JOURNAL OF THE INTERNATIONAL SOCIETY FOR THE HISTORY OF ISLAMIC MEDICINE (JISHIM)

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JOURNAL OF ISHIM

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JOURNAL OF THE INTERNATIONAL SOCIETY FOR THE HISTORY OF ISLAMIC MEDICINE (JISHIM)

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EDITORIAL

It is our pleasure to publish April/October 2017-2018-2019 Issues of the **Journal of International Society for the History of Islamic Medicine (Journal of ISHIM)**. We know that Journal of ISHIM is a scientific journal devoted to the **History of Islamic Medicine and Ethics** research and scholarship. Also, this issue like the earlier ones represents important studies in the **History of Islamic Medicine and Medical Ethics** which activate thinking and raise certain questions. So, it also tries to provide solutions to thorny and sensitive problems and the ensuing understanding helps in enlarging one's perception and intellectual horizon. The views of papers are always those of the authors, and it is important in a field like bioethics which encourages interaction and dialogue over scientific topics.

This issue contains some important scientific articles, in which, we can see and valuable original studies on **History of Islamic Medicine and Medical Ethics.** These articles are from famous scientists of many countries of the world. So, this journal helps to the development of researches on **the History of Islamic Medicine and Medical Ethics**. After 21 papers and news of some scientific meetings are present.

Wishing April/October 2017-2018-2019 Issues of the **Journal of ISHIM**, to be beneficial to all readers and colleagues.

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Illustrations of Instruments for Bullet Removal in an 18th Century Ottoman Medical Manuscript

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Summary

Few of the surgical instruments used in the Ottoman period have survived to the present day. We learn about the Ottoman surgical instruments from illustrated medical manuscripts and prints. In this study, we will consider the illustrations and comments relating to the tools used in removing the lead in gunshot wounds found in a medical manuscript of the 18th century. These are the oldest illustrations of a bullet extractor and related instruments depicted in a medical manuscript of the Ottoman period that we have identified so far. The first instrument used to intervene in the wound is a probe that is inserted into the wound to know the depth of the bullet or arrow and act accordingly. A special tool for bullet extraction is illustrated and introduced as a screw-like instrument invented to remove bullets from injuries. A tool illustrated similar to a forceps is used together with the above mentioned instrument to extract the bullet. In this study it is argued that these tools may have been used before the 18th century.

Key Words: Ottoman Medical Manuscript, Surgical Instruments, Bullet Extractor, Probe, Forceps

Introduction

Illustrated medical manuscripts provide us information about surgical instruments of the Ottoman period. The book on surgery named *Cerrahiyet'ul-Haniye* by *Sabuncuoglu Sherafeddin* is the most important of all. In this manuscript of the 15th century, we can see illustrations of surgical instruments as well as miniature pictures showing how to use these instruments.[1] However, another medical manuscript of the 15th century, the *Ala'im-i Cerrahin* by *Cerrah İbrahim b. Abdullah* is the first book of the Ottoman period to mention firearms injuries. The information on the treatment of gunshot wounds written in this book is similar to those of the European authors of the time.[2] Although the use of lead in gunshot began in 1200, bullet injuries were mentioned for the first time in 1460 by Heinrich von Pfalzpaint, chief surgeon of the German Army, in his book named *Wund Arznei*.[3] Starting from the beginning of early 16th century special tools were developed to remove bullets from the wound, as the use of gunpowder began to be widespread and advanced firearms started to be used in wars.[4]

Illustrations of surgical instruments found in an 18th century medical manuscript registered at the Medical History Museum of Cerrahpasha Medical School are of importance in describing the bullet removal tools used during the Ottoman period. These are the oldest illustrations of a bullet extractor and related instruments depicted in a medical manuscript of the Ottoman period that we have identified so far. Our aim is to introduce these illustrations and the defined functions recorded next to the drawings.

Method And Material

The findings of this study are from a medical manuscript written in Ottoman Turkish of the 18th century kept at the Medical History Museum of Cerrahpasha Medical School, registered at number 1195. The said manuscript is one of the five medical books copied by *Yusuf bin Muhammad* in 1710, all bound together in a single binding. The first 150 pages are the *Şifaul Eskam* of *Dervish Ömer Şifai*. According to the order of the binding, the last four are anonymous. The folios between 150b and 158a are about temperaments. A pharmacopeia (158b-188b), a medical lexicon (189a-193b), and compiled illustrations of plants and tools (194a 224b) take place in the binding, a total of 224 folios (448 pages). The surgical instruments studied in this article are found in the last untitled book and in between the folios 194a-224b.

Findings

The illustration, description and function of three complementary surgical instruments used in the extraction of lead from gunshot wounds are explained in the above said text.

Mil, the probe

The first instrument used to intervene in the wound is a probe named *mil* in Turkish. It is inserted into the wound to know the depth of the bullet or arrow and act accordingly.[5] The tool is drawn as blunt, tapering toward the tip designed to avoid harming the wound.

Fig. 1. *mil*, the probe.

Burgi, bullet extractor with a central screw

A special tool for bullet extraction is illustrated and introduced as a screw-like instrument. According to the written information, this tool known as '*burgi'* was invented to remove bullets from injuries. The operation of the instrument is explained as, "*Insert the tip of the tool into the wound, when the tip reaches the bullet the top of the instrument is rotated, and the bullet is pulled out. When a part of the bullet is removed it is extracted by a tool named 'çifte' which is described below*".[6]

Çifte, the forceps

A tool said to be known as "*çifte*" amongst masters of surgery is illustrated similar to a forceps with blunt ends to avoid harming the wound. In Turkish "*çifte*" means

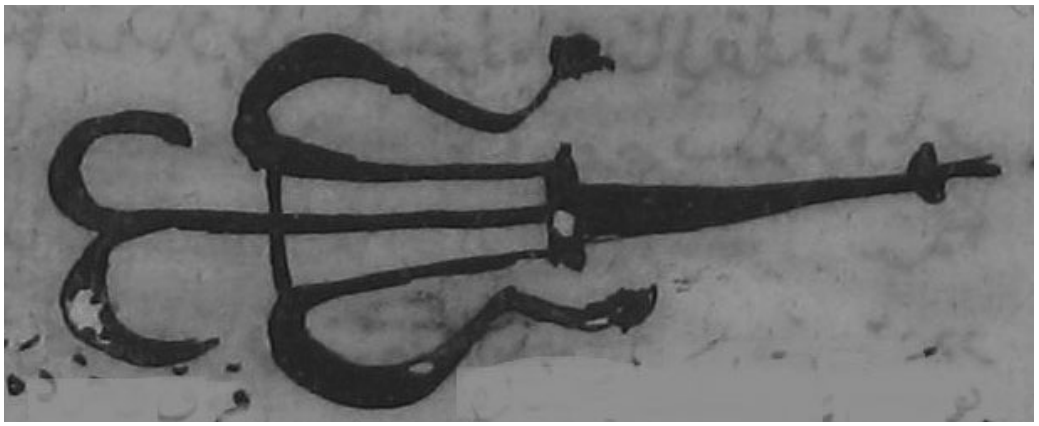

Fig. 2. *Burgi,* the bullet extractor with a central screw.

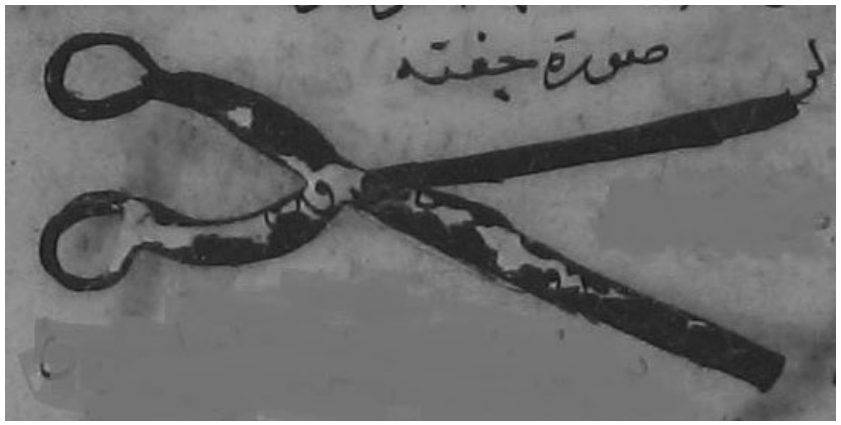

Fig. 3. *çifte* the forceps

two-in-one, that is double. It is written that, "*when a man is shot with a bullet, they insert the tool into the point and when the tool comes to the bullet they extract it*." According to the descriptions about the functions of the tools illustrated, this tool is used together with the above mentioned instrument named *burgi*, the bullet extractor with a central screw.[7]

Discussion And Conclusion

The above mentioned surgical instruments do not take place in a book chapter. Writings and drawings are not regular as it would be in a book. The instruments were given Turkish names not found in previous Ottoman medical books on surgery. The pictures are roughly drawn as if they were recorded for the illustrator himself or for the apprentice. These must be tools that a surgeon used on his own that he draws down on papers and noted some significant knowledge related with the tools. Functions of the tools are described and there are also warnings. The person who made these pictures and wrote the surgical information must have been a master trained in apprenticeship and be a practicing surgeon himself. The interconnected use of the three instruments discussed above strengthens our view of the writer illustrator.

Fig. 4. Ottoman Turkish surgery at the battle field.

There are no pictures of lead removal tools in an Ottoman Turkish manuscript dating back earlier then this eighteenth century manuscript we studied. We do not know from which date the instruments for removing the lead in gunshot wounds were used during the Ottoman period. However, in the surgical book *Chirurgiae libri septem, theoricam, practicam, ac verissimam experientiam continentes* of *Cruce* dated 1573, we see images of bullet removal tools used by surgeons in the Ottoman army in an illustration of a surgical intervention on the battlefield.[8] In this drawing, one of the illustrated surgical instruments depicted on the front of the scene as being used during war is a screw-type bullet extractor, which resembles the bullet extraction tool with a central screw discussed in this article. In the *Chirurgiae libri septem*, there is not a tool similar to the screw-type bullet extractor seen in the said illustration of Ottoman war surgery, although pictures of various types of surgical instruments are included in the book. The fact that the book was printed in Venice and during the Ottoman-Venice War (1570-1573) indicates that it was probably drawn by direct observation.

Lead extraction tools like those we studied are found in European museums. For example, a bullet extractor like the one shown in figure 2 is exhibited at the Science Museum in London, registered as A610633.[9] This instrument is introduced as belonging to the sixteenth century.

Fig. 5. Science Museum London, inventory number A610633

Considering the picture of Ottoman army surgery in the *Chirurgiae libri septem* dated 1573, showing the use of lead-removing device, it is an indication of the Ottoman use of the bullet extraction tools from the sixteenth century on. However, a bullet extractor of the sixteenth century does not exist in museums of Turkey.

Probes and forceps have been used since antiquity; but surgical instruments such as the screw-type bullet extractor designed especially for the removal of bullets, show the effect of new war techniques on the development of Ottoman surgical instruments as in Europe. The various tools developed for bullet removal can be seen in the books[10] and catalogs[11] of later centuries.

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Abulcasis & Contemporary Oral & Dental Surgery

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Summary

The contribution of the Muslim scholars has not only helped to preserve medical & surgical sciences passed from the old Roman & Greek empires at that time but also formed the corner stone of today's principles of oral & dental surgery and therefore leading to the new state of the art techniques used nowadays around the world in everyday's practise. In this paper we're going to review Abulcasis innovations in oral & surgical field including managing traumatic injures, oral pathologies(Ranula), early orthodontics, surgical extraction, and many more.

Keywords: Abulcasis, Muslim, Surgical, Pathologies, Orthodontics

Introduction

Abu al-Qasim Khalaf ibn al-Abbas Al-Zahrawi (936-1013 CE), also known in the West as Albucasis, was an Andalusian physician. He is known as the greatest surgeon in the Islamic medical era. His comprehensive medical texts, combining Middle Eastern and Greco-Roman classical teachings, shaped European surgical procedures up until the Renaissance. His greatest contribution to history is Kitab al-Tasrif(Kitab al Tasrif Leman Ajiza An Al ta'reef), a thirty-volume collection of medical practice, of which most portions were translated into Latin and other European languages including various aspects of surgery including cauterisation, incision, and perforation.

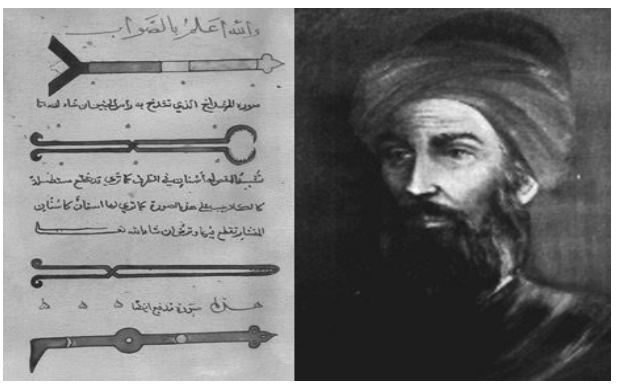


Fig. 1.[1]

In this article, I'm going to highlight Abulcasis and his surgical and oral diagnostic approaches within oral & dental surgery through different conditions.[2]

Cauterisation fistulae occurring in the mouth

When managing an established tumour in the gingival base, palate or molar teeth. Which appears to be purulent and breaks out and therefore a fistula emerges as pus is flowing out & typical treatment didn't heal the lesion, then cauterisation has to be the alternative treatment. A suitable Cautery of the same size of the fistula should be picked up & heated then introduced hot to the intended opening and apply pressure whilst doing so till it reaches the focal spot & the surrounding hollow. This should be done once or twice and then complete the conventional treatment, if the lesion has been healed, then its okay, if it doesn't, then a surgical procedure cannot be avoided and the diseased bone shall be removed.[3]

Excision of the superfluous Gingival growths (Gingival Epolis)

Sometimes, Gingival excessive growth might happen in the mouth. Abulcasis referred to this condition as he says in his book to the ancients as they used to call it "Epolis". Management of this condition initially by taking a hook or forceps to hold it and then cut it from its very roots and let the blood or pus out then apply pounded vitriol or absorbent styptic powder. If the lesion returns relapsed as they tend to do so, a second excision should be done and followed by cauterisation as cauterisation shall prevent any further relapse.[4]

Scraping Teeth with Iron Instrument (Scaling)

Nasty depositions might be gathered around the inner & outer surface of tooth and surrounding gingiva. Those might appear as black, yellow, or green rough surfaces that cause harm to the gingiva and teeth can be barely seen.

