



Contents lists available at [EKB](#)

Minia Journal of Tourism and Hospitality Research

Journal homepage: <https://mjthr.journals.ekb.eg/>



The Ottoman Physicians in Egypt (Case of study Dawud al-Antaki and Overview about his book *Tazkiratu ulil Albab wa al-jam' li al-'ajab al-'ujab*)

Esraa Elmallwany ^a

^a Ph.D. Researcher, Guidance Dep., Faculty of Tourism & Hotels, Minia University

Keywords

The Ottoman Physicians,
Medicine
Egypt
Dawud al-Antaki
*Tazkiratu ulil Albab wa al-
jam' li al-'ajab al-'ujab.*

Abstract

This research aims to identify one of the ottoman physicians in Egypt, and his contributions during the sixteenth century. Egypt enjoyed a privileged location and many geographical characteristics making it as a meeting point between East and West at the sixteenth century. This paper focuses on the Medicine during that period in Egypt, and if there were a regulating medical practice or just folklore practices. This study relevant for Dawud al-Antaki, the blind physician, who was fond of learning and learnt many sciences. He travelled to Syrian coast and Damascus, then he travelled to Cairo and became the head of physicians. He wrote various books, about fifteen manuscripts on kalam, fiqh, and medicine. The paper researches on the famous medical book *Tazkiratu ulil Albab wa al-jam' li al-'ajab al-'ujab* that affected a lot on the Egyptian medicine, it was divided into introduction and four parts, were included into three volumes. Dawud al-Antaki, like other physicians at this period believed in Jinn and their ability to infect people, so he made a lot of amulets to treat that.

Printed ISSN 2357-0652

Online ISSN 2735-4741

1. Introduction

Ibn Khaldun¹ defined medicine as a science of different types of diseases and their treatments. In other part of his book, Ibn Khaldun also defined it as a noble craft. Some Turkish Scientists in the sixteenth and seventeenth centuries divided medicine into two branches; craft, like surgery, which is considered as a manual skill, and other branch was a science dealt with illnesses and restoration of health².

The Ottoman Empire had a military nature, so it had to pay attention to the health of the army in particular and the areas under its control in general. The Ottomans were also affected by other civilizations and various scientific institutions in the countries they opened, such as the bimaristans in Egypt and the Levant. The intermingling of these civilizations was the emergence of new medical schools. They were also influenced by many doctors such as Ibn Al-Nafis, Ibn Al-Bytar³.

Moreover, the Arabian scientists influenced all over the world like Yuhann ibn Masawayh, who was Nestorian physician interested in fever, hygiene and dietetics. In addition, he was interested in combining drugs with diets. Hunayn Ibn Ishaq was the student of Ibn Masawayh and wrote about 100 original medical works. He was also interested in ocular diseases⁴.

As well as, the location of Egypt played an important role, as it enjoyed a privileged location and many geographical characteristics making it as a meeting point between East and West; where the port of Alexandria is facing Europe, and the city of Damietta is located Infront of Turkey and Asia. As for the Red Sea, it was a center for Indian commercial traffic to Saudi Arabia, and the western land route, which was considered as a link to North Africa and the ports of Eritrea⁵.

With the end of the Mamluk empire and after the Ottoman conquest, Egypt became just a provincial capital that influenced its intellectual and cultural life. Most of the educational institutions constructed during Mamluk period lost their functions and disappeared, the religious institutions became tekkiyyes⁶ and just small mosques.

¹ His name is ‘Abd al-Raḥmān b. Muḥammad b. Muḥammad b. Muḥammad b. al-Ḥasan b. Jābir b. Muḥammad b. Ibrāhīm b. ‘Abd al-Raḥmān Ibn Khaldūn, born in Tunis in 1332 AD. He was known as the father of modern social science and cultural history. See, Mohamed Abdalla, *Ibn Khaldun (1332-1406)*, The Wiley Blackwell Encyclopedia of Race, Ethnicity, and Nationalism, First Edition., 2016, p. 1.

² Sherry Sayed GadelRab, *Medical Healers in Ottoman Egypt, 1517-1805*, Medical History, 2010, p. 367

³ āmyra ‘ly mdāḥ, *ālṭb wālsydlh fy āldwlh āl‘tmānyh mn ‘sr ālfāth ḥta wfāt ālslṭān slyān ālqānwny 855-974 AH/1451-1566AD*, rsālt ālmšrq, Cairo University, 2006, Vol. 18, No. 1, 2, p. 531-532.

⁴ Skrbo, Masic, *Influence*, pp. 221:222

⁵ Silvia Sheffer, *ālṭb wālḥbā’ fy mšr bnāa ālhwyā ālmhnyā wālmšrw ‘ālṭbyā*, translated by Magda Abaza, Supreme Council of Culture, 2005, p. 38

⁶ Its function was developed during the different Islamic periods. During the Ottoman period, was used as a Bimirstan and treated many patients. See, Amany Eljendy, *ālḥnqāwāt wāltkāyā wālāsblā wālhāmāt mlāmḥ ltāryḥ ālqāhrh ālāḡtmā’y*, ahram, <https://gate.ahram.org.eg/daily/News/202255/119/592619/%D8%AB%D9%82%D8%A7%D9%81%D8%A9>, last access. 28/2/2022, 1:47 AM.

