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Chief Editor: Prof. Mohamed El-Gomati
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Associate Editor: Dr. Salim Ayduz
Release Date: April 2007
Publication ID: 680

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THE VALUABLE CONTRIBUTIONS OF AL-RĀZĪ (RHAZES) IN THE HISTORY OF PHARMACY

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Keywords: *Muhammad ibn Zakariya al-Razi, Razi, Rhazes, Islamic medicine, Islamic pharmacy, saydala, saydalah, Kitāb al-Hawī, Kitāb al-Mansuri, Continens Liber.*

Abu Bakr Muhammad ibn Zakariyya al-Rāzī was a physician, a chemist and a philosopher. In medicine, his contribution was so significant that it can only be compared to that of Ibn Sīnā. Some of his works in medicine, e.g. *Kitāb al- Mansūri, Kitāb al-Hāwī, Kitāb al-Mulūkī* and *Kitāb al-Judārī wa al-Hasabah* earned everlasting fame. Al-Rāzī was also the first in the Islamic medical tradition to write a book based on home medical (remedial) advice entitled *Man lā yahduruhu al-tibb* for the general public.

In his book *Manāfi' al-aghdiyyah*, al-Rāzī followed a pattern that had been introduced earlier by Galen but in it, al-Rāzī attempted to correct several errors made by Galen himself.

The development of professional pharmacy, as a separate entity from medicine, started in Islam under the patronage of the early Abbasid caliphs in Baghdad. This first clear-cut separation of the two professions, and the recognition of the independent, academically oriented status of professional pharmacy, materialized in the Baghdad and al-Rāzī was one of the few pharmacists who added very valuable contributions to medicine and pharmacy right at the beginning of the Islamic medical tradition.

Arabic pharmacy (*Saydalah*) as a profession with a separate entity from medicine was recognized by the 9th century. This century not only saw the founding and an increase in the number of privately owned pharmacy shops in Baghdad and its vicinity, but in other Muslim cities as well. Many of the pharmacists who managed them were skilled in the apothecary's art and quite knowledgeable in the compounding, storing, and preserving of drugs. State-sponsored hospitals also had their own dispensaries attached to manufacturing laboratories where syrups, electuaries, ointments, and other pharmaceutical preparations were prepared on a relatively large scale. The pharmacists and their shops were periodically inspected by a government appointed official (*al-Muhtasib*) and his aides. These officials were to check for accuracy the weights and measures as well as the purity of the drugs used. Such supervision was intended to prevent the use of deteriorating compounded drugs and syrups, and to safeguard the public.

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Figure 1. *Kitāb al-Hāwī* by al-Rāzī copied in Iran probably in 1674. Preserved at the Historical Medical Library of Yale University (Cushing Arabic MS 10). Source: http://www.library.yale.edu/~bturner/neareast/Kitab_al-Hawi.html

This early rise and development of professional pharmacy in Islam (over four centuries before such a development took place in Europe) was the result of three major occurrences: (1) the great increase in the demand for drugs and their availability on the market; (2) professional maturity; and (3) the outgrowth of intellectual responsibility by qualified pharmacists.

In this study, only certain important aspects of the influence of al-Rāzī on the development of pharmacy and medical therapy in the 9th century will be briefly discussed.

Abu Bakr Mohammad Ibn Zakariya al-Rāzī (864-930 C.E.) was born at Ray, Iran. Initially, he was interested in music but later on he learned medicine, mathematics, astronomy, chemistry, pharmacy and philosophy.

At an early age he gained eminence as an expert in medicine and alchemy, so that patients and students flocked to him from distant countries. He was first placed in charge of the first Royal Hospital at Ray, from where he soon moved to a similar position in Baghdad where he remained the head of its famous *Muqtadari* Hospital for a long time. He moved from time to time to various cities, especially between Ray and Baghdad, but finally returned to Ray where he died around 930 C.E. His name is commemorated in the Rāzī Institute near Tehran.

Al-Rāzī excelled in different fields of knowledge, such as medicine, chemistry and alchemy and philosophy. His medical works had an everlasting influence, like those of Ibn Sīnā. In them, generations of physicians learned medicine in Muslim lands and in Europe after that some of them were translated into Latin, like the famous *Kitāb al-Hāwī al-Kabīr* known in Latin as the *Continens Liber*. His *Kitāb al-Mansūri*, which was also translated into Latin in the 15th century, comprised ten volumes and dealt exhaustively with Greco-Arab medicine. Some of its volumes were published separately in Europe.

His book *Kitāb al-Judārī wa-'l-Hasabah*, which translated into various European languages, is the first treatise on smallpox and chicken-pox, and is largely based on al-Rāzī's original contribution. Through this treatise, our scholar became the first to draw clear comparisons between smallpox and chicken-pox.

