

The Question of Method in Medicine of Abu Bakr Al-Razi

سؤال المنهج في الطب عند أبي بكر الرازي

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الملخص:

سنحاول في مداخلتنا هذه الوقوف على المنهج الذي سلكه الرازي وهو يمارس مهنة الطب، وسنبين آراءه العلمية والفلسفية، ومدى مساهمتها في الفكر العلمي الإسلامي الطبي ونحت صورته. هل كان للرازي قصب السبق في وضع المنهج التجريبي في علم الطب؟ ثم هل يرجع له الفضل في تأكيده وتوضيح معالمة الشيء الذي مكنه من علاج كثير من الأمراض المستعصية، وبذلك تفوق على عدد كبير من أطباء عصره، وأصبحت بالتالي دراساته الطبية سندا للطب المعاصر. الكلمات المفتاحية: الطب؛ الفلسفة؛ العلم؛ المنهج؛ العلة.

Abstract:

In this intervention, we will attempt to identify the method followed by Al-Razi as he practiced the profession of medicine, and we will clarify his scientific and philosophical views, and the extent of their contribution to Islamic medical scientific thought, thereby shaping his image. Did Al-Razi take the lead in establishing the experimental method in the science of medicine? Then, does the credit go to him for affirming and clarifying its features? This enabled him to treat many intractable diseases, and thus he surpassed a large number of physicians of his era, making his medical studies a foundation for contemporary medicine.

Keywords: Medicine; Philosophy; Science; Method; Cause.

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Introduction:

Many Western thinkers tried to prove the incompetence of the Arab Islamic mind to establish a specific methodology either to philosophy or to science, they asserted that what Islamic scholars have reached is a replica of the Greek heritage, and this is what was enshrined in European centrism. But in fact, when we examine human civilization we find that it is a group of joint shared between nations.

This contribution is to reveal the genius of Al-Razi and the extent of his contribution to the development of medicine, especially in the methodological aspects and the command that prompted Ibn Abi Usaybi'a to call him Galen of the Arabs. There is an old saying indicating this position: "Medicine was non-existent, so Galen revived it, and it was scattered so Al-Razi gathered it, and it was deficient so Ibn Sina completed it". (Khaled Harbi, 2008, p. 23).

In the seventeenth century AD, Al-Razi was preparing a medical argument in Europe. He visited many countries seeking knowledge, and after he was able to require Greek and Indian medical sciences, he was in touch with those of his contemporary Arab doctors and made his voice heard. Then he settled in Baghdad and had a great affair among the kings until the Caliph Al-Mansur approached him. And he became known in all countries and was adept at finding solutions to many difficult cases. Al-Qifti spoke of him, saying: "The one of his ages and the unique of his era had gathered knowledge of the sciences of the ancients, especially medicine, he travelled countries and was friends with Mansour Ibn Ismail" (Al-Qifti, p. 170).

Al-Razi was able to master medicine alongside his studies of philosophy, as it is not possible to underestimate the importance of philosophy in the medical field, as it helped to discover many complicated medical cases. Philosophical thinking has contributed to the criticism of many medical theories, and Al-Razi's ingenuity may be demonstrated in spiritual medicine and psychiatry. If we speak about medicine and philosophy, we must mention Galen's theory of the Four Humours, as it did not deviate from the philosophical trait. The doctor does not limit himself to using induction, but often uses the logical deductive approach in diagnosis and treatment. "The evidence for the intervention of philosophy in the medical approach is the medical research starts with observations and experiments, then tries to formulate an assumption" (Ahmed Mahmoud Sebihi & Mahmoud Fahmi Zidane, 1993, p. 4). Al-Razi was careful to consider matters of medicine and he treated his patients well, and he had a great ability to uncover the secrets of many disease cases, and in this Ibn

Abi Usaybi'a says: "Al-Razi was clever, shrewd, compassionate to the sick, diligent in treating them and their recovery in every possible way, persevering in looking into the mysteries of the medical industry and revealing its facts and secrets" (Ibn Abi Usaybi'a, p. 370).

Al-Razi lived in the third Hijri Century and the Muslim Arabs in the century were living the beginning of the Scientific Renaissance. "Civilization in Iraq during the Abbasid days was more complete than it was in Damascus during the Umayyad days and there were more funds. Thus, the industries were more complete and knowledge was more abundant" (Ahmad Amine, 2008, p. 27). Al-Razi was among the scholars who lived in the century, he excelled in the field of medicine and practiced a scientific approach that dazzled those who lived through it and who came after. The question that might arise was whether the approach that Al-Razi followed in his medical research was consistent with his experimental approach? Was he in agreement with contemporary scholars of the approach?