Only al-Azhar⁷ gained a special under Ottoman's rule as it became important centre of learning and grew in size⁸.

Before the nineteenth century, there were not effective means of regulating medical practices, just rudimentary organizations gave an ijazah to students as a confirmation for practicing medicine⁹. Then the most majority of the physicians during the Ottoman Era were organized in guilds¹⁰. Many Ulama "religious scholars" gathered more than one knowledge like medicine, anatomy, astronomy, as well as to religious sciences¹¹.

There were some professions performed as physicians in the Ottoman empire, such as "Djerrah" who was working as a military physician, "Attar" who was responsible for making medicines from herbs and oil, and "Hapar" who was making salves¹².

- **The Problem of the Study**

There was a wrong idea about the Ottoman medicine as a blend of ideas and realities interested on solving human problems like diseases or death. The Ottoman medicine according to this idea depended on only Greek medicine as well as folkloric practices. According to that attitude, the Ottoman physicians had no skills to prepare medicines to every disease, and there were no brilliant physicians affected on medicine. There is lack of studies dealt with the contributions of the Ottoman physicians and what they introduced to medicine.

- **The Objectives of the Study**

- This research aims to identify one of the ottoman physicians in Egypt, and his contributions during the sixteenth century.
- This paper also focuses on the Folk Medicine during that period in Egypt.
- This study relevant for Dawud al-Antaki, the blind physician and his medical contributions.
- The paper researches on the famous medical book *Tazkiratu ulil Albab wa al-jam' li al-'ajab al-'ujab* that affected a lot on the Egyptian medicine.

- **The importance of the Study**

The study focuses on medicine in Egypt and one of the Ottoman physicians who had a great role in medicine during that period. Also, it shades lights on the condition of the folk medicine. It researches if the ottoman medicine was a blind medicine depended on Greek medicine or there were new medical contributions in Egypt and physicians affected on medicine.

2. Dawud al-Antaki (941-1007 AH/1535-1599 AD)

⁷ It was the first mosque established in Cairo, built by Gaowher al-seqely in 970 AD. See, Mahmoud Abu al'ywn, *alġām' ālāzhr*, mṭb't ālāzhr, 1949, p. 8.

⁸ Sherry Sayed GadelRab, *The Popularization of Medical Knowledge in Ottoman Egypt, 1517-1800*, Lokman Hekim Journal, 2012, Vol. 2, No.3, p. 2

⁹ Sherry Sayed GadelRab, *Medical Healers in Ottoman Egypt, 1517-1805*, Medical History, 2010, p. 366

¹⁰ GadelRab, *The Popularization*, p. 8

¹¹ GadelRab, *Medical*, p. 368

¹² Skrbo, Masic, *Influence*, p. 224

He was a blind Ottoman physician; his name was Dawud bin ‘Umar al-Antaki¹³. He was born in 941AH/1535 A.D in the city of Antioch and died in 1007AH/1599 AD in Mecca¹⁴. Although he was a blind man, he was fond of learning and learnt many sciences like logic, Mathematics, Greek, physics and Medicine. He travelled to Syrian coast and Damascus, when he was still young, where he became a physician¹⁵, then he travelled to Cairo and became the head of physicians¹⁶. He wrote various books¹⁷, about fifteen manuscripts on kalam, fiqh, and medicine¹⁸. He wrote a famous medical book *Tazkiratu ulil Albab wa al-jam’ li al- ‘ajab al- ‘ujab* of pharmacological remedies, he divided it into alphabetical chapters¹⁹.

3. Overview about the Book of *Tazkiratu ulil Albab wa al-jam’ li al- ‘ajab al- ‘ujab* (975AH/1568 AD)

One of the main goals of Dawud al- Anaki was to write popularized medical book to prevent the expanding of Jewish medical practices in Egypt²⁰. *Tazkiratu ulil Albab* is considered one of the most important medical books, it was published in Egypt seven times. Dawud al- Anaki described about 1712 drugs in this book and he wrote his treatise in Arabic²¹. His pharmacy included mineral, animal and plant substances²² from Egypt, Europe, India, China, the Levant, North Africa, and Asia Minor²³. The manuscript was written in a simplified form and directed to the general educated readers²⁴.

In his physiology part of his manuscript, Dawud al-Antaki considered the human body looks like physical world, as the world consists of air, water, fire, and earth. The human body also consist of blood (wet and hot like air), phlegm (cold and wet like water), yellow bile (dry and hot like fire), and black bile (dray and cold like earth) (fig. 1, 2)²⁵.