The patient shall set before you putting his head in your lap and then scrap the tooth or molar that has accumulations 'till nothing is left. All teeth should be done the same manner regardless of their different colour till nothing let at all. If they are gone by the first scraping, then its good, If not, scraping should be repeated 'till everything has been removed thoroughly. Tools used to scrap molars are of different types & shapes according to the intended procedure, for example the tool used to scrap the inner surface is different from the one used to scrap the outer surface(, And the one used to scrap in between tooth is also different from those used to those surfaces[5] **(Fig 2-4)**[6]

Fig. 2. Both ends of a U15/30 scaler.

Fig. 3. Gracey curettes.
Left to right, #5-6, #7-8, #11-12, and #13-14.

Figures 2-3 show the current instruments used for scaling compared to the old original instruments introduced by Abulcasis. (Marsh & Huntington)

Sickle scalar is used to remove supra-gingival calculus whereas Gracey Curettes are used as follows:

Double-ended Gracey curettes are paired in the following manner:

Gracey #1-2 and 3-4: Anterior teeth

Gracey #5-6: Anterior teeth and premolars

Gracey #7-8 and 9-10: Posterior teeth: facial and lingual

Gracey #11-12: Posterior teeth:

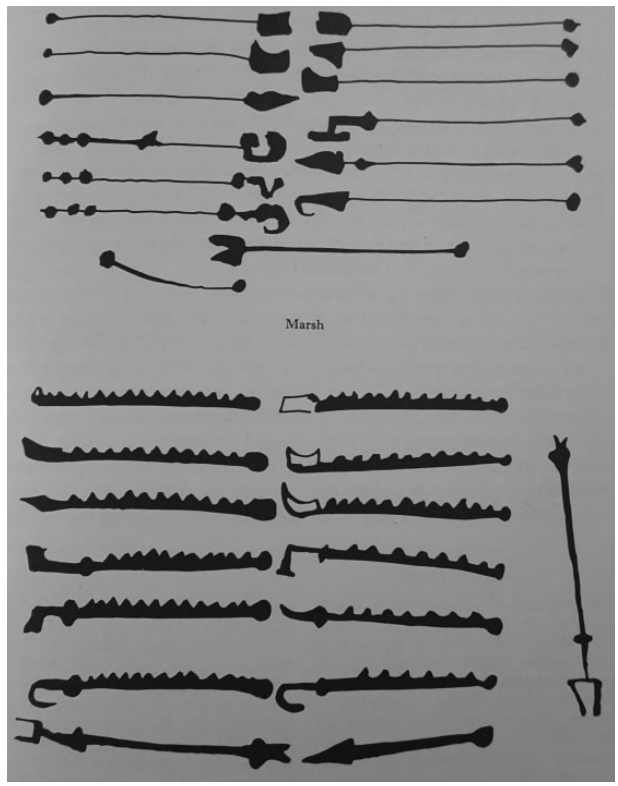


Fig. 4. Shows the Huntington & Marsh.

Huntington thick fluted, serrated handles for good grip, Marsh thin, smooth handle they are clearly the same but with different shapes to overcome difficulties arising from tooth shape or position. the tool in Arabic called "MIJRAD" indicating a scraper.

Extraction of Teeth

We should try to save the tooth by all means and leave extraction as a last resort. For this tooth to be extracted, is a noble tissue that cannot be replaced no matter what. When the decision is taken to extract it, a proper investigation should be carried out to locate the diseased tooth. Barber-surgeons at that time failed to locate the diseased tooth and therefore extracted additional tooth in vain, When definite diagnosis has been made & diseased tooth was located, the surgical procedures start off by cutting all around the tooth 'till the gum to totally separated, And then try to move the tooth with your fingers or using of fine forceps 'till it stirs. Again with large forceps and by setting down the patient's head between your knees to prevent it from moving. Then draw the tooth straight out to prevent it from splintering. If it didn't come out, then, ought to use one of these instruments **(Fig 4)**

beneath and around the tooth with same movements, if this tooth has a hole or decayed, it should be plugged with a rag using probe to put it in place to prevent breaking tooth whilst gripping it. Scarifying the tooth all around the gum & be utter careful not to splinter the tooth and therefore the remaining will put the patient again to more painful condition than before. be wary not to commit the same mistakes old barbers used to by putting these instruction behind. For they create more harm than good amongst people. the least of which is break the tooth off short, leaving the whole or part of root behind, or to remove the tooth together along with a piece of the jaw bone after which the patient should rinse with wine or vinegar and salt, if there is haemorrhage which's common then pound it up with vitriol and stuff it to the place. If vitriol is not available, then cauterise.

The shape of the forceps used in the first move of tooth should be with long jaws and short handle, thick and lest they bend when you try hold of the tooth. (Fig 5) the shape of the large forcep. you can note that they have thick handle so it cannot be bended when applying appropriate pressure and short jaws. They should be of Indian iron or of steel, strongly made, the jaws tempered and having teeth fitting to each other, so that a steady grasp maybe be obtained. Sometimes, the jaws are made like a file, also to give a good grip[7]

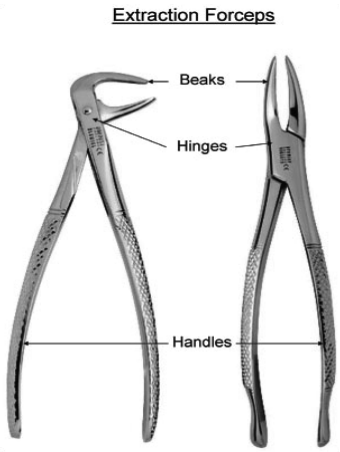


Fig. 6.[8]

Extraction of Roots & of Broken Pieces of Mandible

When extracting tooth, if any part of the root has broken, then a cotton wool soaked in butter should be applied for one or two days to soften the area, then insert the (kalalib)* tongs or forceps with stork-Bill like jaws and this is how forceps look:

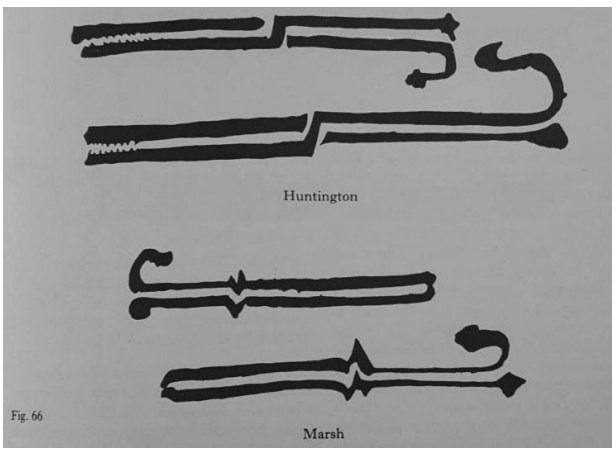


Fig. 5.[7]

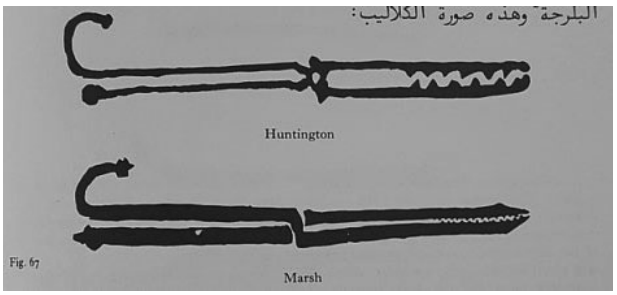


Fig. 7A.[7]

(Kalalib)* forceps or pincers advised for extracting teeth, dental roots, picking leech out of the pharynx, extracting vesical calculus and other uses.

Fig. 7B.[9] showing different types of Elevators used currently

The point should be made like file or rasp from the inside, If it doesn't respond to your attempts trying to extract it with those forceps, you must dig down over the root and remove all the flesh and then insert the instrument that resembles a small crowbar shown below:

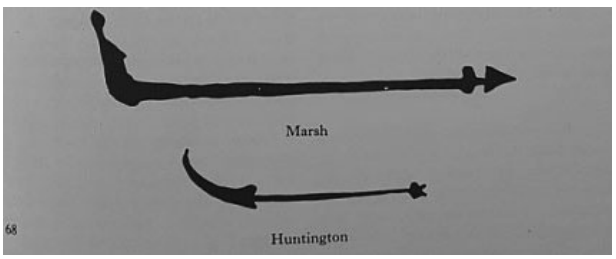
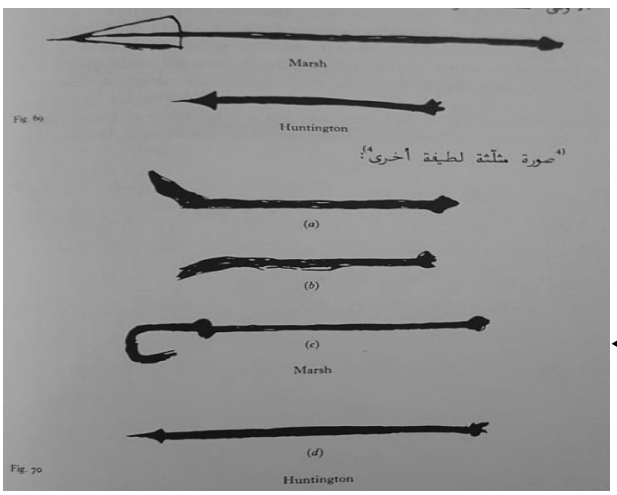


Fig. 8.[10]



◀ **Fig. 9.**[10] the first two are triangular and a bit stout, the other are triangular fine. it has short, thick extremity and shouldn't be tempered lest it fracture, if the root comes out, good, if not, get assistance from the rest instruments figured below[10]

Sawing Teeth Growing on each others

When teeth grow in other than their natural position, the appearance is very bad. especially when it occurs in women or slaves. then you should examine if the tooth has grown out behind another tooth and it is impossible to saw or to file it down, then extraction is the option. But if it is attached to another tooth, cut it down with an instrument of this kind.

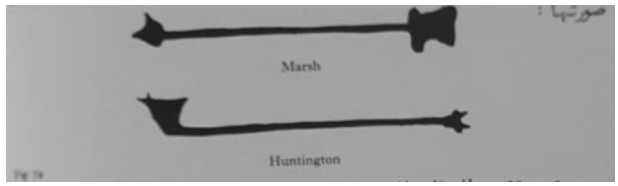


Fig 10.[11] Its like a small chisel and of Indian steel with well sharpened end.

You should spread your cutting with it over several days depending on the tooth hardness and so as to leave the other undisturbed if the tooth projects over the other teeth, use a file of Indian iron, shaped like this:

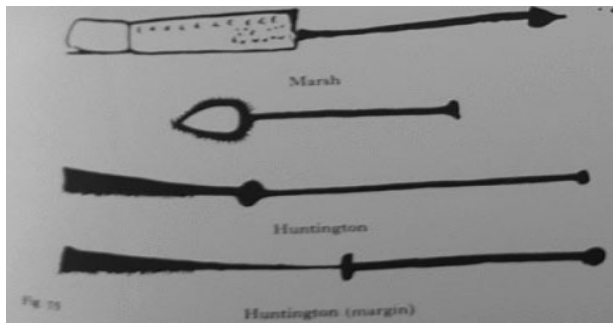


Fig 11.[11] it should be wholly manufactured of Indian iron along with the handle and covered with very fine points used in making needles.

the tooth should be filed with it slowly and gently over a period of many days so as not to shift the tooth and cause it to fall out, Finally smooth it and scrape it with one of the scrapers. If the part of the tooth was broken off and it hurts the tongue in speaking, file it down

'till you have disposed the roughness of the break and the tooth is smooth and neither injuries the tongue nor hinders speech[11]

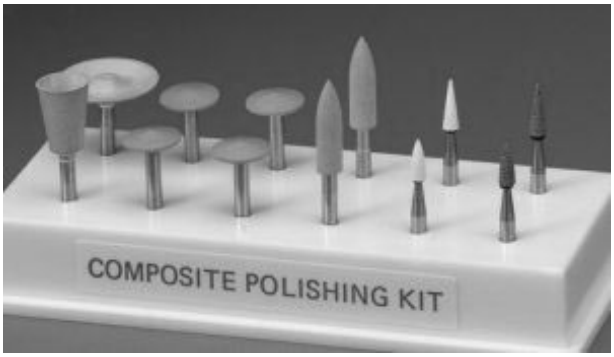


Fig. 12.[12] Different types and shapes of white stones.

Nowadays, White stones can be used for fine contouring and finishing of enamel, composite and porcelains[12]

Splinting teeth & Orthodontics

When the anterior teeth are loosened by some blow or fall and the patient cannot bite upon what he is eating lest they fall out, and you have without avail treated them with styptic medicines, the technique in this case is to bind the teeth with gold or sliver wire. Gold is better for the silver oxidises and corrodes after several days, but gold remains in its state and doesn't suffer this change. The wire should be moderate in thickness in accordance with the distance between the teeth. The method is to take the wire and run it doubled between two sound teeth, then the two ends of the wire you weave between the loose teeth, either one or several, 'til you bring your weaving to an intact tooth on the other side whence you began, tighten it gently and judiciously they don't move at all, you should tie the wire at the root of the teeth lest it slip. Then with the scissors cut off the two ends of the wire remaining over, and bring them together and twist them with forceps and hide them between the intact tooth and a loose tooth so as not to injure the tongue, then for the future leave them thus bound. But if it comes undone or breaks, bind them with another wire, so may he have the use of them all his life. This is a figure of the teeth and the manner of interlacing two intact tooth and two loose teeth as you see:

After one or two teeth have fallen out, they may be restored to their place and bound in as instructed, and become permanent. This can be done only by an expert and gentle practitioner. Sometimes a piece of ox-bone may be carved and made into shape of a tooth, and placed in the site where a tooth was lost, and fastened as we have said, and it will last and he will get long service from it[13].

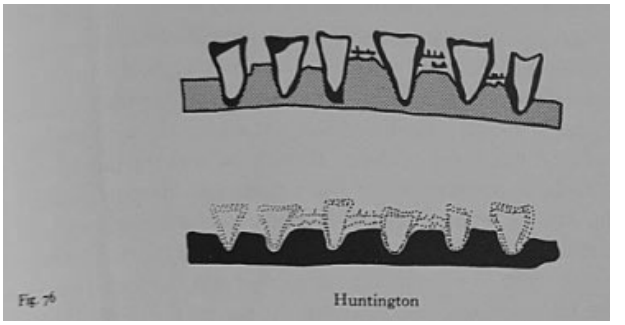


Fig. 13A.[13]

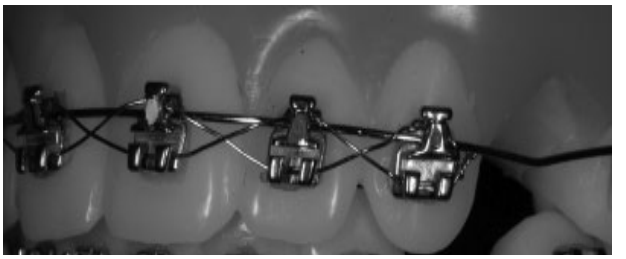


Fig. 13B.[14] Current method of splinting (closing gaps) using Figure 8 ligature wires.