Before we address the scientific approach that al-Razi practiced in his medical research, we must define the term method. The role of philosophy is to define concepts and create them, and this, in the words of Gilles Deleuze's generation, is a translation of the word *Méthode* "which is the art of arranging ideas in order to reach the discovery of the truth" (Armand Cuvillier, 1956, pp. 116- 117). Method in Arabic means the clear path. It was mentioned in the Noble Qur'an in the Almighty-' saying: "To each of you we prescribed a law and a method". (Surat Al-Ma'idah, verse 48). The word *Manhadj* in Arabic is taken from the verb *nahjha*, they say *nahjha nahja* (someone), i.e. he took his course. To its Greek origin, the way the individual takes the course, which in taking action and accelerating for the purpose of achieving a specific goal.

If we search in methodology, we find that it is nothing more than two methods. A method in which meditation is absent, the rules of which are already known, and this is what is called the automatic method "*La méthode spontanée*", and it is used by all people, in which a person reaches results without bearing the burden of following fixed steps, as he proceeds according to the circumstances in which he is. It is an unconscious, intangible, and unmindful method, and it may lead to real results, that is, a healthy mind can reach the truth without knowing the rules of inference. "A person in his thinking may organize his thoughts, arrange them among themselves so that they can achieve what is required in the easiest and best

way. In a natural and automatic way, there is no definition or speculation, rules set by this method as well, but it is an automatic method" (Abderrahmane Badaoui, 1977, p. 5).

The human mind was able, over time, to reach the perceptual method (La méthode réfléchie). After man contemplated self, that is, when he interrogated his thought, how to analyze, how to construct, and what is the best way to keep him from mistake, and reaching accurate results, and with this meditation, man realized that his mind, while in the research process, runs according to rules within the automatic method that forms the perceptual method. It is a conscious and emotional process, and therefore it is a set of rules that a person provides before the research process, so method then, is the way to finding truth according to logical rules, it is the art of correct thinking. Within this method that man reached, the various approaches that the ancient civilizations followed, method then is the expression of the spirit of civilizations, and contradicting thought with itself, then the Islamic civilization was distinguished by the experimental method that expressed our culture.

1- The components of Scientific Knowledge of Abu Bakr Al-Razi

The task of the mind is to rationalize and understand nature. The mind, while in the process of research, is based on a set of assumptions, and this is what enables a rational view of things, and it has the ability to produce new. The history of science is the history of the errors of science, and this is in the words of Gaston Bésier. The pure mind is always superior to the structures that were previously identified and expressed a certain paradigm, the mind is not subject to any authority, but is rather the authority itself, and then it has the ability to access the facts of things, so nothing can stop its strength, as it proceeds from doubt to reach certainty, and is able to reach the appropriate methods to study a topic, whether natural or human. After being able to uncover reality, it works on explaining it. The rationality of the thinker is truer than in is reflected in practice. Just as Descartes acknowledged the power of the mind, and made it the fairest among humanity in his book "An Essay on the Methodology", so Al-Razi gives value to the mind, "With reason we have realized what raises us, improves and pleases our lives" (Abu Bakr Al-Razi, Et-tib Er-rouhani, p. 36)

In another side, and from the same book, Al-Razi states that the mind is a blessing from God. Through it, a person differentiates between good and evil and is able to reach what is beneficial to him. "The creator gave us the intellect and bestowed it upon us in order that by means of it we may reach the utmost benefits the attainment of which lies within our nature in this life and the next" (Abu Bakr al-Razi, *ibid.*, p. 35).

It is the way which the mind uses and applies that produces individual differences. The era in which Al-Razi lived was distinguished, as it is the era of knowledge, which opened the way for the mind to produce a lot of knowledge, and this is what helped al-Razi to extract what he enjoyed of mental superiority, refine his medical talent and take it from strength to action.

Al-Razi considers that this talent is not monopoly. It may even be for someone else, “I was not singled out for it alone, but I asked for it and they hesitated. Rather, it wasn’t their share because they refused to consider it, not because of a shortage” (Abu Bakr Al-Razi, 2005, p. 296).