¹³ Ellen Amster, *Ottoman Science in the Maghrib: Islamic Medicine and the Translation into Local Maghribi Contexts of Dawud ai-Antaki's Tadhkira*, International Congress on the Maghreb and the Western Mediterranean, 2009, p. 12

¹⁴ Muhammad Afzal Rizvi, *Elemental Composition of Medical Flowers*, Pak. J. Bot, 2007, Vol. 39, No. 7, p. 2541

¹⁵ Amster, *Ottoman*, p. 12

¹⁶ Amster, *Ottoman*, p. 9

¹⁷ Gadelrab, *The Popularization*, p. 4

¹⁸ Amster, *Ottoman*, p. 12

¹⁹ Amster, *Ottoman*, p. 9

²⁰ Gadelrab, *The Popularization*, p. 8

²¹ Anwar Jamal, Aisha Siddiqui, S.M. Hassan and S. Shakir Jamil, *Contribution of Daud Antaki as Unani Physician in the Field of Ilmul Advia (Unani Pharmacology)*, Hamadard Medicus, 2013, Vol. 56, No. 1, p. 45

²² Salman Ahmed, Muhammad Mohtasheemul Hasan, *Muslim Heritage in Medicine: A Concise Review on Greco- Arabic Contribution*, Journal of Pharmacognosy and Phytochemistry, 2015, Vol. 5, No. 4, p. 279

²³ Amster, *Ottoman*, p. 14

²⁴ Gadelrab, *The Popularization*, p. 4

²⁵ Amster, *Ottoman*, p. 13

عقله	قلبه	نفسه	روحه	سمه
١٣٦	١٦	١٢	٤	
قوته الكلية			قوة الطبيعية	
١٨٤٩٦٠			١٨٤٩٦	

(جدول طبائع الحروف وتراكيبها)

							ماء	هواء	تراب	ر
							د	ج	ب	
							ح	ز	و	
مريخ	مشتري	زحل	قمر	عطارد	زهرة	شمس	ل	ك	ي	ل
ز	و		د	ج	ب	ا	ع	س	ن	م
ن	م	ل	ك	ي	ط	ح	ر	ق	ص	ب
ش	ر	ق	ص	ف	ع	س	خ	ث	ت	ن
غ	ط	ض	ذ	خ	ث	ت	غ	ظ	ض	ذ

(جدول ما يخص كل كوكب)
(من الحروف)

Figures 1, 2: Dawud al-Antaki in his treatise, connected between the human body and the physical world

After: Dawud Al- Anataki, *Tazkiratu ulil Albab wa al-jam' li al- 'ajab al- 'ujab*, 1008 AH, Al-Tawfiqiah library, without date, pp.104-5

4. Division of the Book

Tazkiratu ulil Albab is divided into introduction and four parts²⁶ in three volumes, mainly related with simple drugs which were called *Adwia Mufradah*. The first volume divided into three chapters; first chapter dealt with fundamental of Unani pharmacology "*Kulliyat al-Adwia*". Second chapter contained information about principles of pharmacology "*Qawaneen al-Adwia*", and the third one provided

²⁶ Ahmed, Hasan, *Muslim*, p. 279

detail about single drugs “*Adwia Mufradah*”²⁷. Before this volume, Dawud al-Antaki started his book by an introduction taking about the humoral theory²⁸.

5. Diseases and Drugs

The Ottomans were influenced by Europeans in the treatments of many diseases like plague which spread at the sixteenth century, they at first take escaping as the perfect treatment of this disease without occurring²⁹. Then at the seventeenth century, Ibn Sallum, the Ottoman physician introduced the treatment of plague in his book affected with the European physician Paracelsus³⁰.

Also, Europe was influenced by Ottoman physicians in treatments of many diseases like smallpox that killed millions of people for long periods. Ottoman physician introduced Variolation to Europe for the first time³¹.

During the eighteenth century, many Ottomans and Islamic drugs spread in the European pharmacies, like the Balm of Gilead which was most celebrated in Europe, hawkish and licensed as well as the balsam of Mecca³². Many of European physician tried to describe the Ottoman method of preparing that drug, but the real attempt was in 1775³³.

In the second volume *Ahkam al-Amrad* of this book, Dawud al-Antaki also described drugs according to alphabet, as he started with drug of dropsy “*Istisqa*”³⁴. The third volume dealt with many illnesses and their treatments³⁵, written according to alphabet also, he mentioned treatment of cancer and different joint illnesses like gout “*Naqras*” and Varicose Veins “*Duwali*”, as well as diseases related to urinary bladder, stomach and intestine³⁶. The causes and symptoms of these diseases had discussed in this manuscript³⁷. In addition to 225 other diseases had been covered in this volume with some prayers “*Du‘ā or Ta‘wizaat*” for different purposes³⁸.

