The valuable contributions of Al-Razi (Rhazes) in the history of pharmacy during the middle ages

Dr. Sharif Kaf Al-Ghazal
MD, MS, FRAS (Ireland), RCS (Plast.Cert), DM (Plast)
England

Summary:

Al Razi was a Hakim, an alchemist and a philosopher. In medicine, his contribution was so significant that it can only be compared to that of Ibn Sina. Some of his works in medicine
e.g. *Kitab al- Mansoori, Al-Hawi,Kitab al-Mulooki* and *Kitab al-Judari wa al- Hasabah* earned everlasting fame.
Al-Razi was the first in Islam to write a book based on home medical (remedial) advisor entitled *Man la Yahduruhu Teb* for the general public.
In his book *Mnafi' al-Aghthiyyah*, al-Razi followed a pattern that had been introduced earlier by Galen but in it, al-Razi 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' Abbasiyyah 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 Abbasiyyah capital (Baghdad) and Al Razi was one of the few pharmacists who added very valuable contributions to medicine and pharmacy while most of Europe was still living in the dark ages .

Arabic pharmacy (*Saydalah*) as a profession with a separate entity from medicine was recognized by the ninth 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.
This early rise and development of professional pharmacy in Islam (over four centuries before such 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-Razi on the development of pharmacy and medical therapy in the ninth century will be briefly discussed.
Abu Bakr Mohammad Ibn Zakariya al-Razi (864-930 C.E.) was born at Ray, Iran. Initially, he was interested in music but later on he learnt 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 parts of Asia.
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 along time. He moved from time to time to various cities, specially between Ray and Baghdad, but finally returned to Ray, where he died around 930 C.E. His name is commemorated in the Razi Institute near Tehran.
Al Razi was a Hakim, an alchemist and a philosopher. In medicine, his contribution was so significant that it can only be compared to that of Ibn Sina. Some of his works in medicine
e.g. *Kitab al- Mansoori, Al-Hawi,Kitab al-Mulooki* and *Kitab al-Judari wa al- Hasabah* earned everlasting fame.

Kitab al-Mansoori, which was 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 *al-Judari wal Hasabah* was the first treatise on smallpox and chicken-pox, and is largely based on al-Razi's original contribution: It was translated into various European languages. Through this treatise he became the first to draw clear comparisons between smallpox and chicken-pox.
His book *Al-Hawi* was the largest medical encyclopaedia composed by then. It contained on each medical subject all important information that was available from Greek and Arab sources, and this was concluded by him 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-Razi's works from the medieval period seems to be an epistle by al-Biruni written about 1037. Through this epistle, can be seen concealed sides of al-Razi'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 and in the context of his time.
For in the West and Byzantium this was “an age of faith”, important to our discussion here, therefore, is his courageous attack of errors in the medical and philosophical teachings of the ancients. It was al-Razi who wrote a book, *Shukuk 'ala Nazariyyat jalinus*, 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.

On the professional level, al-Razi 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-Razi 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-Razi was the first in Islam to write a book based on home medical (remedial) advisor entitled *Man la Yahduruhu Teb* 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-Razi 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 theduhn (oily extract) of rose, to be mixed with 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 draf*t'. In cases of melancholy, he invariably recommended prescriptions including *either poppies or their juices (opium) or clover dodder (Curcuma epithymum 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.*
Al-Razi 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 did not need frequently to call on his doctor and to pay larger fee.
In his other book on diets, their uses and disadvantages, *Mnafi' al-Aghthiyyah*, al-Razi followed a pattern that had been introduced earlier by Galen. In it, al-Razi attempted to correct several errors made by Galen and to introduce new data missed by the latter.
Ibn Masawayh was another physician who wrote on the same topic. According to al-Razi, Ibn Masawayh did more harm than good in his exposition of the subject. These misgivings challenged al-Razi to undertake the writing of a comprehensive study, *Mnafi' al-Aghthiyyah* 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-Razi 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-Razi 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, *al-Mansuri*, on the diagnoses and treatment of body diseases, he filled in the gap by writing a counterpart *at- Tibb ar-Ruhani* 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 *al-Mansuri,* however, al-Razi 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-Razi's last and largest medical encyclopaedia is his *al-Hawi fit-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-Razi, 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' Abbasiyyah 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 Abbasiyyah capital (Baghdad) and Al Razi was one of the few pharmacists who added very valuable contributions to medicine and pharmacy while most of Europe was still living in the dark ages ! .

References :

1- How Islam Influenced Science. by Macksood Aftab . *The Islamic Herald*, March 1995.

2- Pharmacy and the great contribution of Arab-Islamic science to its development . by S. Hadzovic . Med Arh. 1997;51(1-2):47-50

3- Hikmat (Unani Medicine). By Hwaa Irfan . Published in Islam on-line website on 29/06/2002 .

4- University of Florida Society for the History of Medicine presents: The History of Medicine Lecture Series. Website http://www.medinfo.ufl.edu/other/histmed/

5- In Abi Osaiba'a : Oyon Al-Anba'a Fi Tabaqat Al Ateba'a . Dar al Hayat – Beirut 1965 . (in Arabic).

6- Analysis study about Al- Razi , by Albert Zaki Eskander , England.

7- Islamic Medicine OnLine , by Dr.Sharif Kaf Al-Ghazal,

http://www.islamicmedicine.org/