Kitāb al-Hāwī was the largest medical encyclopaedia composed by that period. It contained on each medical subject all important information that was available from Greek and Arabic sources, and this was concluded by al-Rāzī by giving his own remarks based on his experience and views. A special feature of his medical system was that he greatly favoured cure through correct and regulated food. This was combined with his emphasis on the influence of psychological factors on health. He also tried proposed remedies first on animals in order to evaluate in their effects and side effects. He was also an expert surgeon and was the first to use opium for anaesthesia.

The best survey of al-Rāzī's works from the medieval period seems to be an epistle by al-Bīrūnī written about 1037. Through this epistle, can be seen concealed sides of al-Rāzī's life and his contributions as a prolific author and compiler to pharmacy and medical therapy. To understand and appreciate him fully, however, one should look upon him as the product of his time and of the context in which he lived.

For in the West and Byzantium this was "an age of faith", important to our discussion here. Therefore, it is in this context that we understand his courageous attack of errors in the medical and philosophical teachings of the ancients. In particular, he wrote a critical book on ancient medicine that he entitled *Shukūk 'alā Jālinūs* (Doubts or Apories on Galen), in which he doubted the accuracy in many medical, physiological and therapeutic concepts, theories, and procedures as stated by Galen and which were blindly accepted and transmitted by his followers and later compilers and commentators.

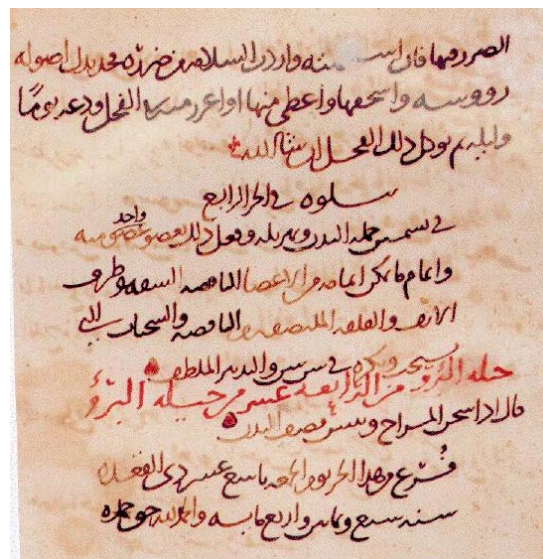


Figure 2. Colophon of al-Rāzī's *Kitāb al mansūrī fi 'l tib* (Book of medicine for Mansūr). Source: http://www.nlm.nih.gov/exhibition/islamic_medical/image/image09.gif

On the professional level, al-Rāzī introduced many useful, progressive, medical and psychological ideas. He also attacked charlatans and fake doctors who roamed the cities and the countryside selling their nostrums and 'cures'. At the same time, he warned that even highly educated doctors did not have the answers for all medical problems and could not cure all sicknesses or heal every disease. Al-Rāzī exhorted practitioners to keep up with advanced knowledge by continually studying medical books and expose themselves to new information. He further classified diseases into three categories: those which are curable; those that can be cured; and those which are incurable. On the latter, he cited advanced cases of cancer and leprosy which if not cured the doctor should not take blame.

Al-Rāzī was the first in Islam to write a book based on home medical (remedial) advisor entitled *Man lā yahduruhu al-tibb* for the general public. He dedicated it to the poor, the travellers, and the ordinary citizens who could consult it for treatment of common ailments when the doctor was not available.

This book, of course, is of special interest to the history of pharmacy since books on the same theme continued to appear and has found acceptance by readers to the present century. In its 36 chapters, al-Rāzī described diets and drugs that can be found practically every where in apothecary shops, the market place, in well-equipped kitchens, and in military camps. Thus, any intelligent mature person can follow its instructions and prepare the right recipes for good results. Some of the illnesses treated are headaches, colds, coughing, melancholy, and diseases of the eye, ear, and stomach. In a feverish headache, for example, he prescribed "*two parts of the duhn [oily extract] of rose, to be mixed with a part of vinegar, in which a piece of linen cloth is dipped and compressed on the forehead*". For a laxative, he recommended "*seven drams of dried violet flowers with twenty pears, macerated and mixed well, then strained. To the filtrate, twenty drams of sugar is added for a draft*". In cases of melancholy, he invariably recommended prescriptions including either poppies or their juices (opium) or clover dodder (*Curcuma epithimum* Muss) or both. For an eye remedy, he recommended myrrh, saffron, and frankincense, two drams each to be mixed with one dram of yellow arsenic and made into tablets. When used, each tablet was to be dissolved in a sufficient quantity of coriander water and used as eye drops.