Dawud al-Antaki, in his medical treatises considered love as a disease (fig. 3)³⁹. As a treatment for that, he advised love patients to burn their nails and mix the honey with the ashes, then feed the mixture to their beloved. He also argued, when a women refused the love of her lover, the man should mix his blood with his sperm and put this mixture in a lead bowl, after finding worms he should killed them and

²⁷ Jamal, Siddiqui, Hassan, Jamil, *Contribution*, pp. 45-6

²⁸ Gadelrab, *The Popularization*, p. 4

²⁹ Ebru Boyar, *Medicine in Practice: European Influences on the Ottoman Medical Habitat*, (Turkish Historical Review), 2018, Vol. 9, pp. 220:222

³⁰ Salih Ibn Nasrallah Ibn Sallum, *al-Tibb al-jadid alkimyawi aladhi ikhtara ‘ahu barakilsus* (Library of Congress), No date, pp. 48:50

³¹ Gulden Dinc, Yesim Isil Ulman, *The introduction of variolation ‘A La Turca’ to the West by Lady Mary Montagu and Turkey’s contribution to this*, (Vaccine), 2007, No.25, p4261

³² Mohammad Sakhnini, *Eighteenth-Century European Medical Encounters with the Ottoman Levant*, (Turkish Journal of History), 2021, Vol. 73, p 81

³³ Sakhnini, *Eighteenth*, pp 83:84

³⁴ Jamal, Siddiqui, Hassan, Jamil, *Contribution*, p. 47

³⁵ Gadelrab, *The Popularization*, p. 4

³⁶ Gadelrab, *The Popularization*, p. 10

³⁷ Amster, *Ottoman*, p. 10

³⁸ Jamal, Siddiqui, Hassan, Jamil, *Contribution*, p. 48

³⁹ Dawud Al-Anataki, *Tazkiratu ulil Albab wa al-jam’ li al- ‘ajab al- ‘ujab, 1008 AH, Al- Tawfiqiah* library, without date, p.148

used this blood to write secret amulets⁴⁰. He advised the patient to read Quran verse and repeated the names of Allah in a certain number (fig. 4)⁴¹.

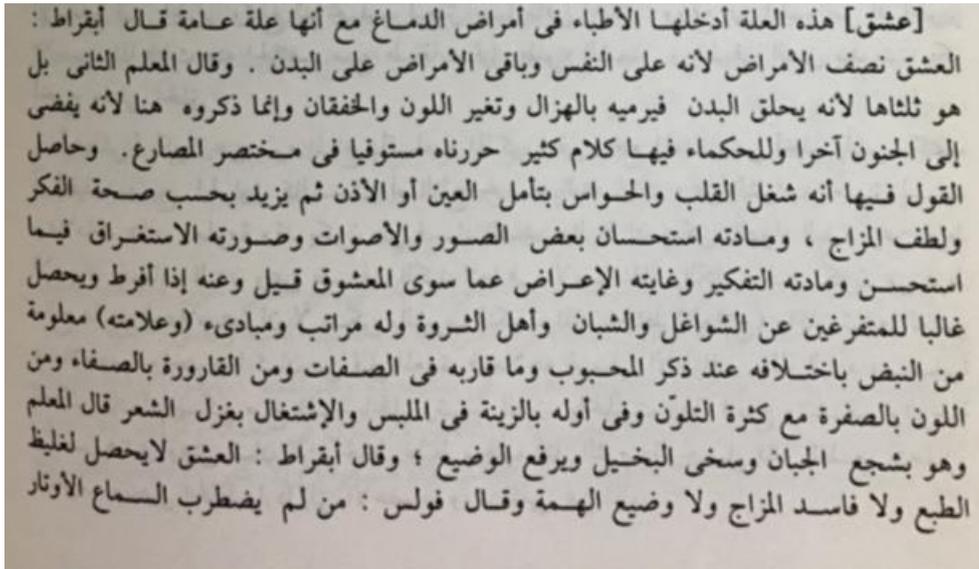


Figure 3: A part from Dawud al-Antaki's book, he considered love as a brain disease