A person cannot reach the highest ranks and the realities of matters except through diligence. “If they strive hard and work on their own flaws, they will be equal in mind and determination” (Abu Bakr Al-Razi, Ibid., p. 296).

Realizing the body comfort will not be possible without learning medicine, nor out of ignorance, if he mind is absent, “and by it we obtain medicine in which there are many interests of our bodies”(Abu Bakr Al-Razi, Ibid., p.18) . Al-Razi, like other philosophers of Islam, believes that man can only reach the essence of nature with mind. “The mind is the path to knowledge, guidance and perfection according to Ibn Rushd ” (Ar’Rabiû Mimoun, 1986, p. 303). Taking the path of reason is what facilitated Al-Razi’s reach of solutions for many medical issues.

Nature is governed by the principle of determinism. The same conditions lead to the same results. It can only be proven by reason. Experience works to reproduce these causes, which results in the occurrence of the phenomenon the same way it appeared in nature. The mind alone is capable of making this link existing between cause and effect. Epistemology works on analyzing the rationale for science, and here the idea of necessity emerges, the more one masters it, the closer they get to achieving their freedom, and this is in the words of Hegel. Necessity is part and parcel of the Greek philosophy, and so it’s widely discussed by both Heraclitus and democrats. An observer of the medical research carried out by Al-Razi, concludes that it takes the principle of recurring accidents, which amounts to mental certainty, and there is a mathematical deductive judgment that is supposed to match

mentally with the intended meaning and reaching it, and this is called mental determinism. Future accidents are linked to past events.

When the elements are arranged in a reasonable order, each of them related to the other, that allows the process of predicting accidents, but there is a difference between Determinism and Algebra, the phenomenon in the Algebraic sense happens without restriction or condition, but in the principle of Determinism, phenomena cannot occur without a cause and this is the basic of methodology the laws that scientists reach are the ones that determine how it occurs, so induction is linked to the idea of the causality, science seeks to reach causes, science is the rationalization of nature, and this is in the words of Hegel. Researching causes and reasons is important to know the world in which you live. Scientists and philosophers searched for the reasons of existence. "In order for us to truly know the existent it is not sufficient to research its principles or its compositions, rather we must examine the conditions of its causes, their number and the extent of their effect on the existence of the body" (Mohamed Âtif El-Îraqi, 1983, p. 150).

The correct scientific logic is tied to the recurrence of accidents and this is what allows us to discover their causes. Al-Razi says: "I do not think that the following is required for this primary to be compulsory unless it is stipulated on the condition. He said it is on this side if the necessary is still proceeding as it is now" (Abu Bark Al-Razi, p. 02).

Belief in science is the belief in the Causality Principle, which is the idea advocated by Laplace and explained in his book *Celestial Mechanics*, and in it he added a kind of consistency to the system that Newton put forward. The general principle for Laplace is, everything is preceded by a reason. Even the freedom of will has a specific cause. Coincidence, as Einstein put it, is ignorance of the causes. And Auguste Comte also reaches the Causality Principle represented in the situation, which is the last stage in the history of human thinking. We must abandon the reach for absolute hidden causes. We must examine the laws that regulate the natural world. Behind every cause effect, and behind every disease a reason.

2- Scientific Research Methodology for Abu Bakr al-Razi

It is clear that Islamic scholars did not have special classification of methodology, that is, the conscious perceptual approach to research steps, but this does not mean that they did not employ a scientific method in their research related to nature and man. These steps were

present, and no one denies that the cradle of the experimental method in the Islamic world that founded human civilization.

It is not surprising that Francis Bacon, the owner of the new Organon, benefited greatly from the priest Roger Bacon, who studied in Islamic universities. The books written by Abou Bakr Al-Razi, Ibn Sina and many Arab physicians were a support for the emergence of contemporary medicine, Sarton says: "They have been credited with developing our medical expertise extensively" (George Sarton, 1961, p. 166).

There is no doubt that Arab Muslim scholars have greatly contributed to the development of many sciences, "The enumeration of Arab addition to the outcome of knowledge cannot accommodate this position even if we deliberately make the maximum abbreviation" (George Sarton, 1961, p. 164).

Clinical medicine relies entirely on the Experimental Method and it has been practiced by Muslim doctors in its most recent steps known today. The Experimental Method was the technique of the Islamic civilization physicians, so medicine in practice and education can not stand without it. Al-Razi worked on setting the basic principles of clinical science and constant theory.