Orthodontists today use a similar technique to maintain/bring the teeth into position. Figure 8 ligature wires are placed between brackets to close gaps as seen in (Figure 13B)[14]

On Incising the Ligament Below the Tongue Which is an Impediment to Speech

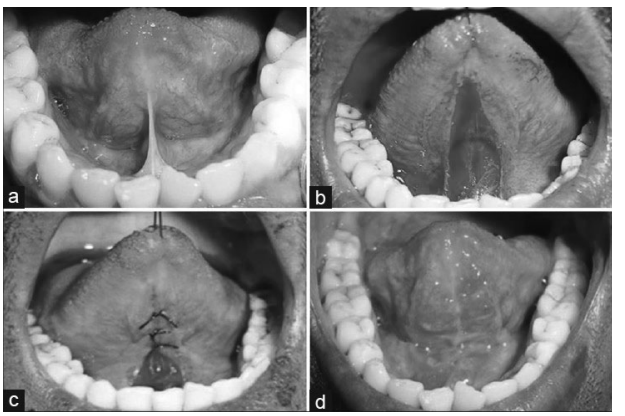


Fig. 14.[15] Lingual Frenectomy Before and After.

Sometimes the existing ligament underneath the tongue is natural and congenital, or it may be accidental due to scarring from previous injury. The operation for it is to open the patient's mouth, having his head in your lap, and lift his tongue, then cut that sinew like ligament transversely til the tongue is freed from its hold. If its hard and nodular, arising from scarring after an injury, catch it with a hook and slit it transversely 'til the ligament is severed and the knots undone. Beware of making the incision deeply into the flesh, or you may cut an artery there and haemorrhage may occur. After the cutting, let him rinse with rose-water or vinegar and cold water. Then put under the tongue a pad of linen, which the patient must keep in position at night to prevent the adhesion from forming again. If there should be haemorrhage, put pounded vitriol on the place and if bleeding still prevails burn the spot with lenticular cautery of suitable size and treat in the usual way till healed[16]. A similar procedure is being done nowadays in what's called 'Lingual Frenectomy' to overcome congenital and acquired deformities and improve patient speech.

Removal of "Ranula" Underneath the Tongue

Sometimes occurs under the tongue a swelling resembling a small frog. Which hinders the natural movements of the tongue, sometimes, it grows so as even to fill the mouth. Abulcasis suggested that the operation for it is to open the patient's mouth in the full light of the sun and inspect the tumour. If you see that it is dark or black, and hard, and the patient has no sensation in it, don't interfere with it, for it is a cancer. But if it is inclined to be pale and has a fluid in it, put a hook in it and incise it with a fine scalpel and free it all round, and if haemorrhage hinders you whilst operating, apply pounded vitriol to it 'til the bleeding stops. Then proceed with your work till all is extracted, then let him rinse his mouth out with vinegar and salt. Then give all the suitable treatment till healed[17].

Fig. 15.[18]

Discussion & Conclusion

Oral & dental surgery had developed dramatically over the last millennium, creating and introducing new guidelines, fabricating new instruments and upgrading surgical approaches and practice codes leading to the current most up to date advancements. However, as presented earlier in the paper, there are certain procedures have not changed as much till this very moment, contributing into the overall contemporary oral and dental surgery. This shed the light on the important role that Muslim scholars have put into in general and Abulcasis in particular, shifting Medical & Dental sciences into a totally new era that expanded healthcare boundaries further and helped saving many lives that could not have been saved in the past. Furthermore, improved the overall well-being and prevented epidemic oral disease across the globe. This would urge current practitioners not only to take a peek at what their ancestors have discovered and achieved but also study and analyse their findings thoroughly which might help cure lingering conditions and stubborn diseases no matter how simple their discoveries or observations were! Thus, will take us back to the old narrative of Einstein "Everything should be made as simple as possible, but not simpler"[19]

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Is It a Correct Information That The Mongolians Burnt the Baghdad Library?

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Summary

One of the most important events that shaped the world history is the Mongolian invasion which had a major effect from the point of religious history in 13th. century. Besides their own religion and beliefs, Mongols approached with a big tolerance to the religion and the religious leaders in the regions that they invaded. On the other hand, they didn't stop intervering domineeringly to religious rituals which were contradicted with their own rules.

Hulagu with a strong army started from Karacoram in A. D. 1252, with instructions to crush the Assassins and to extinguish the Caliphate. The Mongolian prince moved even more leisurely than was usual and did not reach the borders of his command until three and a half years later. The sack of Baghdad was a terrible event in history as the city was the centre of the Moslem world; and the irreparable injury of the civilization by the extinction of the Caliphate more than six centuries after the foundation of Islam, by the destruction of priceless literary and artistic treasures, and by the massacre of learned men of all classes, defies description. The Moslem civilization was at that period the shining light in the world. The awful nature of the cataclysm which set back the hands of the clock of progress among Moslem states, and thereby indirectly throughout the world, is difficult to realize and impossible to exaggerate.

In this article the limits of the destruction of Baghdad by The Mongolian invasion will be discussed. It will be tried to clear out of exaggerations of some activities which happened in a very important part of Islamic history of science.

The purpose of writing down this article is not an effort to extenuate the massacre and destruction executed by The Mongolians, but to clear out of exaggerations of some activities which happened in a very important part of Islamic history of science, as well as to contribute to promoting works of other authors who also tried to bring forward the facts under the light of truth, contained in our reference resources.

According to some historians, Hulagu Khan was not thinking to march to Baghdad, but upon insistence of Nasir al-Din al-Tûsi, he gave up direction to Byzantine and destined to the centre of the caliphate (1). In any case, Iran is a good model in terms of comparison before The Conquest of Baghdad. A lot of capabilities of The Mongolians before reaching Baghdad are important by point of proof of the future implementations. Hulagu seemed to be determined to conquer Baghdad, however the fact that caused his insistence is his mutual harsh showdown with the caliph while still in hinterland of Iran. He had suggested the caliph to partner to the conquest of Alamut in inner part of Iran under the leadership of Hassan al-Sabbāh. Musta'sim Billah (caliph between 1243-1258)'s rejection made Hulagu angry and caused him to decide to attack Baghdad (1).

After defeating and dissolving from the fortress the proponents of Hasan al-Sabbāh who have an esoteric point of view, a very important thing came out for us. During the conquest, Atâ-Malek Juwayni (death 1282) the author of Tarīkh-i Jahān-gushā (*History of the World Conqueror*) (2) accompanied Hulagu, by mentioning the existence of a very valuable library in the fortress said that: *"There are very nice books which should not be destroyed"* and then went on Hulagu liked this suggestion a lot. *"I went to the library upon his order. I took some of the Holy Qurans and of the useful books which I could obtain, I also took the appliances used in field of astronomy. I burned the books of pervert Ismailiyye sect which they used for propaganda and which is not related with rational and reported sciences. While examining the library I found out Gil and Dailam (Cil and Deylem) History that was written down in the name of Fakhr al-Dawla* (The old Vizier of Mervanis in the time of Great Seljukid Sultan Melikshah)."

We don't need to mention how far the suicide attacks of Esoteric Ismailiyye sect damaged muslim society as well as all nations. What can more clearly indicate his interest that Hulagu, well aware of the case assigned Al-Ju-

wayni to preserve the religious sources in special and the scientific books in general (2). In case we happen to consider Hulagu as an extreme foe of Islam, would he tolerate Al-Juwayni to take up the holy qurans in custody?

The books of the authors who witnessed this fact can also lead us. One of these is Ibn al Fuvātî (d. 1323)'s book so-called Al Hawadis ul Jamia (News from the Society). It is well known that Ibn al-Fuvāti is yet fourteen years old when the Mongolians set foot on the gates of Baghdad. In that war the Caliph was killed, and Ibn al Fuvātî was jailed as long as 3 years and then escaped. After sometime Hulagu's Vizier Nasir al-Din al-Tûsi noticed his ore and took him under protection provided that he trains students. Fuvāti's book clearly mentions in detail the cruelties and destructions made by the Mongolian soldiers; It names the gentry persons killed one by one. It describes the unbearableness of the massacre so that in order to parry the bad smell of corpses, the people congested their noses with onion, and the citizens of Sewād city were almost removed entirely and the rest starved from hunger. In spite of that, there is no any information available about the fate of the library and the books (3).

In this case, what can be the mainstay of reports that the library and the books have been burned or thrown into the river? It is strongly probable that those who became source to the reliable historians such as Ibn Khaldūn and al-Kalkashendi are proponents of the caliph escaping from Baghdad to shores of South Africa. Those people who became latter period historians may have quoted the public reports into their books. Al-Kalkashendi lived in Egypt and Ibn Khaldūn lived in Maghreeb. In terms of time and scene, it is not possible for them to witness and examine the facts.

Muhammed Mâhir Hammâde who made a research on the subject of libraries of Islam has asserted a claim that the library named as the caliph's library by al-Kalkashendi is the Library of The Beyt al-Hikme (The House of Wisdom) (3). There were five seperate type of libraries in Baghdad before the Mongolian conquest such as corporate, private libraries, mosque libraries, university and public libraries. It is reported that there were about 36 large and small libraries however the most famous of them are the libraries of Beyt al-Hikme, Nizamiyye, Dar al-'İlm (that vanieshed as a result of fire in 1084 before the conquest) as well as the two libraries built by Musta'sım at his headquarters. As al-Kalkashendi talks about the contents of the libraries in Muslim cities, he mentions that there were so many and valuable books which were used until Hulagu's conquest of Baghdad and adds that after the killing of the caliph, the books were remeoved unanimously with no trace back. Al-Kalkashendi has not tried any other wayout except this short information, but only expressed his worries about the fate of those books (4).

The other important reference is the history book named *Jami' al-tawarikh* written by Iranian historian Reshid al-din Fazlullah Hamadani (1247-1318) in 1313. In this historical source Reshid al-din tells more till the utmost details than Ibn al Fuvātî about the period from Hulagu's communications with the caliph until the fall of Baghdad (5). The chain of flow of facts narrated day by day informs about the Caliphate mosque, Musa al Jawad Martyrdom and destruction of the tombs of the caliphs only but no more information about destruction of any other library or any other place (6).

After capturing Baghdad and removing the caliphate Hulagu returns to Azerbaidjan and orders first to establish new settlements around Urmiye lake for the usage of the captured huge trophies. Apart from that he orders his vizier Nasir al-Din al-Tûsi to build a complex of a library, a university and an observatory on a hill north of Meraga. According to remarks of Reshid al-Din, Tûsi overtakes all responsibilities and calls for astronomers from China for cooperation to start to execute researches in order to invent a new astronomy calendar. As a result of fifteen years of researches, Tûsi writes his book named Ilhanid Astronomy Calendar as a report of his works. Together with Tûsi, muslim scientists such as Ibn Taghriberdi Shirazi, Mueyyed al-Din Ardi al-Dimashki, Muhyi al-Din al-Maghribi, Fahr al-Din Meragî, Fahr al-Din Akhlatî, Necm al-Din Debiram al-Katibi al-Kazvini accompany him in this work. Completing the building costs approximately 20. 000 dinars and the costruction work lasts until Abaka Khan (1265-1282) period (7, 8, 9).

It is reported that 400.000 books were available at the library constructed together with the observatory. Even if considering that is an exaggerated figure, you can not disregard the extensive scientific studies have been continued in the meaning of campus of today's university as well as plenty of books which can not be underestimated. Collection of so many books in such a short time into this Meraga library creates the question of *"whether these books were imported here from other libraries"*. Historical data confirm this information (10). Makrizi (d. 1441) asserts that almost all of those books were imported from

The Library of Baghdad (3). However after the conquest of Baghdad, Ibn al Fuvātî (d. 1297) who was ordained to honour the Library of Mustansiriyya tells about availability of 80.000 unique books which had no similar or identical in the world, that indicates not all of the books but most of the books could have been imported.

Is it ever possible to find it reasonable that Hulagu who ordered the immediate construction of such an enormous library and a research center in Meraga and the valuable man of science Tûsi who dominated all of the scientific studies with full authority to order burning of a library like library of Baghdad which contains books on human sciences and reeligion sciences or to order throwing of the books into the Tigriss river with more efforts? Then why would Tûsi demand the books sold by people of Kûfe and Hille towns in the markets? Why would Hulagu order his vizier to construct such a center although he knew human and Islamic sciences were taught at Meraga Madrasa (University), where Ibn al Fuvātî taught lessons of reciting holy Quran and calligraphy, and where most of the instructor staff consisted of Muslims? Should he feed animosity against Islamic religion and culture shouldn't he prohibit such an attempt? In this case, it is strongly probable Hulagu and Tûsi did not destroy the books but transported the books on their way back from Baghdad or later to Meraga library.

Another new and important report that could be a proof that the books were not destroyed by the Mongolians comes from Ibn al Fuvātî. He states that some people brought food items to Baghdad and bought invaluable books in return (3). Had the books and libraries been burned and destroyed and thrown into the Tigriss river, where would people of Baghdad find those invaluable books? When considering the books were manuscripts, there can be only one valid reason that there were plenty of books so as to sell widely and abundantly in the markets. That is to make use of temporary gap of authority where the people could take away or steal the books from the libraries. It is understood that the bookish persons bought such books at reasonable prices by evaluating this opportunity where the the people suffer food shortage because of war.

Hulagu and his commanders conquered Baghdad in every corner together with his army of 200.000 soldiers on 22nd Janury 1258. The conquest ended with killing or surrendering of the soldiers of the caliph on February 5 and 6 with no more clashes until killing of the caliph on February 20. However some historians base the end of the war with the date of killing of the caliph and stated the war lasted 40 days (1, 6). It is understood that the others consider the date of dense clashes and regard it as seven or seventeen days.

The Mongolian army consisted not only of Mongolian soldiers but of Muslim and Christian groups as well who declared dependency and faithfullness to Hulagu. That means if there is a destruction, the Muslim soldiers also have a part in that (1, 6). When it comes to the Caliph's army, it is mentioned that it consists of no more than 10.000 people. As understood from the littleness of the figure, it seems that some parts of the soldiers joined the opposite side or the people abstained from defending Baghdad. Whereas The Caliph Musta'sım replied the warning letter of Hulagu with threatening expressions saying that: *"Oh the young man! Who is dazzled with ten days prosperity, don't you know that from east to west from kings to beggars that everybody is the slave of the Caliph and can order them to get together?"* (1, 6). But let's leave east and west aside, the number of soldiers prove that even the armed people of Baghdad did not join the war in full in order to defend the Caliph. That is clear that the Caliph himself did not get full support of his own proponents.