After: Al-Anataki, *Tazkiratu*, p.148

⁴⁰ Gadelrab, *The Popularization*, p. 10

⁴¹ Al- Anataki, *Tazkiratu*, p.149

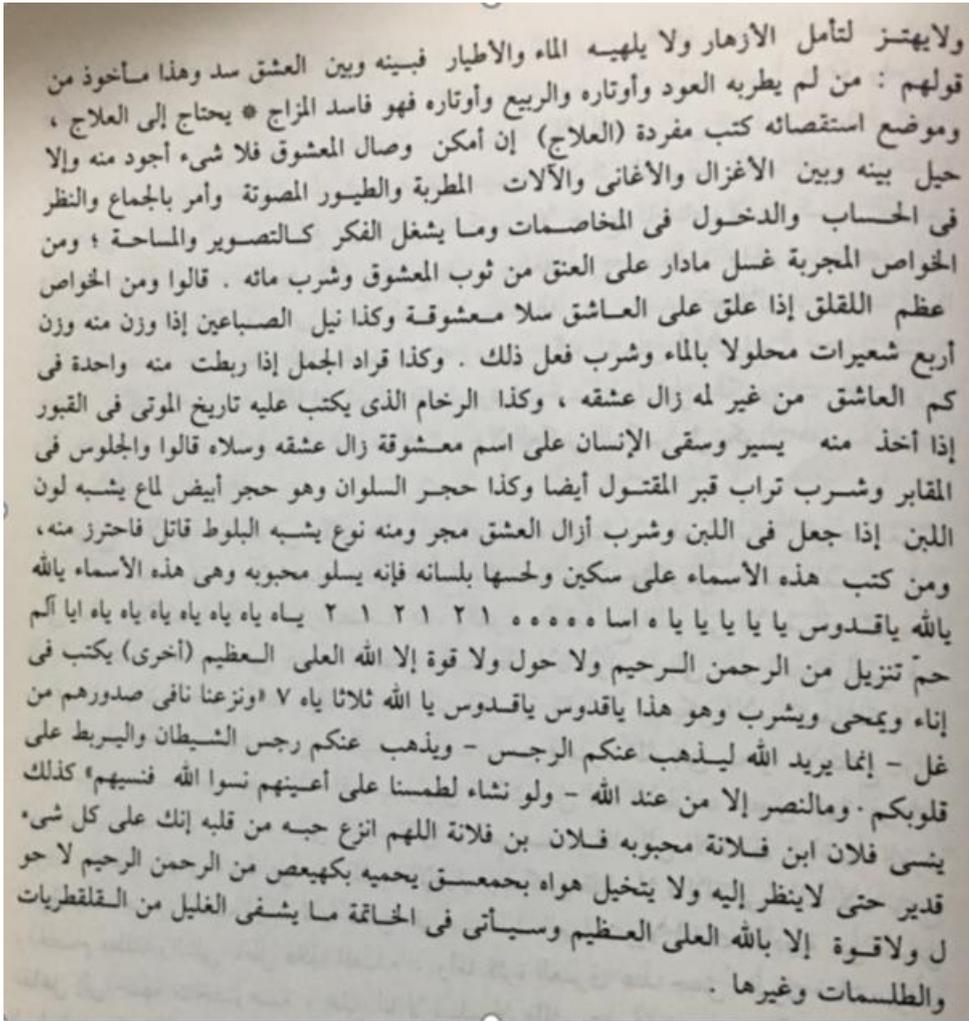


Figure 4: A page from the book of *Tazkiratu ulil Albab wa al-jam' li al-'ajab al-'ujab*, described the treatment of love

After: Al-Anataki, *Tazkiratu*, p.149

As an important topic, Dawud al-Antaki dedicated a chapter for drugs that prevent pregnancy and others that promote pregnancy. He discussed the physical causes of sterility like lack of straightness of the vagina fallopian tubes, the flow of sperm, problems in reception of sperm, or the humidity. He suggested making a past by crushing garlic and cooked it in butter, then mixed this with saffron, cinnamon, a nut of *bua*, and a hundred of *sa'ila* in each, then she could wear this mixture in her vagina⁴².

Like other Muslim physicians, Dawud al-Antaki believed on the important influence of flowers as treatments of many diseases. He conducted research on Jasmine flower, he discovered that it is beneficial for aphrodisiac⁴³. As well as other botanical substances had been mentioned in his book, like *jar an-nahr* "neighbor of the river" which is like chard but has prickly roots and seven leaves, it spreads and grows over the water. This plant used as a treatment for many illnesses like diarrhea, bleeding, and tumors⁴⁴.

⁴² Amster, *Ottoman*, p. 15

⁴³ Rizvi, *Elemental*, p. 2541

⁴⁴ Amster, *Ottoman*, p. 14

Although there were many brilliant physicians talking about pharmacology and their contributions influenced the history of medicine like; Rhazes⁴⁵ and Ibn Baytar, Dawud al-Antaki outperformed them as his contributions fulfilled the changing requirement and challenge during his time⁴⁶. He could gather between Persian, Christian and Arabic medical works in his book⁴⁷.

6. Folk Medicine and Using Magic

At the beginning of the Ottoman rule in the 13th century, medicine and pharmacy weren't thriving enough, because of the Ottoman expansions and the interior rebellions. After the 16th century, there was a wide scientific exchange with the west, which caused restricting the folk medicine done by attars and opening modern pharmacies⁴⁸.

The medical activity in the first period of the Ottoman Empire emerged within the framework of the Islamic understanding of medicine and maintained this quality for a long time. On the other hand, due to the fact that the Ottoman Empire is the heir of the Anatolian Seljuks, the health care and institutional structure in the Seljuk period was transferred to the Ottoman Empire; Within the framework of the characteristics of Islamic medicine⁴⁹.