The scientific and philosophical Greek heritage was the guide for many studies carried out by scholars of Islam, in the medical field, Arab doctors benefited from Galen and Abu Qrat, but the transgression of these was clear and the thing that enabled Muslim doctors to develop medicine in their use of experience, and Al-Razi was freed from much influence from the Greek theories and doctrines, and he took a different push, he prioritized experience over all, to its comes the first and last word in determining the causes of illness and their diagnosis, as being the most guaranteed way that leads to truth, which made him always advise his students to follow it, Al-Razi often called those who turn a blind eye to experience, ignorant. So, theoretical methods are not sufficient to reach truth, as the fallacies of theoretical art are superior to those of scientific art.

3- Abstraction and Generalization in Al-Razi's Thought

There is no doubt that Al-Razi's thought was influenced by Greek philosophy. This is why we find that describes true science as general true science as general and comprehensive, as in its truth it is not limited to the partial aspect, however although it is concerned with

generalizations, it shifts from the partial world, and this is the right logic for him, and you cannot trust this generalization, it shifts from the partial world, and this is the right logic for him, and particles lose their meaning in the absence of generalization, as it is important and necessary in scientific knowledge.

But this generalized result that we reach does not depend on one or two samples especially that we are dealing with a distinguished field like medicine, as we cannot reach a scientific base if we rely on one sample, so we must start from several particles in a general rule, we should not eliminate the unique images. If we realize the individual characteristics and the links between these partial elements, it becomes easier for us to understand them and realize their characteristics and nature, then science seeks for consistency and homogeneity, it does not accept disjointed and unique facts, because in correct scientific thinking we cannot trust in partial phenomenon, science is based so a kind of generalization and this is what is devoted by Bachelarian epistemology, Claude Bernard says: "Partial facts are never scientific, because science is based on generalization, the extravagance of partial facts is contrary to the spirit of science" (Claude Bernard, 2005, p. 94).

Generalization and abstracting reality is the only way to reach objectivity, as it is not related to one person, but it is a general fact that takes into account many samples after the experimentation process. Therefore, Al-Razi does not accept the opinion of Hunayn Ibn Ishaq, which is extracted from one observation. A process of review, repetition, and several experiments must be followed in order to reach a valid opinion. Al- Razi rejects the idea of one example because it does not lead to certainty. So the truth lies in the many examples, and this is what Galen defies in "achieving only one example, or two or three examples" (Abu Bakr Al-Razi, op.cit., p. 8).

The commercial summit is what leads to a general result and thus expresses a specific law, so the doctor must control the assets and read the branches. This is what Al-Razi advises his students. Medical science in a conviction that summarizes a specific class of people, and it is not for everyone it integrates similar examples into more general categories.

Al-Razi ability to experiment and generalize enabled him of medicine and chemistry, which helped him produce abundant science, but the logical analysis of the various fields of medical knowledge required special terms, for his medical efforts produced a set of concepts that Arab doctors adopted and later transferred to the Western world. Al-Razi was able to learn the logic that helped him in producing terminology, so each term accurately expresses

the meaning and thus eliminates all confusion or suspicion, and this is evident in his book *Al-Murshid*, as he considered the study of the limits of the first introduction to medical science. Terminology is important in any science, even philosophical thinking. We can't discuss philosophy in the absence of terminology, and its importance appears in Gilles Deleuze's book *What is Philosophy?*

Al-Razi has relied on creating unified global medical language, as his book *Al-Hawi* is rich with medical terms from Hindi, Syrian and Greek, Al-Razi rejects symbolism and exalts meaning, believing that symbolism is useless to science, there is no filler or mystery, so the expression must not be ambiguous but rather precise and concise, because word is what translates our perception of things and is therefore a consensual convention for people: "Language is regular" (Abu Bakr Al-Razi, op.cit., p. 35).

4- Experimentation for Al-Razi

Al-Razi relied on experiment in his intellectual approach, whether in the field of medicine or chemistry, and experiment cannot be dispensed with as we are looking into the properties of the medicinal substance. Al-Razi was fully aware of the Experimental Method, which became the only way to diagnosis disease in order to reach the appropriate treatment, and in this Al-Razi says: "Intuition should not be trusted in medical care until it reaches the most severe and can be tested" (Ibn Abu Usaybiâ, op.cit., p. 374).