The Mongolian armies have not faced a strong resistance in Baghdad, just the reverse they have experienced cases of escaping defeats. Even the two commanders Duveidar and Suleiman Shah tempted to get on ships and escape together with their units, but unfortunately the ways of escaping had been blocked by catapults set up on bridges (1, 6).

Hulagu dictated six separate orders stated that the people of science, old, judges, traders are in safety and got the orders hung in various regions of the city; and he also declared that anybody who quit the Bevvabat al-Halbe gate is also in safety (11). Thinking this proposal is a political maneouvre to break the resistance, however the underlying concept of the order indicates the content is that the people referred in the order are too weak to fight. Ibn al Fuvātî states that only fourteen people who quit the palace were killed including the Caliph, that is a sample indicating those too weak and harmless people people have been forgiven (3). Another indication of Hulagu's main purpose is not to destroy the establishments, the Islamic culture and its representatives is to assign mostly all muslim Arab former bureaucrats of state units on fol-

lowing the of killing the Caliph on the same day. Beyond these, so many high level bureaucrats and scientists continued their posts.

Isn't it a conflict that Hulagu who is asserted to to have the intent to destroy Baghdad in whole to allow the enterprises and the staff to continue to operate same way? If we consider this as a policy of appearing nice to the people and collecting proponents, would that good intent be shown to the non-living things where hundred thousands and even millions of people have been massacred, libraries and science centers have been destroyed in a city which has no more buildings?

Another matter full of disputes and conflicts is the way of killing the Caliph Musta'sım Billah. That is a matter not related with our subject, it is so long and complex as to be a subject of another article. The killing has been accepted to be realized before hundreds maybe thousands of people with many different variants therefore to approach the reports of the killing and destruction of the library and the books more cautiously will provide us with more possibility of comparison. There are many different assertations regarding killing Musta'sım from treading by the soldiers, to filling him in a bag and throwing into the Tigriss river (12), as an inevitable result, except some minor destructions of the war, it has been proven there has been no deliberate attemps of destroying and burning. A contemporary witness, Ibn al Fuvātî reports to us that The Mustansiriyye Madras which covers such as the Caliph's palace, the house of the Vizier Duveidar and many buildings are still actively preserved however the Caliph's mosque has partly been damaged and later restored.

In this period, Baghdad which sheltered so many elements such as Sunnis, Shias, Jews, Christians was also hosting a lot of dissensions and clashes more than the Mongolian conquest. Beyond civil wars, natural calamities also are understood to have damaged some parts of Baghdad. As a result of flooding of Tigriss river in the year 1255, almost all of Baghdad was underflooded. Ibn al Fuvātî who experienced this flood calamity tells that the people suffered so much that they were obliged to do intercity transport by boats. The caliph's house was fully filled with water, and one of the important centers The Divan-ı Zimam (The Administration Board) was also underflooded. At the Nizamiyya Madrasa (University) the height of water went up 4 zira's (zira' is a length of 75-90 cm from an elbow to the middle finger). Mustansırriye had been constructed comparatively at a higher location where the people prayed at Muntasiriyye University (3). The flood calamity is understood to have damaged Baghdad partially if not more. There is no news about the fate of the library after the flooding calamity. That fact is exposed so explicitly that Baghdad was not a very positive city before the Mongolian conquest in terms of safety, and re-construction. Although this is known, to charge the Mongolians with all crimes indicates there is a suitable guilty in terms of place and time.

Hulagu, right after returning to Hemedan assigned a group of 3.000 people to Baghdad for re-construction work appearing to compensate the war and ask for forgiveness for the massacred people (1). Imâd al-Din Omar al-Kazvînî (d. 1300) who was ordained to assist the Emir repaired the mosques and universities in his realm together with the assignees under his order in a short time. Remained in power less than a year, Kazvînî by protecting the fukaha, ulema (Islamic disciples) and theosophy men of science converted the city of war into a city of peace (6). The people were so satisfied with the interest shown to them and to the city, Shems al-Din Kûfî el-Hâshimi who wrote Baghdad Tragedy after The Mongolian conquest wrote this time mentioning Imâd al-Din in another ode and presented it as a monument of peace and goodness. The ode lasts quite long and starts with these words: *"Oh His Highness! Imâd al-Din! Oh The King! Named as Fair in Life...."* (13) Alaeddin Al-Juwayni replacing Imâd al-Din al-Kazvînî in 1258 activated new reforms because his predecessor completed the construction of the city. He built new educational enterprises, opened a channel in Tigriss river to Kûfe town and flowed water, and supported copywrights and editors (3).

Özdemir who made a study on the Mongolian conquest asserts a lot of convincing proofs in a part of his work under a sub-title that The Baghdad Library was not destroyed. However at the end of the chapter he shows reasons such as shortage of information and base his preference on weakness of the building. According to Özdemir: *"Shortly to say, we don't strike any information in the first sources that if the libraries were destroyed by Mongolians, and even if the Tigress river turned into red due to the flowing blood of the killed people as per a saying and if the river flew in blue or black due to the solution of the inks of the books thrown into the river. But it is very generally very clear that a city which was looted for days, destroyed and bured in full with only a few surviving some buildings made of bricks, therefore we have to assume this is as is."* (14).

The Mongolians in the eyes of Nasturids, Jakobids and Armenians were assumed as revengers of the persecuted Christians and divine rescuers. Hulagu's wife Dokuz (Tukuz) Hatun, a Christian caused to act tolerantly to distribute some of the captures gained from the Abbasid Caliphate among the Christians of Baghdad (1). As a natural result, especially the Christian historians shouted the despite they grew in their hearts for a long time as loudly as they could 515 years after liberation of Baghdad (15). Whereas between 1245-1247 years the Christian preacher Plano Carpini who was assigned by Pope as an envoy to the Mongolian Ruler has written long in his travel notes that the Christian and Western world should transit into a resistance in whole against a potential attack by Mongolians who are a barbarian nation and tells about their cruelties in detail. (15) The King of Byzantine used this expression in his letter to Hulagu and his wife: *"Allah prepared both of them (Hulagu and Tukuz Hatun) for the revenge of the Christians"*. Also the King of Armenia Hethum/Hayton (1254-1257) well known for his anti-islamism and for his works on Oriental History has entered a cooperation with the Mongolians so far as to reach the lands occupied by the Mongolians. In the end, although he had no opportunity to realize his ideals actually especially about killing the Caliph himself personally, he wrote down making use of the rumours and charged the Mongolians for the killings (3).

Another famous Armenian historian Kantzag (Genceli) Kirakos/Kiragos (1201-1272) preferred to despise the Muslims with sharp expressions. We consider these words quoted from his own notes will be a good sample for writing history subjectively: *"The (Abbasid) Empire had swallowed all of the world like a greedy leecher. Then returned all what it took. It was being punished for the committed bloodsheds and sins. Injustices had strayed out of control. The cruelties of Muslims had lasted six hundred forty seven years"* (2). The statements of the speaker of these words looking like a judge's expressions more than a historian can not be considered to be impartial. A lot of facts were skewed or exaggerated because of many of the historians – as in the example of the library – used history as means for propaganda instead of informing properly. The history which should exist objectively has turned into a slave of gradual approaches.

When it comes to acceptance of the date 1258 as the closing of golden age of Islamic History of Science:

According to evaluations of some scientists, in terms of Islamic history of science Hulagu Khan, the ruler of Ilhanid State conqured Baghdad on 10th February 1258 and overthrew the Abbasid State from the stage of history, it was dominantly considered until recent times that "The Golden Age" of Islamic history of science had expired. However in recent years this thought seemed to have a weak background, more than that it has been shown that it depended on lack of information and political worries. By the Mongolian conquest, it is true that at least the domination of the Arab element in the Orient-Islamic world ended and a Baghdad-centered science-cultural life had a destructive hit. Apart from that it is very explicit that hit in general meaning effected the Islamic and science civilisation negatively. But as a result of this conquest, the Islamic civilization as a living organ in a whole has not vanished but staggered only. After completion of the Mongolian conquest and re-establishment of political-economical stability in the area, the Islamic science and civilisation entered a new attempt. Because despite the Mongolians entered the Islamic world as "*a political hegemony"* they failed to get an alternative concept of civilisation-culture. On the contrary, they have adopted the concept of civilisation-culture of the world on which they established domination (16, 17).

A group of men of science who assumed the hegemony of a new political power and took their interest into consideration realized the second creative attempt in the Islamic science which enjoys the first bright period and corporated with Beyt al-Hikme in Baghdad in the term of Abbasid caliph Me'mun (813-833). The founder president of this group is Nasîr al-Din Tûsî (1201-1274) and he is the scientist who re-arranged the positive sciences within the Islamic civilisation.

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Islamic Culture and Positive Sciences According to Adnan Adıvar's Orientalist Point of View

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Summary

The sovereignty struggle between philosophy, science and the relation which was accused of destroying the public area with its scholastic approaches is discussed. Author Dr. Adıvar, analyzed his theory which he tried to prove with his work that is his intellectual approach that religion would not compromise with mind and science and the conflict between science and religion occurred since these two concepts were clung together, within the frame of the cultural history of the world.

According to Dr. Adıvar, the positive science in Ottoman Turkey until the XIX. Century was only sometimes deficient and sometimes wrong continuation of the science in Persian and Arabic languages and was no more different from the transition of the Greek miracle to East neither on account of content or method, besides if there were ant phases in which these sciences were innovated, they will be importantly specified.

Key words; İslamic Culture and History, Positive Sciences, Orientalism, Ottoman Turks.

Historical Backgrounds

The sovereignty struggle between philosophy, science and the relation which was accused of destroying the public area with its scholastic approaches is discussed. Scientist and author Dr. Adnan Adıvar analyzed his theory which he tried to prove with his work which will be focused in our article, that is his intellectual approach that religion would not compromise with mind and science and the conflict between science and religion occurred since these two concepts were clung together[1], within the frame of the cultural history of the world. Though he thought about analyzing the relation between the science and religion before, then he decided that the frame he drew would be more suitable.[2] In the foreword of the book, it is stated that one of the Cambridge University professors John William Drapper published a book in 1875 named "The History of The Struggle Between the Religion and Science" but the book which took a considerable attraction at that time was translated into Turkish twenty years later by Ahmet Mithat Efendi, who wanted to cling Islamic religion and Positivism together, with the name "Kitâbu Nizâi İlm u Dîn, and he implies that he wrote the book to balance that action which was not accepted by his book.[3] Nevertheless, he made the Christianity and Islam identical as the basic element, and in this way he referred to the reform phenomenon in religion, though by implication, which was his final destination.

The work which was written after the investigation of 147 important works in the foremost libraries of the West for years, has remarkably fluent, attractive, understandable and sincere style again as the previous one.

[1] Dr. Adıvar clearly states his said approach expressing the following words of Avicenna. Adnan Adıvar, *Tarih Boyunca İlim ve Din*, 2 Volumes, Remzi Bookstore, İstanbul 1944, p. 87. Work is capable of XI İ+360 and 236 p..

[2] Hasan Ali Ediz, "Tarih boyunca İlim ve Din, *Son Posta*, pp. 4, 7: Bedi Şahsuvaroğlu Arşivi, Adnan Adıvar Dosyası, 42/X-392; Kemal Salih Sel, "Son Haftaların Neşriyatı, *Cumhuriyet*, p. 2: Bedi Şehsuvaroğlu Arşivi, Adnan Adıvar Dosyası, 2/VI-168.

[3] Adnan Adıvar, *Tarih Boyunca İlim ve Din*, V. Edition, p. 9. Ahmet Mithat Efendi clearly put the Evolution Theory on the agenda with his articles "Veladet" and "Duvardan Duvara" published in Dağarcık periodical published in 1872 and 1873. But because of the intensive criticizes from the Islamic side, he had an approach as if he was trying to compromise his views with the theological dogmas, but he could not make a similar emphasize until the reforms period because he was banned by the government to writer such articles. Ahmet Emin Yalman, "Tarih Boyunca İlim ve Din", *Vatan*, 12 July 1944, pp. 4. Halide Edip Adıvar's grandson Ömer Sayar determined that Dr. Adıvar wanted to publish his work "Dur Düşün" (Stop and Think), under the name "Among the Monkeys" first. For me, there is a close relation between the last two reality that I underlined.

But it is more satisfactory in form and methodology.[4] When analyzed more, mostly the struggle which was made by the scientists and intellectuals which have the effort to reach the reality against the scholastic mentality shall be easily realized. By the way, he reflects the theories which are difficult to be understood as simple as possible and idealizes the determinist doctrine.[5] But, Dr. Adıvar continues his paradoxical attitude which is the characteristic of his life and he obviously admits that he investigated a theory which could never be proved to be true depending on the words of the Max Planc given below.

"Science shall never be able to discover the last secret of the nature. Because, in the last analysis, it is easy to understand that we ourselves are the part of the nature and the secret which we try to discover."[6]

In the work which comprises a period until the XIX. Century, he intensified on the subjects such as the religion-science conflict before the ancient Greek culture and its effects on the Greek-Roman Civilization, the place of Christianity in the scientific and theological approach, Islam and its philosophy, the relations between science-spirit and matter in the Renaissance period, the naturalist approaches and science and religion in the Age of Enlightenment, the religion and the reformist movements in England, France and Germany in XVIII century. In this context, the sovereignty struggle between philosophy, science and the relation which was accused of destroying the public area with its scholastic approaches is discussed. Besides, on one hand all the wholly books were written by the prophets and are paradoxical to all scientific developments, on the other hand baseless principles such as reform in religion and the male-female equality which had been defended since the Second Constitutional Government, are supported. But, although all the religions were analyzed in detail, Islam which refutes the said and similar claims with conceivable proof, was superficially mentioned, as a result approaches which are proved to be baseless are presented as confirmed realities.[7] Another point is that he made use of Friedrich Albert Langen's work "The History of Materialism and

[4] Dr Adıvar emphasizes that fact in the foreword of the book and states that he hoped to be understood by readers at least studied the high school. Adnan Adıvar, op. cit, p. 10.

[5] Determinism is an unrealistic theory which does not accept the optionality and the free will claiming that the physical spiritual and ethic all the events were determined by a group of reasons. It refers the appearing of events not to a leading power but to the components of the event. see Süleyman Hayri Bolay, *Felsefi Doktrinler ve Terimler Sözlüğü,* VIII. Edition, Akçağ Publications, İstanbul 1999, pp. 43-46. To say more clearly, it is the methodical explanation of materialism.

[6] Adnan Adıvar, *Tarih Boyunca İlim ve Din*, Volume II, Remzi Bookstore, İstanbul 1944, p. 266.