Many diseases were treated by the folkloric practices like Variolation in the Ottoman Empire, it was performed in general by old women and that was their business. They opened patient veins by a large needle and used a nutshell full of type of Smallpox and put it into vein, then they wrapped wounds by a hollow bit of shell⁵⁰.

Cauterization “*ilāj bi-nār*” also was a famous medical treatment during the Ottoman era. Muslims used it for many ailments such as hemorrhoids, fistulas⁵¹, and even headaches. Cauterization process is done by using a hot tool like iron, with designating spot in a special organ and then removing the tool after a few minutes. Some documents date back to 1970AD, attested that Cauterization was

⁴⁵ Rhazes: His name is Abu bakr Muhammed Ibn Zakariyya al- Razi, born in 865 and died in 925. He was one of the famous Islamic physicians. Before 30, he was interested in art, but after that he studied medicine, philosophy, chemistry, mathematics and astronomy. See, Mohamad M. Zarshenas • Alireza Mehdizadeh, Arman Zargarani, Abdolali Mohagheghzadeh, *Rhazes (865-925 AD)*, J Neurol, 2012, Vol. 259, p. 1001

⁴⁶ Jamal, Siddiqui, Hassan, Jamil, *Contribution*, p. 49

⁴⁷ Amster, *Ottoman*, p. 10

⁴⁸ Armin Skrbó, Izet Masić, *Influence of Arabian Pharmacy on Diseases Treatments During Ottoman's Period in Bosnia and Herzegovina*, Med Arch, 2017, Vol.71, No.3, p. 223

⁴⁹ [Alper Tunga Kokcu, Nilüfer Demirsoy](#), *Hekimbaşı Mustafa Behçet Efendi ve 19. Yüzyılda Osmanlı Tıp Eğitiminde Yenilikçi Hareket*, Türkiye Klinikleri J Med Ethics, 2016, Vol. 24, p. 68

⁵⁰ Gulden Dinc, Yesim Isil Ulman, *The introduction of variolation 'A La Turca' to the West by Lady Mary Montagu and Turkey's contribution to this*, Vaccine, 2007, No.25, p. 4264

⁵¹ Fistula: Is a passageway connects two organs that isn't usually connect. The main location of the fistula is around the anus. See, National Association for Continence, *Fistula*, <https://www.nafc.org/fistula>, last access 29\9\2021, 2:00AM

used as a folk medicine⁵². The main goal of cauterization is to form scar tissues for the diseased areas⁵³.

Belief in magic has existed in Egypt since ancient time. The ancient Egyptians considered magic as a gift enable human body to fight the spiritual dangers by faith. They used magic for solving health problems and they made a spell for health⁵⁴.

As other Arabian physicians during that period, Dawud al-Antaki believed in Quranic recitation over patient, as well as magic and talismans “*ta’wizaat*” (fig. 5)⁵⁵. He made charts for what he called kings of jinn, he believed in their dominant all the weeks, he believed in their ability for gathering between lovers and causing healing for many diseases. So, he made many amulets for these purposes (fig. 6, 7)⁵⁶.

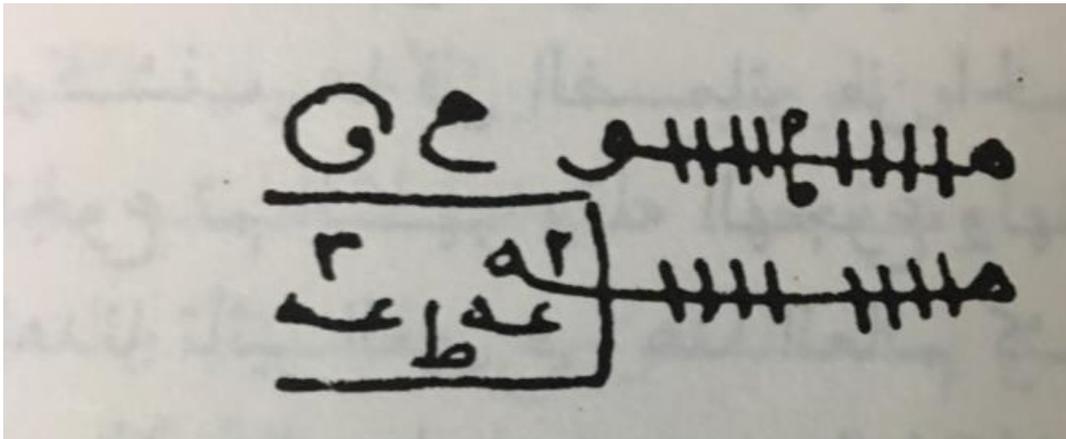
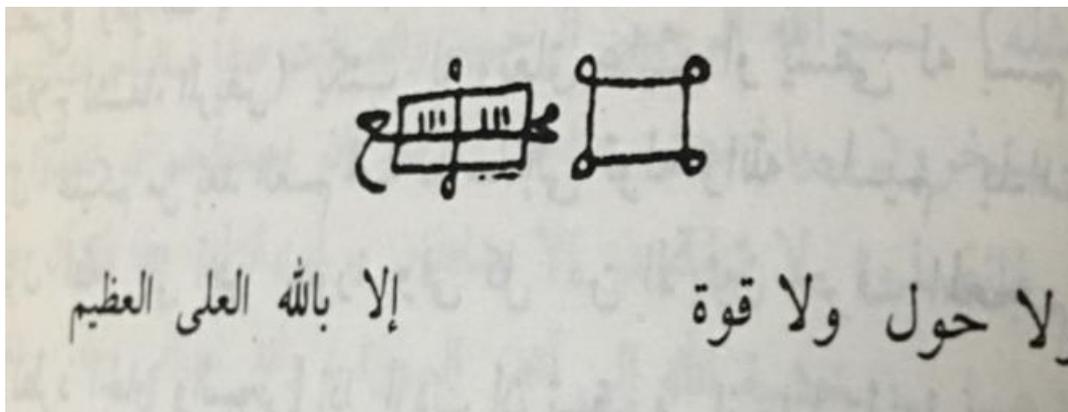


