğan, 2018, p. 238-240). "I swear on my life, Plato. He explained it very concisely and gathered many meanings in this short statement." (Kindi, 1994, p. 135). He referred to Aristotle, whom he quoted as follows.

As a result of his works, it is clear that Kindi led a very productive scientific life in terms of positive sciences during his lifetime. Although there are occasional criticisms that Kindi's works are simple or difficult to understand today, it would be a fair approach to evaluate Kindi based on the age he lived in and the thought levels of the people living at the time, as is the case with any scientist.

III. CONCLUSION

Al-Kindi, a Kinde tribe member, was born in 800 or 801 and died in 876. Because of the philosophical views he advanced, he was the first philosopher to receive this title. Many topics in Islamic philosophy were first expressed by Al-Kindi, the first Muslim philosopher. In this context, he established the framework of Islamic philosophy, pioneered the distinction between philosophy and Kalam, and helped to transform Arabic into a scientific language. Through his writings and students, he attempted to enlighten the path of subsequent philosophers by igniting the first spark of philosophy in Islam. He was not only a scholar of Islamic philosophy, but he also made significant contributions to the positive sciences.

From the standpoint of the positive sciences, Kindi is the first scientist to recognize the relationship between the severity of the disease and the dose of the drug and to demonstrate that, by doing so, the side effects

of the drug will be reduced. He also worked on various vision and optics projects. He was also the first person in Islam to express the connection between music and notes. He stated that music influences human psychology in the various modes formed by different tones, demonstrated that music also has a positive effect on various diseases, and is regarded as a precursor to İhvan-i Safa's ideas on music. He also wrote metallurgy and sword-making books. Similarly, the work he wrote on Ptolemy's optics was translated into Latin as "De Aspectus," which helped to establish Ptolemy's optics in the West.

Al-Kindi approached the theory of physical and philosophical dependence expressed relatively within his own understanding and was the first to express that physical object, on the one hand, and physical phenomena and measurements such as time, space, and motion, on the other hand, have a relationship and dependence both in relation to the observer and to each other.

Because of his philosophical works, Al-Kindi was the first Islamic philosopher to define philosophy. He combined these definitions from the past within his own culture, effectively gifting them to Islamic philosophy. In Islamic philosophy, on the other hand, he wrote the first philosophical dictionary, "Risale fi hududi'l-eşya ve rusumiha" (Treatise on Definitions), consisting of one hundred words, and took the lead among other Islamic philosophers in this field.

According to Al-Kindi, each science has its own research method, and if the correct method is not used in a science, the correct result cannot be obtained. He stated that proper procedures can be followed by employing the distinct methods of each science.

As a result, when evaluating Kindi, the most important factor to consider is that he lived in the 9th century.

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