[7] For detailed information about the mentioned characteristics of the work see Adnan Adıvar, op. cit. Subjects such as male-female equality, making the language of praying Turkish which could only be possible by violating the frame determined by Islamic religion were intensively analyzed in the periodical "Islam" after the II. Constitutional period. The periodical with the writer staff Şerafettin (Yaltkaya), Şemseddin (Günaltay), Ziya Gökalp, Halim Sabit (Şibay) and Sheikhulislam Musa Kazım was opposed by the conservative periodicals such as Sırât-ı Müstâkim and Sebîlü-r-Reşâd. H. Kılıçoğlu "Tarih Boyunca İlim ve Din", *Tanin*, 14 October 1942 pp. 5, 7. The confirmation of Dr. Adıvar's books by the mentioned people is meaningful from this sense. Dr. Adıvar declared his views on the basic subject he studied in chapters in this new work too and in short he emphasized the below mentioned points.
(BC) XVIII and XVII Centuries: Science appeared in the foremost civilization centers of the East and began to be effective.
Ancient Greek Period: There is a parallelism between the science and philosophy. And the religion generally conflicts with the philosophy. Philosophy based attitudes of humanist Protogoras, rationalist Aristo and the other sophists had been determinant at that stage. After the Great Alexander, there had been an interaction between the Egyptian, Jewish and Greek philosophies in Egypt, Euklidis, Archimides and Ciceron both put forward important scientific theories and struggled with superstitions. At this point it can be observed that Judaism leaving setting a barrier against the scientific developments, accelerated them.
IV-XII. Centuries: Christianity was opposing the scientific developments because of its scholastic character and causing several problems in society.
Islamic Civilization Period. In the first phases, there had been important developments in science but the positivist philosophy which began to appear in the Abbasi period began to conflict with the theological dogmas.
Renaissance Period: The Europe continent leaded to a science-philosophy based doctrine. Christianity began to lose its affectivity in the public area.
Entering the XVIII: Century: Geographical discoveries began and Europe began to consolidate his successes in Renaissance
XIX. Century: The Reform and Renaissance movements resulted in the birth of the secularism a new period in which the science and technique is prior, began despite the wars. The positivist philosophy leaded by Auguste Comté who had a great role in the formation of Physics, biology, Evolution Theory, Darwinism, Psychology, and Jeune Turc movement, was becoming more dominant. But, on the other hand the religion was not dormant, it was defending itself against by the gradually increasing critics. The effect of the conference by Ernst Renan named "Islam and Science" on the conservative and the reaction again Cemaleddin Efgani who claimed that Islam also needed a reform, are the developments which should be evaluated in this context.
XX. Century: Modern Physics and Relativity (Theories) are on the agenda. The approach of Professor Einstein foreseeing that the matter could be non-existent and approving the theological dogmas is the unique reason of this fact. The said developments made a new dimension in science and religion struggle and discussions on the determinist doctrine became intensive.
I. Amendment: Evolution theory is real. The people who claim that the human could not be derived from the "monkeys" are "registered reactionaries".
II. Amendment: It is understood that the "religion" obliged to leave the positive science area wanted to be effective in social sciences. For detailed information see Adnan Adıvar, op. cit.

the Critic of Its Meaning Today" more than considerable standards.[8]

A big majority of the criticism against the work were put forward with the conforming articles most of which were written by similar names and have no scientific care. In this context, Rıza Tevfik Bölükbaşı[9], Hasan Ali Yücel[10], Prof. Dr. Akil Muhtar Özden[11], Prof. Dr. Avni Başman[12], Prof. Dr. Tevfik Remzi Kazancıgil[13], Hasan Ali Ediz[14], Dr. Fethi Erden[15], Ahmet Emin Yalman[16], Vala Nureddin[17], Kemal Salih Sel[18] and H. Kılıçoğlu.[19] Within the said frame, Prof. George Sarton had a similar approach but he made comments which was considered more important due to his post.[20] The only article pointing the deficiencies of the work is written by Niyazi Berkes who approves the book but finds his emphasizes on social sciences inadequate.[21]

At this point, I will also have a few words. Because there are more serious and vital mistakes in the work when compared with the approaches mentioned above. Writer's reflecting the debates among the Sunni scholars as the paradoxes reflecting the positive philosophy and his effort to blame the Sunni philosophy giving the young scholars which are not equipped enough as an example against the astray parties like mutezile which were affected from the Greek philosophy can be given as the primary examples for the said fact.[22] There are also paradoxical statements in the paragraphs in which he compared İbn-i Sinâ and Fahreddin Râzi.[23]

Because, he has scholastic approaches which forms all his life and which have no logical proof. With his approaches which he claims to be "scientific" and "reasonable" he wants to blame the religion concept which he found scholastic, without putting forward any proof. But he reaches to a position opposite to his claims. That is to say, while he tries to abolish the fanaticism with mind, in fact he fights against himself with a bigot stance.

For me, he clearly put forward this approach with his works which we tried to analyze above and nearly made them concrete. Nevertheless, both of the works look like academic studies which were prepared after long lasting efforts and perfect in several ways but when the contents are examined an endless search which was formed by deficient and wrong interpretations of an intellectual who can't set up the relation between the section and the whole.[24]

Prejudices on Ottoman Turcs

On the other hand, Dr. Adnan Adıvar, whose name has been pronounced many times recently both for his politic and scientific activities, put forward his first systematic work with his book with the original name "*La Science Chez les Turc Ottoman*s" which is a pioneer in

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8 For detailed İnformation cf. Albert Langen, *Materyalizmin Tarihi ve Günümüzdeki Anlamının Eleştirisi (*Translator: Ahmet Arslan), Vol. I-II, Sosyal Publications, İstanbul 1998.

9 Rıza Tevfik Bölükbaşı, "Tarih boyunca İlim ve Din*", Akşam*, 3 June 1944, pp. 2-4.

10 Hasan Ali Yücel, "Türklerin Yetiştirdiği Büyük Adamlardan Biri", *Cumhuriyet*, 7 August 1955, p. 1.

11 Akil Muhtar Özden, "Tarih boyunca İlim ve Din*", Cumhuriyet*, 2 May 1944, p. 2.

12 Avni Başman, *"Dr. Adnan Adıvar", Bilgi,* Vol. IX, Number 101-102, İstanbul 1955, p. 6.

13 Aykut Kazancıgil, "Emrâz-ı Umumiye Muallimi Dr. Abdülhak Adnan Bey": Bedi Şahsuvaroğlu Arşivi, Adnan Adıvar Dosyası, 2-143.

14 Ediz: 42/X-392. Yücel, says in the entrance of his article: "*When I saw the work, first I could not understand how the publication company dared to publish such an abstract work in this age. Public interest to the work and that this event became a good example for the publishers made me happy.*"

15 Fethi Erden, "Dr. Adnan Adıvar'dan Hatıralar", *Bilgi*, Vol. XIII, Number 148, İstanbul 1959, p. 12.

16 Yalman, "Tarih boyunca İlim ve Din", pp. 2-4.

17 Vâlâ Nureddin, "Tarih boyunca İlim ve Din*", Akşam*, 25 April 1944, p. 2. He ends his article saying "*How happy is Dr. Adıvar who afforded the expansion of his ideas encoraging the learning realities not from the prophets but from the science.*" But, anyhow he refrains from giving a proof to his scholastic approach.

18 Sel: 2/VI-168.

19 Kılıçoğlu, p. 5, 7.

20 Cf. George Sarton, "Tarih Boyunca İlim ve Din": Bedi Şahsuvaroğlu Arşivi, Adnan Adıvar Dosyası, 2-1-2. Prof. Sarton says in his article: "*There is the desire to introduce West and East to the Turkish people in scientific standards in the center of the recent activities of Dr. Adıvar.* (...) *But none of these works can be compared with the book Science and History through the History which has few equals in West and none in Islamic world.* (...) *Turkey deserves to be envied for having a scientist like Dr. Adıvar.*"

21 The deficiencies I observed in the book are:
Psychology is very shortly mentioned, psychoanalysis is not mentioned. In this respect, there is even misleading information.
Sociology and social anthropology was totally neglected.
There is an unconcernedness stance against the social science in the book. We can see an example of the said stance in not interpreting the discussions on the science-religion conflict within the sociologic frame.
It can be observed that the lack of the sociological approach leaded the writer to hesitation mostly.

22 Cf. Adnan Adıvar, Tarih Boyunca İlim ve Din, V. Edition, p. 77.

23 For detailed information see Op. cit, pp. 81-85.

24 When the realities are considered from that point of view, Prof. George Sarton's interpretation on the mentioned two works "*These two works are enough to make his name immortal. They are the works which honour not only himself but his country.*" points the orientalist anxieties for me. For Prof. Sarton's interpretation see Erden, p. 12.

its field.[25] The said work which comparatively analyzes the scientific developments in the Ottoman Period and the equivalents in West, was written after long and exhausting researches in foremost European libraries as "*an essence which more resembles to a collection*".[26] Writer stated this reality in the Foreword part of his work.[27]

The work which reminds an essay with its aspects we underlined, tries to reflect the scientific studies of Ottoman Turks in the XIV. and XIX. Centuries shortly. But, it focused on the Ottoman Muslim theological schools[28] and higher education using the concept of "Science", in a way that only includes the positive sciences.[29]

Dr. Adıvar prepared the Turkish edition which has a larger content than the previous one both in quality and quantity[30] thanks to the permission he got from the Minister of Education of the period Hasan Ali Yücel.[31] With this work, which was formed by the revisal of many handwritings which were not included in the first edition and the elimination of unnecessary documents[32], he describes his target as stated above.

"Those who read this work will see that the positive science in Ottoman Turkey until the XIX. Century was only sometimes deficient and sometimes wrong continuation of the science in Persian and Arabic languages and was no more different from the transition of the Greek miracle to East neither on account of content or method, besides if there were ant phases in which these sciences were innovated, they will be importantly specified."[33] However, his final target was to prove that the positive science which completely developed could never develop as desired because of the theological mentalities and to evaluate Ottoman Empire's collapse in such an approach.[34] Of course, the effect of several prejudiced intellectuals who claim that the Islamic theology lost its power with the end of V. Century (date reckoned from the Hegira) in this opinion is important.[35]

But the reality is far more different. New researches made on the scholars of the periods following the period

25 Abdülhak Adnan (Adıvar), La Science chez les Turc Ottomans, Librarie Orientale et Americaine, S. P. Maisoneuve, Paris 1939, 191p. "Âsâr-ı Bâkîye" written by Salih Zeki was also involved in the same category but it was pretty limited because its basis was only mathematics and astronomy. Fuat Köprülü, "Osmanlı Türklerinde İlim", *Akşam*, 5 August 1943, p. 5, In addition see, Tahsin Banguoğlu, "Osmanlı Türklerinde İlim", *Ulus*: Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X-381; Arslan Terzioğlu "*Adnan Adıvar'ın Türk Tababet ve İlim Tarihine Hizmetleri*", *Kaynaklar,* Number 4, Ankara 1985, p. 42.

26 In addition see, Ziya Somar, "*Dr. Adnan Adıvar*", *Bilgi*, Vol. IX, Number 101-102, İstanbul 1955, p. 3.

27 "*I even do not feel it necessary to specify here, that I do not assert that this is a full analysis. I, hereby repeat my wish for this analysis to be completed with the research to be done in future. But, perhaps here I can confirm that following the rational advices of historian Benedetto Croce, I tried not to satisfy the radical rightists but to prevent from putting the made ups instead of the history whose duty is to keep the reality conscience clear.*" Abdülhak Adnan, La Science chez les Turc Ottomans, p. ıv.

28 For detailed information about Ottoman Theological schools see Cahid Baltacı, *XV- XVI Asırlar Osmanlı Medreseleri,* İrfan Press, İstanbul 1976; İsmail Hakkı Uzunçarşılı, *Osmanlı Devleti'nin İlmiye Teşkilatı,* III. Edition, TTK Press, Ankara 1988; Cevat İzgi, *Osmanlı Medreselerinde Riyazi ve Tabii İlimlerin Eğitimi,* İstanbul University, Institute of Social Sciences, Science History Department Doctorate Thesis., İstanbul 1994.

29 This approach was the prinipal of Dr. Adnan Adıvar; in other words because he did not accept the religion scientific, he regarded the theological sciences as superstitions see Adnan Adıvar, Dur, Düşün, Muallim Ahmet Halit Press, İstanbul 1950, pp. 134-136.

30 Adnan Adıvar, *Osmanlı Türklerinde İlim*, Maarif Press, İstanbul 1943, 225, p.. Dr. Adıvar added an ındex and three maps of Piri Reis which he asserted that they were Christopher Coulomb's maps. Pp. 218-225.

31 Ibid p. ıv; Minister Yücel responded Dr. Adıvar's demand dated 5 October 1943 with the official letter dated 29 January addressing To Turcology Institute: Bedi Şahsuvaroğlu Archive, Adnan Adıvar File, 2-III/70. But probable to honor Adıvar, he said he demanded the publishing, and Adıvar hardly accepted it, but he also added that Adıvar started such works to remove his suspects focused on the creation philosophy. See Hasan Ali Yücel, "Türklerin Yetiştirdiği Büyük Adamlardan Biri", *Cumhuriyet*, August 1955, p. 1. As obvious, despite all the conflicts between them, the person who supported and leaded most is Minister Yücel.

32 Halide Edip Adıvar, *Dr. Adnan Adıvar*, Nurgök Publication, Istanbul 1956 p. 41; Fethi Erden, "Dr. Adnan Adıvar", *Bilgi*, Vol. XIII, Number 148, Istanbul 1959, p. 12; Somar "Dr. Adnan Adıvar", p. 3. Prof. Dr. Ahmet Ateş said while expressing his memories about the mentioned activities of Dr. Adnan Adıvar: "I met him in 1939. In this period, being a little bit interested in policy, he was deeply busy with the profound history researches. He used to come round Istanbul University every day to collect documentation for his new work named (Osmanlı Türklerinde İlim) He was hardly able to move his body which is thin and oblique with his shoulders, upstairs only by holding the hand rails of the library as if it was oblique because of the information inside, but however tried to stay straight. Ahmet Ateş, "Dr. Abdülhak Adnan Adıvar", *İstanbul Üniversitesi Dergisi*, Vol. I, 1955 p. 87. Erden mentions about the handwritings which Dr. Adıvar could not see of the World War II, and says it was a big loss for him not to search them after war in his article.

33 Adnan Adıvar, *Osmanlı Türklerinde İlim*, İstanbul 1991, p. 7. Dr. Ziya Somar, explains the second edition of the work, with the little interest in Turkey for the book, despite importance of it for Turkish nation, and the appreciations of the famous scientists like Prof. George Sarton. see Somar, Ibid. For another comment about the same subject, see A. Yörük, "Dr. Adnan Adıvar'ın Yeni Eseri: Dur Düşün: Bedi Şahsuvaroğlu Archive, Adnan Adıvar File, 42/x-395.