Figure 5: An amulet for headache written by Dawud al-Antaki in his book *Tazkiratu ulil Albab*.

After: Al- Anataki, *Tazkiratu.*, p. 174



⁵² Helaine Selin, *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, Springer, Dordrecht, third editing, 2016, p3052

⁵³ H Volkan Acar, *Acupuncture points in the book of Şerefeddin Sabuncuoğlu, a 15th century Turkish physician*, *Acupunct Med*, 2014, Vol. 33, p. 73

Acar, *Acupuncture*, p. 73

⁵⁴ Paula Veiga, *Health and Medicine in Ancient Egypt: Magic and Science*, Bar Archaeopress, 2009, p. 28-29

⁵⁵ Dawud Al- Anataki, *Tazkiratu ulil Albab wa al-jam’ li al- ‘ajab al- ‘ujab, 1008 AH, Al- Tawfiqiah library*, without date, pp.173: 192

⁵⁶ Amster, *Ottoman*, p. 16

Figure 6: Amulet with the shape of the crescent, protected from envy of jinn or humans written by Dawud al-Antaki

After: Al- Antaki, *Tazkiratu*, p. 175

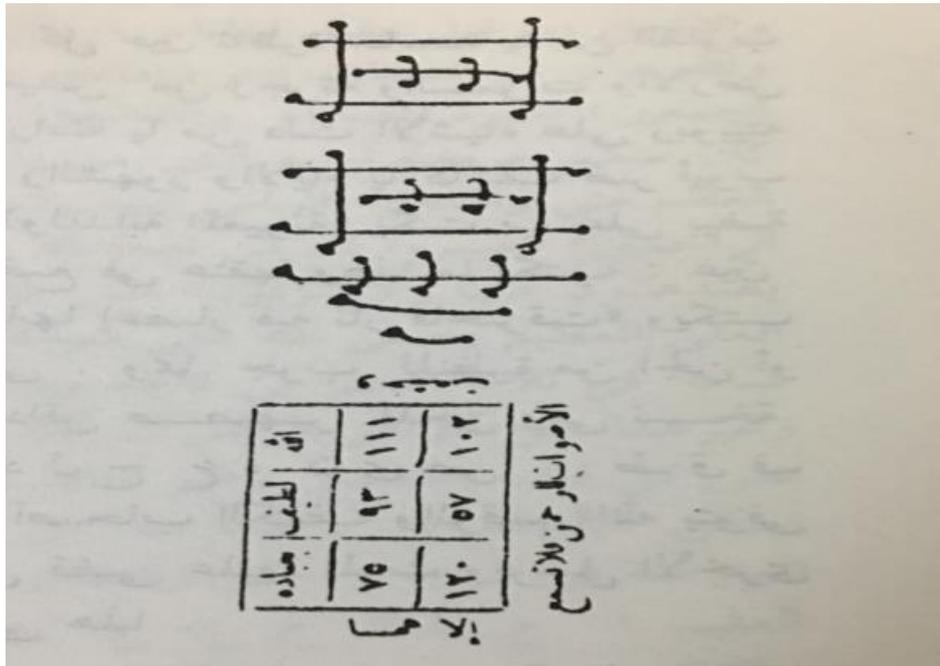


Figure 7: Amulets in the charts written by Dawud al-Antaki to protect patients from jinn and magic