Figure 3. Extract from a manuscript by al-Rāzī preserved at the Bodleian Library, University of Oxford, UK (MS Marsh 156, fol. 2v). Source: http://www.jameslindlibrary.org/trial_records/9th-15th-century/al-razi/al-razi-tp.html

Al-Rāzī followed the same method in his book *Bur as-Sa'ah*, in which he prescribed remedies to cure ailments in one hour, or at least in a short time, so that the patient would not need to frequently call on his doctor and pay large fees.

In his other book on diets, their uses and disadvantages, *Manāfi' al-Aghdhiyyah*, al-Rāzī followed a pattern that had been introduced earlier by Galen. In it, al-Rāzī attempted to correct several errors made by Galen and to introduce new data missed by the latter.

Ibn Māsawayh was another physician who wrote on the same topic. According to al-Rāzī, Ibn Māsawayh did more harm than good in his exposition of the subject. These misgivings challenged al-Rāzī to undertake the writing of a comprehensive study, namely the *Manāfi' al-Aghdhiyyah*, which is of great interest not only to pharmacy and medicine but to the history of the culinary art as well. Emphasizing specific matters and general regulations for healthy living, al-Rāzī discussed breads, waters, dairy products, fruits, vegetables, spices, meats, and fishes. He explained in detail their kinds, methods of preparation, physical properties, and therapeutic modes of action, and pointed out when they were useful and when not.

He described the disadvantages of frequent consumption of wines leading to alcoholism, which often causes many serious diseases as epilepsy, paralysis, senile tremor in older people, cirrhosis, hepatitis, mental disorders, visionary distortions, obesity, debility, and impotence.

While al-Rāzī paid much attention to curing the body's ills, he did not ignore cures for infirmities of the soul. The proof of his concern for psychotherapy seems quite evident. On completing his medical encyclopaedia,

Kitāb al-Mansūri, on the diagnoses and treatment of body diseases, he filled in the gap by writing a counterpart *At-Tibb ar-Rūhānī* on the medicine of the soul. His concern for, and penetration into, human nature, its complexities, and the directions leading into it, confirm his appreciation of the importance of psychotherapy and psychology as two important parts of the healing art.

In his famous *Kitāb al-Mansūri*, however, al-Rāzī devoted four out of the book's total of ten treatises, to diets and drugs, medicated cosmetics, toxicology and antidotes, amelioration of laxatives, and compounded remedies, all of which are of pharmaceutical interest.

Al-Rāzī's last and largest medical encyclopaedia is his *al-Hāwi fī t-Tibb*, which embraces all areas of medical knowledge of the time. It included sections related to 'pharmacy in the healing art', materials arranged in alphabetical order, compounded drugs, pharmaceutical dosage forms and toxicology. It also included numerous medical recipes and tested prescriptions that influenced 'medical therapy' in Islam and in the West during the Middle Ages.

In his use of mineral drugs as external and internal remedies, including vitriols, copper, mercuric and arsenic salts, sal ammoniac, gold scoria, chalk, clay (as in the terra sigillata and Armenian clay), coral, pearl, tar, and bitumen, al-Rāzī encouraged and pioneered chemotherapy in Islamic medicine.

Although he recommended poppies and opium internally as somniferous agents and to quiet coughing, and externally to relieve eye and wound pains, he warned against their deadly effects (two drams are fatal).

Conclusion

The development of professional pharmacy, as a separate entity from medicine, started in Islam under the patronage of the early Abbasid caliphs in Baghdad. This first clear-cut separation of the two professions, and the recognition of the independent, academically oriented status of professional pharmacy materialized in the Abbasid capital (Baghdad) and al-Rāzī was one of the few pharmacists who added very valuable contributions to medicine and pharmacy, at an early time when the Islamic science was at its beginning and centuries before the Latin versions of his books contributed to shape the European Renaissance.

References

1. Aftab, Macksood, "How Islam Influenced Science". *The Islamic Herald*, March 1995.
2. Hadzovic, S., "Pharmacy and the Great Contribution of Arab-Islamic Science to its Development". *Med. Arch.* 1997;51(1-2): 47-50.
3. [History of Medicine Lecture Series], The History of Medicine Lecture Series, University of Florida Society for the History of Medicine, Website: <http://www.medinfo.ufl.edu/other/histmed/>
4. Ibn Abī Usaybi'a, '*Uyūn al-anbā' fī tabaqāt al-atibbā'*', Beirut: Dar al Hayat, 1965 (in Arabic).
5. Irfan, Hwaa, "*Hikmat* (Unani Medicine)". *Islam on-line* website (29/06/2002): <http://www.islamonline.net/English/Science/2002/06/article15.shtml>.

6. Iskandar, Albert Zaki, *A Study of al-Rāzī's Medical Writings. With Selected Texts and English Translations.* A thesis submitted for the Degree of Doctor of Philosophy in the University of Oxford, 1959.
7. Kaf al-Ghazal, Sharif, *Islamic Medicine On-line:* <http://www.islamicmedicine.org/>