34 Dr. Adıvar, could not see the metaphysics realities behind the scientific realities and that's why made such a comment.

35 Ekmeleddin İhsanoğlu, "Osmanlı Bilim Tarihi Konusundaki Araştırmalar Hakkında Bazı Notlar", *Düşünen Siyaset*, Number 16, Ankara, 2002, p. 18. Another reason for Adıvar's stance was the wrong opinion of Prof. George Sarton's wrong opinions. Ekmeleddin İhsanoğlu *Büyük Cihaddan Frenk Fodulluğuna*, İletişim Yayınları, İstanbul 1996, p. 17.

called "Golden Age" makes us suspicious about the said evaluation. Noting a few of the names who became famous between XIII. Century to XVI. Century, would be enough to prove that the said opinion is wrong. Nâsıreddin et-Tusi (XIII. Century) Kutbeddin eş-Şîrâzi (XIV. Century) Ibn eş-Şâtır (XIV), Uluğ Bey (XV), Gıyaseddin el-Kâşi (XV), Mirim Çelebi (XVI), Takiyüddin er-Rasid, Dâvud el-Antakî.

These examples from different fields, besides putting forward the mistake in the time limit which is attempted to be indicated as the summit of İslamic theology, also points the scientific developments classic centers from Baghdat to Endulus, together with the places like Persia, Azerbaijan, Turkistan, Anatolia and Istanbul. Another characteristic of the period wasthat the scientific improvements activities were intensified on the common point "Islam" more than national characteristic. Nevertheless, besides the Arabic language, Turkish and Persian languages were also used as the language of science.[36]

When we focus on the Ottoman period, we observe that western originated concepts and information is easily adopted when the people get over the complexes of the first touch. Government's attitude on this subject was supportive. When the said process is searched, it is not possible to mention the negative stance of the religious people. But it was a fact that the required importance was not given to the subject and there was not an alive discussion point to realize a religion-science compromise though there were some philosophical principles.[37]

Because the State planned the theological and the scientific education together, determined that both we necessary for human but took the necessary precautions for the scientific education which was considered urgent. Since there was no anxiety to set up an intellectual synthesis or a constructive intellectual dialogue between the Ottoman Culture and the new science from the west, a balance could not be set up between them and the dual structure developing in the different directions, turned to a conflict of different directions after the Reforms period.[38]

As a result, as from the first years of XIV. Century, we can say that the Ottomans who were aware of the technical innovations in Europe to which they were geographically close, were successful to take in and apply the techniques in their homeland. Ottomans, in this context, transferred the technical methods and information of especially the war technology, and mining in very early times via Balkan Countries and used them convenient to their bodies. The most specific characteristic of them in the technologic transfer is their selective attitude. Reason for this fact may be connected with their perception of themselves prior to Europeans. But, because of that attitude, they could not understand the importance of the intellectual mentality and they transformed to a technology importing country more than technology producing country. They never adopted the new scientific understanding that is making researches on material, place, time, movement and nature and an important principle as always having a researcher attitude.[39]

Dr. Adıvar, since he stayed away from that and similar realities, he wrote his work which surprised those who only knew him with his politic identity[40], with a fluent, dragging and sincere style with the condition of not neglecting some academic criteria to reach his aim.[41] When we approach the subject from a closer perspective, it can be observed that he analyzed the level Ottoman Turks reached in the fields of mathematics, medicine, physics, chemistry, natural sciences, geography and cartography with a critical and comparative point of view. In this context, he showed the mistakes of foreign and native researchers[42] but he did not abstain from self-criticism.

When we list the original characteristics of the work in articles, we come across with the facts listed below.

1. Nationalists approaches were neglected.
2. What kind of a heritage the writers inherited and what they added to the said heritage was shown in details.

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36 Ibid, pp. 17, 18.

37 Ibid, p. 222; Ekmeleddin İhsanoğlu-Mustafa Kaçar, *Çağımı Yakalayan Osmanlı*, IRCICA Publications, Istanbul1994.

38 İhsanoğlu, Ibid, p. 245.

39 Ibid, p. 246-248; Ekmeleddin İhsanoğlu, "Ottoman Science in the Classical Period and Early Contacts with European Science and Technology.", *Transfer of Modern Sciencee&Technology to the Muslim World* (Edit: Ekmeleddin İhsanoğlu), *IRCICA Publications*, İstanbul 1992, pp. 1-48.

40 Cavit Baysun, "Dr. Abdülhak Adnan Adıvar", *Tarih Dergisi*, Vol. VIII, Number 11, İstanbul 1955, p. 6.

41 Exceptionally, he left his academic style. As an example see The information that an Ottoman medical doctor called Abbas Vesim discovered the tuberculosis microbe three hundred years before Robert Koch, depended on an article in 1903 written by Abdülhamid's toady Doctor Ibrahim Pasha" Adnan Adıvar, *Osmanlı Türklerinde İlim*, İstanbul 1991 pp. 195, 196.

42 His wife Halide Edip also followed a similar approach. Cf. İnci Enginün, *Halide Edip Adıvar'ın Eserlerinde Doğu ve Batı Meselesi,* İstanbul Üniversitesi Edebiyat Fakültesi Publications, 1978, pp. 458-459.

3. Every branch of science mentioned, were evaluated with their Phases from the Greek Empire to the Islamic period.
4. The vertebra of the work which pays attention to source analyzes and focuses on approximately 200 works, is formed by handwritings. That the months taking studies were sometimes reflected in a few lines, is important from this point of view.

When the work is summarized paying attention to its general lines, these critics which are rather subjective are interesting: There is a relative liveliness in the first years of Ottoman State, including the Fatih Period. But the theological scholastic approach whose effect increases by the end of XV. Century, in time both abolished the said lively atmosphere and caused a few people having positivist views to be ineffective. Besides, many famous names who took the attraction on them with their studies in fields like astronomy, navy, either got limited successes or stayed away from the contemporary science because of their unawareness of the developments in Europe. But with the Ottoman reforms started in the XVIII. Century, due to the amendments both in journalism and in curriculums of military training institutions, the positive science began to become popular. That process which divided the society into two, accelerated with the training institutions which were popular at the end of the XIX. Century and which adapted the western mentality.[43]

Dr. Adıvar, who put forward such an attitude through the general content of the work, was establishing a parallelism between the scientific approaches of XIII and XIX. Centuries which became specific with the "contemporary" Turkish science and entrepreneur characteristic.[44] An important part of the criticism for the said work, are praising statements far away from scientific approach.[45] In this context, famous names like Prof. Dr. Fuat Köprülü[46], Prof. Dr. Cavid Baysun[47], Halim Sâbit Şibay[48],

[43] For detailed information see Adnan Adıvar, *Osmanlı Türklerinde İlim*, İstanbul 1991 pp. 15-227. A more detailed Breakdown of the interpretations which we tried to mention shortly here, is as below
1. Post Fatih Period (1330-1451): Sultan Orhan founded the first Ottoman theological school in İznik. And he appointed a very famous scholar of his age, Molla Fenârî as the head of the school which would educate a valuable scholar Dâvûd-ı Kayseri. There was a valuable teaching staff who dedicated themselves to their job in the school in which positive science and theology were together taught. This event was followed by the foundation of Bursa theological school which would educate Kadı-zâde the teacher of Ali Kuşçu
2. Fatih Period: (1451-1481) Sultan Fatih, who had sympathy for the positive science, founded a big and autonomous theological school which used to consider the positive science and theology together. But despite the advances in the translation field, he could not set off for a Renaissance movement because of the inconvenient conditions, and although he was a sultan who is evaluated a half western one by the historians like Mortman and Deisman, he could not achieve an important success in the field of compilation. The western civilization who were adapting new approaches inspired by the old Greek philosophy used to make that scene more specific.
3. The end of the XV. Century and the beginning of XVI. Century: The effect of the theological scholastic began to become dominant. A very privileged mathematician Molla Lütfi who was murdered by Sultan Bayezid having been accused of being irreligious was one of the first examples of the fact. Mîrim Çelebi who was famous for his researches in the field of Astronomy and who was educated by distinguished scientists like Ali Kuşçu and Sinan Paşa, was still defending Batlamius's ideas in which the earth was the center of the solar system, because he was unaware of the attempts Copernicus.
4. XV. and XVI Centuries.: There were no more famous scientists galore. Because, the scholastic attitude which amplified its power, abolished the dynamism of the theological schools and pacified the scientists. The advances in the field of naval geography, and the existence of successful seamen like Pîrî Reis and Seydi Ali Reis and encyclopedic works of Taşköprülü-zâde does not change this fact. Nevertheless, Tophane observatory, which was constructed with the entrepreneurship of Sâdeddin Efendi in 1577, was collapsed three years later with the decision of a Sheikhulislam.
5. XVII. Century: There was a mentality which put the works of the past into agenda again. Kâtip Çelebi was an exception at that point
6. XVIII. Century: Modern mathematics and modern physics were diffusing into the society via Engineering, Medicine and Military Schools. Thanks to the Printing-house established by İbrahim Müteferrika, the number of the books emphasizing the western ideas were increasing. But geography scientists like Hoca Raif Efendi were still adapting Batlamius's ideas.
7. First half of XIX. Century: The Ottoman Reform was accelerating thanks to the Engineering, Medicine and Military Schools. The society started to divide into two poles as conservative and western ideas supporters. Despite the deportation of the names like the head teacher of the Engineering school Mathematician İshak Efendi and medical doctor Şânî-zâde Atâullah, this process would gradually gain momentum and an educational understanding whose base is the positive science would be dominant at the end of the century. For detailed information see Ibid. For İshak Efendi see Ekmeleddin İhsanoğlu, *Baş Hoca İshak Efendi*, Kültür Bakanlığı Publications, Ankara 1990.

[44] For detailed information see Adnan Adıvar, *Osmanlı Türklerinde İlim*, İstanbul 1991, pp. 222-227. Dr. Adıvar wrote a positive article about Molla Lütfi whom he stressed in the text, together with Henry Corbin. For detailed information see Adnan Adıvar-Henry Corbin, "Molla Lütfi'l Maqtul", *La Duplication de 'lautel (Platon et le probléme de Délos),* Paris 1940, 54+23 p.. The Article was including a full text of the work of Molla Lütfi who worked as an official in the library. Tazifü'l Mesbah, a French translation of the said work and the analysis of his philosophy.

[45] Sadri Ertem who was one of the names who approved Dr. Adıvar, pointed out the same reality. See Sadri Erdem "Osmanlı Türklerinde İlim", *Vakit*, 13 November 1943, p. 3.

[46] Köprülü, "Osmanlı Türklerinde İlim", p. 5.

[47] Baysun, "Dr. Abdülhak Adnan Adıvar", p. 6.

[48] Halim Sâbit Şibay, Osmanlı Türklerinde İlim I, "*Akşam:* Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X-372; Halim Sâbit Şibay, Osmanlı Türklerinde İlim I", *Akşam*, 18 December 1943, pp. 5-6. Şibay presented his interpretation about the content of the book to the approval of Dr. Adnan Adıvar before he wrote the

Prof. Dr. Ratıp Berker[49], Prof. Dr. Bedi Şehsuvaroğlu[50], Prof. Dr. Aslan Terzioğlu[51], Prof. Dr. Tahsin Banguoğlu[52], Dr. Ziya Somar[53], (Dr.) Niyazi Berkes[54], Prof. Dr. Âkil Muhtar Özden[55], Prof. Dr. Reşit Rahmeti Arat[56], Prof. Dr. Avni Başman[57], Prof. Dr. Tevfik Remzi Kazancıgil[58], Prof. Dr. Kâzım İsmail Gürkan[59], Hasan Ali Yücel[60], Dr. Fethi Erden[61] and Ahmet Emin Yalman take the attention with their confirming statements mostly pointing out the content.[62]

Prof. H. Ritter[63], Prof. Dr. Hilmi Ziya Ülken[64], Prof. Dr. Şekip Tunç[65], (Dr.) Mehmet Kaplan[66], Fevzi Lütfi Karaosmanoğlu[67] and Sadri Ertem were among the people who were dominant with their subjective critics.[68] Although, La Turquie newspaper which was published in French in Istanbul was parallel with the said names[69], famous German intellectual Helmut Schell made more scientific and positive inferences.[70]

mentioned article. See The letter in Ottoman Turkish signed by Halim Sâbit Şibay: Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X-384.

49 Ratıp Berker, "Osmanlı Türklerinde İlim", *Ayın Bibliyografyası*, Number 16-17, İstanbul 1941, pp. 22-24.

50 Bedi Şehsuvaroğlu, "İkinci Adam Dr. Abdülhak Adnan Adıvar", *Tercüman,* 24 July 1967, pp. 2-7

51 Terzioğlu, p. 42.

52 Banguoğlu: 42x-381.

53 Ziya Somar, "Eserler ve Fikirler Arasında": Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X-389.

54 Niyazi Berkes, "Bir Kitaptan Alınacak Mühim Dersler" *Tan*: Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X-382.

55 Akil Muhtar Özden, "Osmanlı Türklerinde İlim", *Cumhuriyet*, 16 September 1943, p. 2.

56 Reşit Rahmeti Arat, "Dr. Adnan Adıvar", *ORIENS*, Vol. VIII, Nr. 1, Leiden 1955, p. 3.

57 Avni Başman, „Dr. Adnan Adıvar", *Bilgi*, Vol. IX, Number 101-102, İstanbul 1955, p. 6.

58 Aykut Kazancıgil, „Emrâz-ı Umumiye Muallimi Dr. Abdülhak Adnan Bey": Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 2-143.

59 Kazım İsmail Gürkan, Adnan Adıvar, *Vatan*, 4 July 1955, pp. 2-6.

60 Yücel, p. 1.

61 Erden, p. 12.

62 Ahmet Emin Yalman, „Dr. Adnan'ın Eseri", *Vatan*, 29 September 1955, p. 6.

63 "*I saw your new work. You filled in a hollow which Professor Sarton could never fill in. You are the proud of Turkish nation. Because there are not any scientists like you in Arabic nations and Persia wh know both western and eastern sciences.*
I will send a copy of your book to my teacher Professor Brockelman. He will be very happy and he will benefit it a lot." The letter in Deutsch 25 July 1943, signed by Prof. H. Ritter.: Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 2-/III-69. As understood from the letter, Dr. Adıvar, was residing in his wife's house in "İnşirah Street, Number 34/Bebek" and was using the telephone number (36 80).

64 "*... If our history fell into scholastic after a period, if our theological schools were busy with the repetition and the explanation of the past, hiding this fact means a crime committed both to reality and our nation. Because if we do so, we will have deceived ourselves and lost the opportunity to materialize our power.*
We should not forget that the west realized its big explosion by criticizing its own scholastic and mistakes. Erasme's, Petrarcs, Boccacio's Bacon's opened that path. Dr. Adıvar's book and the followings will rescue us from despair." Hilmi Ziya Ülken, "Nasyonalizm ve İlim", *Akşam*, 16 October 1943, p. 1.