After: Al-Antaki, *Tazkiratu*, p. 176

7. Conclusion

Dawud al-Antaki, the famous Ottoman physician during the sixteenth century, treated many diseases. His medical book was famous and affected on many physicians during that period. His medical book reflected the direction of Islamic medicine during that period. This famous medical book *Tazkiratu ulil Albab wa al-jam' li al-'ajab al-'ujab* affected a lot on the Egyptian medicine, it was divided into introduction and four parts were included into three volumes. Dawud al-Antaki in his treatise, connected between the human body and the physical world. As well as, he invented a lot of drugs from different substances for using them in his work. His drugs became famous and many patients used them. Dawud al-Antaki, in his medical treatises considered love as a disease, and he introduced many advices for love patients. During the sixteenth century, there were not effective means of regulating medical practices, just rudimentary organizations gave an ijazah to students as a confirmation for practicing medicine. The medical activity in the first period of the Ottoman Empire emerged within the framework of the Islamic understanding of medicine and maintained this quality for a long time. The Folk medicine spread during that period and many diseases were treated by this way. Variolation in the Ottoman Empire was treated, it was performed in general by old women. The Ottoman physicians used cauterization as a medical treatment for many diseases. Like other physicians during that period, Dawud al-Antaki believed in Jinn and their ability to infect people. So, he used Quranic verses and magic in his treatments for many diseases. Although, he followed the folkloric practices which spread during that period, he made real contributions affected on medicine and other Arabian physicians.

8. References

Books and Articles

- āmyra ʿly mdāḥ, ālṭb wālsydlh fy āldwlh ālʿtmānyh mn ʿsr ālfāṭḥ ḥta wfāt ālsṭān slyān ālqānwny 855- 974 AH/1451-1566AD, rsālt ālmšrq, Cairo University, 2006, Vol. 18, No. 1, 2.
- Anwar Jamal, Aisha Siddiqui, S.M. Hassan and S. Shakir Jamil, *Contribution of Daud Antaki as Unani Physician in the Field of Ilmul Advia (Unani Pharmacology)*, Hamadard Medicus, 2013, Vol. 56, No. 1.
- Armin Skrbo, Izet Masic, *Influence of Arabian Pharmacy on Diseases Treatments During Ottoman's Period in Bosnia and Herzegovina*, Med Arch, 2017, Vol.71, No.3.
- Dawud Al- Anataki, *Tazkiratu ulil Albab wa al-jam' li al- 'ajab al- 'ujab, 1008 AH, Al- Tawfiqiah library*, Without date.
- Ellen Amster, *Ottoman Science in the Maghrib: Islamic Medicine and the Translation into Local Maghribi Contexts of Dawud ai-Antaki's Tadhkira*, International Congress on the Maghreb and the Western Mediterranean, 2009.
- Ebru Boyar, *Medicine in Practice: European Influences on the Ottoman Medical Habitat*, Turkish Historical Review, 2018, Vol. 9.
- Gulden Dinc, Yesim Isil Ulman, *The introduction of variolation 'A La Turca' to the West by Lady Mary Montagu and Turkey's contribution to this*, Vaccine, 2007, No.25.
- Helaine Selin, *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, Springer, Dordrecht, third editing, 2016.
- H Volkan Acar, *Acupuncture points in the book of Şerefeddin Sabuncuo_glu, a 15th century Turkish physician*, Acupunct Med, 2014, Vol. 33, p. 73
- Mahmoud Abu āl'ywn, ālḡām ʿ ālāzhr, mṭb ʿt ālāzhr, 1949.
- Mohamad M. Zarshenas, Alireza Mehdizadeh, Arman Zargarán, Abdolali Mohagheghzadeh. *Rhazes (865-925 AD)*, J Neurol, 2012, Vol. 259.
- Mohamed Abdalla, *Ibn Khaldun (1332-1406)*, The Wiley Blackwell Encyclopedia of Race, Ethnicity, and Nationalism, 2016, First Edition.
- Muhammad Afzal Rizvi, *Elemental Composition of Medical Flowers*, Pak. J. Bot, 2007, Vol. 39, No. 7.
- Paula Veiga, *Health and Medicine in Ancient Egypt: Magic and Science*, Bar Archaeopress, 2009.
- Salman Ahmed, Muhammad Mohtasheemul Hasan, *Muslim Heritage in Medicine: A Concise Review on Greco- Arabic Contribution*, Journal of Pharmacognosy and Phytochemistry, 2015, Vol. 5, No. 4.
- Sherry Sayed GadelRab, *Medical Healers in Ottoman Egypt, 1517-1805*, Medical History, 2010.
- Sherry Sayed GadelRab, *The Popularization of Medical Knowledge in Ottoman Egypt, 1517-1800*, Lokman Hekim Journal, 2012, Vol. 2, No.3.
- Silvia Sheffer, *ālṭb wāl ʿfbā ʿ fy mšr bnāa ālhwyā ālmhnyā wālmšrw ʿ ālṭbyā*, translated by Magda Abaza, Supreme Council of Culture, 2005.

Website Links

- Amany Eljendy, āḥnqāwāt wāṭkāyā wālāsblā wāḥmāmāt mlāmḥ ṭāryḥ
ālqāhrh ālāḡtmā'y, aḥram,
<https://gate.ahram.org.eg/daily/News/202255/119/592619/%D8%AB%D9%82%D8%A7%D9%81%D8%A9>, last access. 28/2/2022, 1:47 AM.