As for Al-Razi, an illiterate person who has no experience, may reach the point of killing someone. "The illiterate, imitators, and juveniles who have no experience, and those whose care is less and their desires abound are murderers" (Ibn Abu Usaybiâ, op.cit., p. 374). A good doctor is the one who is able to combine experience with measurement. "Testified by measurement and strengthened by experience" (Ibn Abu Usaybiâ, op.cit., p. 374). Al-Razi considers limiting oneself to experiment without measurement as a big mistake.

You cannot confine yourself to one cause in order to reach a conclusion, for this way does not lead to truth, but rather establishes suspicion, other similar cases must be examined, and this is in response to the opinion of Abu Qrat. Al-Razi also criticized Hunayn Ibn Ishaq when he confined himself to one observation, Al-Razi says: "We should look in this and not rely on a single example" (Abu Bakr Al-Razi, op.cit., p. 8). The doctor who is looking for objectivity must experiment by himself and ascertain the results that other doctors have

reached. Self-experience is what enables the doctor to accept or reject scientific problems. This is why Al-Razi often commented on the findings of other doctors, proving or denying the results they had reached. Sometimes he comments on Galen in the Book of Doubts, and sometimes he comments on Abu Qrat: "We were astonished by Galen, how he opposed this doctrine to the extent that he harmed the sick and did not benefit him, and as for me, I experimented and tested it" (Abu Bakr Al-Razi, Al-Hawi, 2000, p. 44).

. The book Al-Hawi, that Al-Razi wrote and in which he collected his medical expertise, is replete with his experiments, as it enabled him to treat many patients, and in it Al-Razi criticized many of the opinions of Hippocrates and Gallenos, so his books are full of examples that show broad knowledge that guided him to treatments after accurate experiments. His articles often begin in Al-Hawi "And The Experimenters Said", thus he was a pioneer in using the experimental method.

1. By noting the condition of the disease, Al-Razi was distinguished from other doctors, and this is the testimony of historians of Arab medicine, headed by Ibn Abi Issa'a. He talked about the clinical case, which is the accurate tracking of the pathology of a particular person and recording all the results related to this disease, symptoms of the disease, its development, and the circumstances surrounding the person. Even if the same symptoms appeared on anyone else, Al-Razi considers them two different clinical cases and not one, because each patient has his own psychological conditions. And his body, either hastens him to heal or leads him in perdition. The scientific sense that Al-Razi's thought contained enabled him to follow a scientific method in diagnosing diseases, so he started the first thing that begins with the definition, as we mentioned earlier, and he was able to logic which helped him determine the nature of diseases and their appropriate symptoms, enabling him to properly describe the disease based on the observations that he makes, the character that this observation takes is a controversial one and this reminds me of the description that Baslar provides of the scientific observation "A scientific observation is always a controversial one" (Gaston Bachelard, 2008, p. 16) .

2. Al-Razi concluded by noting that asthma is difficult to treat in the elderly, unlike young men. Al-Razi says in his book Al-Hawi: "If sheikhs were exposed to Asthma and coughing, they will hardly be cured, because these maladies are difficult to develop among the youth unlike sheikhs" (Al-Razi, Al-Hawi, op.cit., p. 9).

3. Elsewhere he talks about relationship of lung veins with heart at a time when there were no machines for doctors to use. This result was thanks to what the doctors observed, and Al-Razi was one of them: "All hang veins initiate from one origin, which is the left cavity of the two heart cavities" (Al-Razi, Al-Hawi, op.cit., p. 9).

4. There are many examples in which Al-Razi excels and is unique in noticing, he is considered the first doctor in the history of medicine to distinguish the symptoms of smallpox and measles.

Al-Razi used to record every single detail related to his patients in order to reach the reality of the disease, and whether these details had an effect on the occurrence of the disease, so he begins with recording the starting date of the disease, the development of the patient's condition and mood, also name, nationality, age, and profession, all of which was recorded in his writings. Al-Razi says: "I saw a lung surgeon who collected and breathed blood for a while and was cured, and that was in a boy who had spawned five years" (Al-Razi, Al-Hawi, op.cit., p. 115).

5- We notice through this saying the recording of the age of this boy who had a disease in his lung, all of his observations, Al-Razi wrote in his book al-Hawi in a precise and detailed manner, this skill that Al-Razi specialized in is evidence of his abundance of knowledge and the strength of his mind in extracting through clinical research.