65 Ottoman Turks supported the constitutional monarchy with respect to the scholastic philosophy that Dr. Adıvar mentioned. The disciplined, systematic and organized studies of the scientist like him, shall be a good example for the youth and provide the ground for having great scientists. Şekib Tunç, "İlim ve Cumhuriyet", *Cumhuriyet*, 29 October 1943, p. 2. Tunç, is having an approach without a background asserting that Dr. Adıvar did not really mean the Turks with the term "Ottoman Turks".

66 "*Abdülhak Adnan Adıvar, opens a wide and clear road to the past with his invaluable work named Science in Ottoman Turks. Science in Ottoman Turks is a book which I felt the psychological comfort of a strong man while reading.....*
After reading the book, you remember the ideas of W. Gibb about Ottoman-Turkish literature. And you reach the result that Ottoman's attitude against the science resembled their stance against the literature." Mehmet Kaplan, "Osmanlı Türklerinde İlim": Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X-389.

67 Fevzi Lütfi Karaosmanoğlu, Makes his critic referring to another critic which he claimed it was made by Yahya Kemal Beyatlı, and says *"A book showing what we are, it has got neither something to abstract or to add.*". Fevzi Lütfi Karaosmanoğlu, "Dr. Adnan'ın Kitabı", *Vatan*, 22 October 1943", p. 2.

68 Sadri Ertem underlines that the work strengthened some hopes for the future. See Sadri Ertem, "Osmanlı Türklerinde İlim-Asırlar İçinde Dalgalanan İki Medeniyetin Zihniyeti", *Vakit,* 14 November 1943, pp. 3-5.

69 Cf. "*Prof. Dr. Abdülhak Adnan Adıvar, published the new edition of his book Science in Ottoman Turks, The book which was published with the financial support of the Ministry of Education, is nothing but a new translation of the old edition to which a few new parts were added.*
The book written in a complete scientific frame and developed within a successful method, is the first history book which is written respecting the scientific criteria in our country The reader is surprised not coming across with a week narration. The whole Ottoman science history develops virtually live with the natural flowing. The writer not only shows the event in every moment of the book but also points out what should happen. Mr. Dr. Adnan, mentions such contemporary and future based problems that we read those working in this field and even those who are interested in the subject to read the book.
The lesson to be taken from the book should invite us to be more modest and think more on the efforts made to approach us to west. Everybody who seriously and sincerely wants to form a scientific work will find an invaluable roadmap and a stimulation in the work." «La Science Chez les Turc Ottoman», *La Turquie*, 9 October 1943, p. 5.

70 "*Dr. Adnan Adıvar's work includes a general overlook to the written scientific culture of Turkey between XIV-XIX Centuries and this overlook goes toward the science history. Besides, to prevent the negative rumours, it includes the information on the origins of every writer. In addition, the writer analyzed the attitude of the Turkish governors against science and found out that many Turkish Sultan and high level officials worked personally as scientist. The said reality, would attract the attention of those far to the subject. Despite the conservative and scholastic structure in Islamic Turkey, that many researches were made in the fields of Natural Sciences, theology and law, is real interesting. If we take this fact into consideration,*

Critics for the work which were mostly made to point out the deficient or wrong sides were less but more effective. First of those critics which were academic, objective and based on a realist approach more than praise, was owned by the close friend of Dr. Adıvar, famous orientalist Prof. George Sarton. In this context, it was obvious that he tried to encourage him considering the academic background of Dr. Adıvar.[71] That was followed by the critics of Dr. Osman Şevki Uludağ[72] whom was mostly criticized while mentioning his interpretations

as specified by the writer the theological Islamic schools which were considered as religion school, would have a different meaning.. It becomes significant that the ulema deserved this title because they had to dealed with nearly all branches of science.
Writer analyzed the scientific works with a critical approach in detail. And went further to eliminate the deficiencies of those without date. The historical and the geographical works were known since very old times. By this work, we learn the works of unknown and very little known Turkish scientists. For the first time. For example, an observatory was made in İstanbul in 1579 with the order of Sultan Murat III and the insisting of the known historian Lala Hoca Sâadeddin and the building constructed by Takîyuddin Raid from Cairo, was located on a hill of Tophane. The results of the observations were in the work of Salih Zeki whose subject was the historical development of mathematics and all the handwritings of Takîyuddin was in the library of Nur-ı Osmaniye Mosque." Hammer, *Geschistsschreiber der Osmanen*, Vol. IV, p. 43.; Salih Zeki, *Asâr-ı Bâkiye*, Vol. II, İstanbul 1910; *Isis*, Vol. XIX, 1933 p. 506.
"*Adnan Adıvar's works shall be good instance for those in future.*". Helmut Schell, "La Scence Chez les Turc Ottoman**"**, *Bücherbesprechungen*, pp. 308-310: Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X.

[71] Prof Sarton says in his critic which we will refer textually.
"*Despite its all modest manner, this book provides is confident for me. The writer worked for a long time and read most of the books on recent history especially including History of Mathematics Asâr-ı Bâkiye (II. Volume, Istanbul, 1911), by Salih Zeki published in Turkish and the works of Istanbul University Institute of History of Medicine published under the scope of Turkish history of medicine archive, furthermore and more important, he could make use of many handwritings and old sources with respect to his deep knowledge in Persian and Arabic languages.*
I am also a bit sorry for the works being incomplete for the deficiency in the beginning and the end of the work. Dr. Adnan would answer this view taking the attraction to heading "In Ottoman Turks" and would say that the subject did not include the period before XIV. Century. But every history has a front stage and that period should have been included in the abstract of the book. Nevertheless, Ottoman science which started its biographical description not with the birth of its hero but with giving information about its ancestors, did not exist from nothing; most of its roots are in Arabic and Muslim Science. That's why it would be better if the writer told us the names of the Arabic works (1) which especially affected the Ottoman scientists and the names of the Arabic scientists which can be called Turkish (For Example El Biruni, Ibn-i Sina).
If the Spanish are proud of the pioneers like Seneca, Kontiliyanus, Ibn-i Rüşd and Musâ who lived in Spanish but not originally Spanish, Turks should also be proud of their famous ancestors.
At the end of the book that is about the subject the becoming scientifically westernized, the writer puts forward a non-serious stance saying "Turkish science history does not have a different characteristic from the other countries. That's why we are at the end of our analysis" But no, no, knowing the details of this development, seeing the effects of politic lameness on scientific advancement would not it be necessary to underline that for example, which works and translators took the attraction on the subject of the translations which are the most flashing of the similar works from the point of co-operation?
I hope with all my sincerity that Mr. Adıvar will make that "end" actual and add his career new books as this invaluable work, in which the birth and the development of the Turkish Enlightenment is narrated as required.
While reading the book, I took a few notes to which I will shortly mention. Şemseddin Fenâri, reminding Prophet's saying "Earth would never decay the bodies of real wise scholars", opened the grave of his master and saw that his corpse did not decay,. Byzantine historians tell a similar experience for Fatih Sultan Mehmet. I would like to know the Greek texts about the subject. Because, there is a complete difference between the catholic traditions and Orthodox traditions on the miracle conservation of the dead. One explains the fact with wisdom while the other evaluates it as a sign of enormity. (3)
Using music in medical therapy is an old Arabic tradition. (4)
Ibn-i Hamza El Mâğribi, (Ali bin Veli) from Algeria who wrote a mathematics book in Turkish in 1591, might have discovered logarithm before Napier in accordance with the claim of the writer. In addition theories were popular in XVI. Century and it was not a hard job for many people to form up such a formula. What is supernatural here is not the fact that Napier did it in 1614 but he formed it up with a different formula.
Salih bin Nasr from Aleppo, listed the names of the European doctors including someone called "Nicolaus "in his medical book printed in 1655. That Nicolaus is Nicolas de Salerno, the writer of the book known as "Antidotarium Nicolai"(5), if not then he is Nicolas Myprepsos. (XII-2; Intr. 2, 1094) But to certainly determine the truth, it is necessary to know very well if Salih bin Nasr benefited from Greek or Latin sources.
The book named Kevâkib-i Seb (Seven Stars) which was written to analyze the Turkish Education reform started in the last quarter of XVIII century, points out that the education of the period was based on the economic sciences limited which three stages. This book reminds us of the three leveled sociology theory of Ibn-i Rüşd which had a very comprehensive pedagogical law behind. (6)
Although Mr. Adnan claims that the Turkish trigonometry formed in the first half of XVIII. Century, , derived from the mathematics rostrum of Français Alain Manson, I have never heard about it.
There is an index but it does not correctly reflect the content of the book. For example, the index refers page 90 for Paracelse but neither it says something new there nor it mentions the pages 128-129 in which there are invaluable information about the Turkish Science history.
Mr. Adnan's book is simple but will be a strong basis for the following researches to be made in this subject considering its good intention. I hope some of those will be made personally by him. Because it is a deep anguish to stop when someone goes so far.
Aydın Sayılı, "Ibn-i Sina İranlı mı, Yoksa Türk mü*", İSİS, C. XXXI, I published this article to indicate that the origin problem which fills in a vast position in Europe becomes a nearly unsolvable complex issue in East*
Cf. Prens Ömer Tosun, "Mısır'ın 1805-1863 Yılları Arasındaki Bilimsel Karakteri*", İSİS, C. XXXI, This article was written in Cairo in 1934*
R. M. Dawkins, The Monks of Athos*, London 1936, pp. 51-244, 305-307*
Ahmed İsa Bey, Histoire Des Bimaristans, Cairo 1929, p. 130; İSİS*, Vol. XVI, p. 535*
(XII-1); Intr. 2-2399
(Intr. 2, 356).". George Sarton, "La Science Chez les Turc Ottoman", *İSİS*, Massachusetts 1940, pp. 186-189. For detailed information of Harvard University Professor Richard N. Frye's views in this context see Richard N. Frye, "Science among the Ottoman Turks", *İSİS,* Vol. XXXVIII, (1-2), Massachusetts 1947, pp. 121-125.

[72] Osman Şevki Uludağ, "İlim adlı Kitap 1, *Tasvir-i Efkar*, 10 April 1944, p. 2.

about the History of Medicine and asserted that Prof. Dr. Fuat Köprülü did not behave as his title deserved. In this context, Dr. Uludağ who described the work as the best example of the similar ones which were written before and they were not "Middle Age Product" as known[73], hoping the tolerance of Dr. Adıvar who was his teacher in the past[74], put forward a suitable stance though a little bit hard and revengeful.[75] One of the foremost names of German orientalism Prof. R. Hartmann[76] made more superficial critics though he was parallel with Dr. Uludağ, and was more tolerated.[77]

While Cemal Sezgin, who criticized the book to defend the scientific activities in Ottoman State, joined the critics with his article which can be defined as weak but in quality and in quantity[78], Tevfik Esen, a teacher in Kabataş High School, criticized him for the words that criticizes his claim Erzurumlu İbrahim Hakkı was the real owner of the Evolution theory.[79]

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[73] Ibid.

[74] Osman Şevki Uludağ, "İlim" Adlı Kitap V", *Tasvir-i Efkar*, 18 April 1944, p. 2.

[75] Osman Şevki Uludağ, stresses the following important points in his critics.
"*The innovation of the book is because it compares the foreign origin information with the native one.*
In page 7, the book Havassü'l-Edviyye written by İshâk bin Murâd is indicated as the first medical book written by Ottoman Turks. But, also there are other copies of the books named Şifâ-yı Tıb. The writer says that the book which he claimed it was registered in Bursa Ulu Mosque library as number 2, was also seen by Doç. Dr. Ahmet Ateş and Prof. Dr. H. Ritter However, the copy in Bursa has got the name Şifâ-yı Tıb. It is in Haraçoğlu Library which is in Orhan Mosque and it is not vulgar like the writer says.
*While not accepting Hacı Pasha, mentioned in page 9 Ottoman because he was bound to the Bey of Aydın, paradoxically he counts some similar people Ottoman. However, Hammer (**A'tâ Tercemesi**, VIII. Part, pp. 105, 106; XII. Part, p. 328; Mecdi, **Terceme-i Şakayık**, p. 74; Ali, **Künhü'l Ahbâr**, p. 114.) describes Hacı Pasha Ottoman and mentions his life in Ottoman lands)"*
*Dr. Adnan do not approve our description of Bursa Darü'ş-Şifa inaugurated by Yıldırım Bayazıd as the first Ottoman Medicine School. With this stance, he shows that he does not know the scientific character of that period. (For the comparison see Corci Zeydan, **Medeniyet-i İslamiye Tarihi**,) İf he desired, he could reach many important proofs about the subject.*
When he could not find the date of the book which he claimed it was written by Bergama Muslim Judge, he forced himself to make several guesses.
He named all of the facilities like hospitals, tannery which were founded for different aims as guest-houses.
The writer searched if he constructed a medical school checking the Wakfs of Sultan Fatih, but he did not make a certain statement on this subject.
Mr. Dr, asserts that Akşemseddin's work Kitâbü't-Tıb- was not a reconciling. In addition, because he did not know Akşemseddin's father's name, he wrote the word "mulakkab" which can be found in the sources, as "mukalleb". The fact that the real name of the work Kitâbü"t-Tıb is Maddet'ül-Hayat, brought a new dimension on the discussion.
"Şerafeddin Ali bin El-Hac İlyas's work Cerrâh-ı Nâme-i İlhânî is both the best surgery book of his age and a translation revised with a few additions by Et-Tasfiri. I am sorry but if the writer writes every book from this point of view, he will have to omit even İbn-i Sina".
"Darü-ş-Şifa in Edirne, is not a building which was not a n example to its equivalents in West. Besides, the plan which the writer indicated as the plan of the said work was something nonsense, Darü'ş-şifa Vakfiyesi is not lost we have a photocopy of it."
The writer confuses the books of Mustafa Fevzi Efendi called Hamse-i Hayâtî. In this situation I can't understand why he refers the ideas which are not ours, to us.
In the work, while he expressed that Murad IV: poisoned his Head Medical Doctor in Nezip, he does not explain the place, whether it is a place or a town.
"He does not mention the Süleymaniye Darü'ş-şifa and Medical School."
Writers claim that there were many medicines for Syphilis in the age of Sultan Beyazıd II does not compromise with the realities of the history of medicine.
Mavokordoto one of the foreign medical doctors in Ottoman Empire, did not attend the Karlofça negotiations. The person there was Tımaroğlu who committed suicide when his betrayal came out. (See Raşit Traihi, Vol V, p. 17) Besides, the chairman of the negotiations was not Köprülü Hüseyin Pasha but Amca-zâde Hüseyin Pasha"
In page 145 of his work, Dr. Adıvar describes the famous chemist Şifaî as "Post addicted" without any documents and deepens his mistake by saying "His student Bursalı Ali Efendi, was probably the same. "Nevertheless, he is getting busy with the gravestone of Ömer Şifaî which he never saw, he makes a wrong assertion that it was not made by a foreign medical doctor. Why on earth do you search the documents on builders of the gravestones? I hereby want to state the mistake in these words saying that I heard who worked in the building of the gravestones.
17. Emir Çelebi who was shown as the best medical doctor of XVII. Century, was a scientist who still used to benefit from the middle age books in an age in which the medicine science made a giant leap forward and murdered by Murat IV with opium.". Osman Şevki Uludağ, "İlim adlı Kitap II, *Tasvir-i Efkar*, 11 April 1944, p. 2; Osman Şevki Uludağ, "İlim adlı Kitap III, *Tasvir-i Efkar*, 12 April 1944, p. 2; Osman Şevki Uludağ, "İlim adlı Kitap IV, *Tasvir-i Efkar*, 14 April 1944, p. 2

[76] However, instinct is nothing but a computerized life program added to living things.