6- Previous experience often helped Al-Razi in his observations and facilitated the way for him to reach the appropriate treatment, like the woman who came to him and told him that she was hungry and never satiated, also was exposed to stomach stinging and headaches, so he was able to treat her. It turned out that small worms lived inside her stomach, so they dwelt on her due to the excessive desire to eat, and she was cured.

Al-Razi also excelled in comparative observation, and concluded through his medical research that Galen has made a mistake when he diagnosed colic disease as a kidney stone, so this diagnosis was wrong (Abu Bakr al-Razi, 1983, p. 40).

7- . But Al-Razi was able to distinguish between the symptoms of a kidney stone and the symptoms of colic: "If there was a pain in the abdomen under the navel or in one of the flanks, a pain similar to abdominal pain... Then there was a fluctuation of the breath, and it quickly intensified, until the sick person took a cold sweat, so I think it was the face of colic.

Especially if the one who suffers from this pain had previously afflicted many or more lines of thick or cold foods" (Abu Bakr al-Razi, *Kitab El-Qolindj*, op.cit., p. 40).

8- Al-Razi believes that getting to the identification of colic disease is not easy matter because of the similarity to the pain of the viscera in the lower abdomen.

9- We find that in some medical situations he applies the experimental method in its finest form, and it does not differ by an inch from what science has reached in using the method when it resorts to isolating a control group versus an experimental group. The factors or variables to show which is an independent variable and which one is a dependent variable. Al-Razi says: "So when I saw these signs and were presented in the phlebotomy, then I had saved a group with it, and I deliberately left a group, I drew an opinion on that which explained the superiority of all" (- Al-Razi, *Al-Hawi*, op.cit., T.4, p. 167).

10- In his diagnosis of the disease, Al-Razi takes into account the circumstances that may affect it, as he does not lean on one factor "in different countries the moods, morals, customs, and the printing of medicines and foods differ" (Ibn Abu Usaybiâ, op.cit., p. 421) , pursuant to the experimental method as he took into account the factors of agreement and difference, because experiment either confirms a specific assumption or denies it, and he abandoned it to reach the appropriate assignment, and this is what we find in al-Hawî's book on many medical issues.

11- This is why Al-Razi advised doctors to investigate the causes of the ills, and he called on doctors during the process of diagnosing the disease and administering the medicine by slowing down and not rushing to prove or deny a condition. We shouldn't limit the diagnosis on the current signs. "The present signs aren't enough to rely on in order for us to distinguish the illness until you ask about the advanced causes".

12- The present sign does not fulfil the significance needed here" (Abu Bakr al-Razi, *Al-Hawi*, op.cit., T.4., p. 131). The doctor is not able to treat the patient until he is able to know the proximate and ultimate cause, and in it he distinguishes between the primary cause and the secondary cause. Due to the great and the apparent illness that soon disappears. The presentation may be issued from more than one cause, and this is what prompted him to write his book. The differences between Diseases, in which a distinction is made between diseases and their causes and what is similar to them.

13- Al-Razi was keen to find the appropriate medicine for the diseases that he diagnoses, so every new drug is not offered to the disease until it is tested on animals and then on humans,

and this is what has spread in the modern era. Animals are less advanced in the ranking ladder to the finest animals such as monkeys. And he was beginning to experiment medicine on animal, when he wanted to verify the properties of mercury, and fed it to a monkey, he did not find any harm to it, but if he poured it on the ear, it had a severe effect. Al-Razi also used a method that is considered one of the methods in pharmacology, which is its application in treatment when he divided his patients into two groups with the aim of knowing the effect of phlebotomy on Al-Sarsam patients. He was not satisfied with experimenting on animals, but he was testing the drug on himself, and he talked about that and said that he experimented on himself.

Conclusion:

Al-Razi was considered in the eyes of many Muslim and Arab historians one of the greatest physicians who worked hard in service of humanity with abundant knowledge in the field of medicine, and his book Al-Hawi gained great fame. "that made Louis XI pay a large sum of gold and silver in exchange for borrowing his clone in case of an illness threatening his health and his family's" (Ahmed Fouad Basha, 1983, p. 168).

Al-Razi was a light bulb that enlightened all humanity and guided it to the path of recovery from incurable diseases, then left a scientific method that has proven its existence even in our time.

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