[77] "*…The book is not a really scientific work. The related sources were sometimes tackled superficially. Despite the views on page 7, in many pages, those promised by the names are deficient. For example, especially the strange statement "hibat Allah" instead of "hülasat" on page 19 would be satisfactory. Muhammed Kadı Manyasî-zade's work Kitâb'ul Adâbi'l-Adâb mentioned by Mehmet Tahir from Bursa, very strangely appeared as Mahmud bin Kadı Manyasî's Adâbu'l-Acâib. The printing mistakes and negligence also disturb me. For example, year 1504 is written instead of the year 1524 on page 65. In this respect, Kahle's essay written in 1929 which was mentioned before should be criticized. The year of Kahle's essay was given as 1927 on page 61 very wrongly referring to Oberhummer Fest Schrift and said that it could not have been written before.*
The writer, benefited from Taeschner's essay Z. D. M. G. But, there are deficiencies in this field. For instance, on page 74 Mehmed Aşık should have been analyzed more.
It is possible to amplify the instances but it does not claim to say the final words. But finally it should also be stated that he based on the decisions wisely and cleverly." For detailed information see R. Hartmann "La science chez les Turc Ottomans", *Orientalistche Literaturzeitung*, Number 9, Berlin, 1941.

[78] Cf.. Cemal Sezgin,. "La science chez les Turc Ottomans", *Varlık*, Number 191, 1 June 1941, p. 544, 546.

[79] Tevfik Esen, applied the Minister of Education of the time Hasan Ali Yücel with a petition dated 21 August 1943to send his said critics to Dr. Adıvar and ensured him to get the mission of the

The only critic which totally neglects the scientific aspect of the subject, was put forward by Orhan Seyfi Orhon, who describes Adıvar as a "modern, mature and patriot intellectual "but criticized the work as "a book which deserves the dustbin because of teaching how ignorant and incapable the Turkish nation is"[80] At this stage, Cahit Tanyol defended Dr. Adıvar.[81]

Ministry of Culture Publishing Directory in the direction of his aims. In this context, it can be observed that he criticized Dr. Adıvar who criticized him referring to the book "*General Biology*" written by him, referring to Dr. Goldsmith whom he counted one of the representative of the contemporary science and the work "*General Physiology*" written by Prof. Dr. Sadi Irmak, with a hard and insulting style: Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 42/X-387 Esen totally strengthens his style which first of all harms himself when he pronounces the sentences which targets the personality of Dr. Adıvar. Cf.: *"You tried to explain my approach with romantic nationalist feelings since you could not find Goldsmith's famous book in which the struggle of a Turkish Geographer lived in XVII. Century. Then you did not read Erzurumlu İbrahim Hakkı's work Marifetname. And don't forget that Dr. Goldsmith is not the English Poet Goldsmith.*
Mr. Adnan Adıvar, it is impossible for the people who insert your ideas into their memories like fixed ideas and because of considering your ideas came from the sky of science and intolerable, does not want to think, finds the way to guarantee their fame and post to criticize other people's mistakes, to find the true path. And especially for a person who wants to be Şemseddin Sami like you by the power of language, it is more impossible". See The same document. We consider the conflict between. Dr. Adıvar and Esen as a exemplary development. Because, Esen was trying to support the positivism using the interpretations of a famous Islamic scholar İbrahim Hakkı. On the other hand, Dr. Adıvar was reaching the same aim with a more different and more radical method. But the praises in Esen's books were in fact critics, Dr. Adıvar's critics were cleaning İbrahim Hakkı. Perhaps the destiny was creating a conflict between those people who thought they would decay the reality and striking the evolution theory which are paradoxical with religion.

80 Orhan Seyfi Orhon, "Sepete Attığım Kitap", *Çınaraltı*, Vol. V., Number 107, Çınaraltı Publication, İstanbul, 1943, p. 5.

81 *"... This attitude shows that he is addicted not to nationalism but to a imprudent national proud. The real nationalist is not Orhan Seyfi Orhon but Abdülhak Adnan Adıvar…*
Should Adnan Adıvar who tries to be useful in the field of Science omit the scientific facts to make him happy? This work will put forward which one should be put into dustbin when compared with his bad and primitive article." Cahit Tanyol "Sepete Atılan Kitap", *Vatan*, 19 July 1943 p. 2. Tanyol's stance made Adıvar extremely happy. Cahit Tanyol, "Adnan Adıvar'ın Düşünce ve Kanaatleri": Bedi Şehsuvaroğlu Archive, Adnan Adıvar File, 2/-11-48.

Systematic Comparison Study between Al-Baġdādī and Ad-Dahabī in Prophetic Medicine

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Summary

Introduction: The subject of prophetic medicine is considered one the most important topics that many scientists and creators have worked on. Of those, there is Muwaffaq ad-Dīn Abdallatif b. Yū. al-Baġdādī, and Abū Al. M. b. A. b. Otmān b. Qāimāz Šams-addīn ad-Dahabī at-Turkomānī al-Fāriqī as-Šfiĭ. The importance of these creators comes from the fact that they were one of the first compositions on prophetic medicine. This study aims to demonstrate the scientific method followed by Muwaffaq ad-Dīn Abdallatif b. Yū. al-Baġdādī, and Abū Al. M. b. A. b. Otmān b. Qāimāz Šams-addīn ad-Dahabī at-Turkomānī al-Fāriqī as-Šfiĭ with their compositions related to Prophetic medicine and highlight the most important medical topics given by each of them in these two books. This method has followed the historical approach through going back to a book by Muwaffaq ad-Dīn Abdallatif b. Yū. al-Baġdādī "Medicine from the Quran and Sunnah" and Abū Al. M. b. A. b. Otmān b. Qāimāz Šams-addīn ad-Dahabī "Prophetic Medicine", then to make comparisons to what has been mentioned in both publications. The research will show the great similarities between both publications.

Objectives: The main goal of this research is**:** to identify the scientific methods followed by each of the authors through a comparative study of those subjects.

Methods: This research follows the historical reclamation method by referencing the books of prophetic medicines' respective authors al-Baġdādī, Ad-Dahabī then compared to determine the positions that illustrate the theme of this search.

Results: There is a great similarity in everything in these two authors information which reached the exact extent.

Key words: Prophetic medicines, Al-Baġdādī, Ad-Dahabī.

Introduction

It is known that any science is as prominent as its subject. With that said, prophetic medicine with its many subject is very beneficial to people coming from the Messenger of Allah, peace be upon him, revealed to him from his Lord, the Almighty. Given the themes of prophetic medicine many of the scholars and educators have cared and worked in attempts to explain the terminology and link it to the outcome of modern science in the various fields depending on the history of their study of prophetic medicine and specialization. From these Muwaffaq ad-Dīn Abdallatif b. Yū. al-Baġdādī (557-729A. H \ 1161-1231B. C) which was known with his work in medicine and Abū Al. M. b. A. b. Otmān b. Qāimāz Šams-addīn ad-Dahabī at-Turkomānī al-Fāriqī as-Šfiĭ (673-748A. H \ 1274-1348B. C), and nearly two centuries separate these two scientists.

The importance of this research comes from the fact that both books are considered one of the first and most important books that dealt with The topic of prophetic medicine.

Objectives

The main goal of this research is**:**

- *First*: To identify the most important medical topics in the field of maintaining health and treatment of diseases that stated in the book "Medicine from the Quran and Sunnah" written by al-Baġdādī, and the book "Prophetic Medicine" written by Ad-Dahabī.

- *Second*: to identify the scientific methods followed by each of the authors through a comparative study of those subjects.

Methods

This research follows the historical reclamation meth-

od by referencing the books of prophetic medicines' respective authors Muwaffaq ad-Dīn Abdallatif b. Yū. al-Baġdādī, and Abū Al. M. b. A. b. Otmān b. Qāimāz Šams-addīn ad-Dahabī at-Turkomānī al-Fāriqī as-Šfiĭ, then compared to determine the positions that illustrate the theme of this search.

First of all, Both Al-Baġdādī and Ad-Dahabī introduce their books on prophetic medicine in the form of a medical book that provides information and topics relating to maintaining the human health, and other topics linked to patients remedy (medication).

Secondly, both al-Baġdādī and ad-Dahabī begin their books with an introduction talking about the science of medicine in both its scientific and practical sections. Perhaps introducing Al-Baġdādī's publication on prophetic medicine in the form of a medical book can be attributed to his known interest and work in medicine. And maybe Ad-Dahabī was influenced with his predecessor Al-Baġdādī when he wrote a book on prophetic medicine. Ad-Dahabī begins his book with the same introduction as in Al-Baġdādī's book" Medicine from the Quran and Sunnah" saying that the duty of every Muslim is to be closer to God and do whatever he can from the acts of worship and do good deeds and follow gods orders.

Third, both Al-Baġdādī and Ad-Dahabī divide medicine into two parts: one scientific and the other practical. They both talk about the scientific part diving it into: Knowledge of nature, Knowledge of the human body, Knowledge of causes, Knowledge of symptoms. (1, 2)

Then spoke about the nature of things and divided to seven parts:

1. The four pillars
2. The mood
3. The four blends
4. Body parts
5. Souls
6. Spirits
7. Forces and actions.

The explanation of these topics was identical to one another.

Then they spoke in the second portion of the practical part, which is about the conditions of the body saying: "The conditions of the body are three; health, disease and a state where neither healthy nor sick". A "state" is where the human body has proper functioning. Wellness is the greatest thing that God has bestowed on the human being after Islam. (1, 2)

They both cited after that a quote from David peace be upon him "Wellness is an invisible asset, distress of an hour and aging of a year"

Then they talk about the third part of the theoretical section of causes saying:" There are six causes: one of which is the air, the second is what is consumed, the third is the physical inertia and movement, the fourth is psychological inertia and movement, the fifth is sleeping and waking, and the sixth is release and retention". All explanations were identical by both authors. (1, 2)

Then they spoke about the fourth part of the theoretical section which is about signs where each began by saying" darkness of the hair and body are indications of heat and coldness as is the obesity and thinness of the body. (1, 2)

They each divided the practical part to preserve health, heal illness, and then talked about hygiene as saying: know that eating food in time of need, is the reason for the durability of health and a sign of need to improve the sense of smell.

It was the custom of the Indians when they wanted lunch to Wash and wear clean clothes and smell good and they abstained from motion.

There has to be compatibility between the hot and cold, sweet and sour, rich and salty and so on. Adding too many colors is confusing and less is better. A person should leave the meal while full. Being on a diet exhausts the body and frails it. Keeping track of habits and gradually staying away from bad ones. Not changing eating habits. Beware of spoilt food and licking the plate to maintain metabolism and not ruin the appetite.

The messenger peace be upon him licked his fingers after meals... and forbade combining fish with milk, vinegar fruit and yogurt, onions and garlic, dried meat with tender meat, also avoid uncovered food. Anyone who is frugal and eats salted food and comes down with vitiligo or scabies has himself to blame. (1, 2)

They quoted Hadith about Anas may Allah be pleased with him: "narrated from Anas that the Prophet, peace be upon him; the reason behind every illness is satiety He also narrated from Ibn Masūd that overeating and satiety causes the cooling of the appetite so one should eat what goes along with the appetite and not too much. (3, 4)

And then they spoke of the true path of the prophet peace be upon him in aspects mentioned of him in the form of chapters carrying the same titles and having the same explanations for those titles with both publications. (1, 2)

Both have similar sequences:

- Chapter in drinking water (1, 2)
- Chapter for motion and inertia (1, 2)
- Chapter in release (1, 2)
- Chapter in bathing (1, 2)
- Chapter in intercourse (1, 2)
- Chapter in the bloodletting and cupping (1, 2)
- Chapter in psychological symptoms (1, 2)
- Chapter in menstruation (1, 2)

But the third quarter has been reported before disconnecting the golden sleep measure, which reported al-Baġdādī beyond. Also reported that al-Baġdādī called anti-constipation. But Ad-Dahabī wrote the third chapter before the chapter on sleep management, which Al-Baġdādī wrote after. Al-Baġdādī also called the chapter "Fighting constipation".

They divided the second part of the practical section which is about treating patients saying: "we should take into consideration age, habits, seasons, and occupation when it comes to treatment. Medication that causes diarrhea should not be given to elders or young children, and should only be given after full maturity and growth and must use the bathroom before taking medication. Meals should not be taken with medication unless the treatment has stopped. If one has gripes then they should drink water and take a walk…) (1, 2)

Both wrote chapters on "tips for doctors" which are tips taken from Hippocrates with very little difference, from errors in proofreading (3, 4)

They both mentioned the third art in two sets:

- One in the terms of individual medicine (1, 2)
- The second is the similar provisions of nutrition and medicine (1, 2) There explanations were similar, having no difference except what was stated earlier, an example being the second sentence written by Ad-Dahabī as the third sentence and both having two sets: the first on the laws of medicine composition.

They both mentioned a chapter with the title "of the apostles and evangelists", but this text was not published although matching the information that of Ad-Dahabī to that of Al-Baġdādī it did not have titles, instead he called it "chapter"(1, 2)

They both mention a chapter of examples (3, 4) set by the messenger peace be upon him. Then they both mention a chapter in "the different weights of medication"(1, 2).

They mentioned something on the "shortcuts of composing drugs". (1, 2)

They mention briefly in the third art a section in treating illnesses, they mentioned: Chapters in treatment, Choosing doctors, Dieting, The urge to learn medicine and physiognomy and introducing it in treatment, Legalization of women's' treatment to unmarried men, Coercing the patient on food and drink, Appetizing the patient and feeding them what they crave, Prohibiting the patient from what increases harm, Giving the patient counterfeit medication, Chapter in tying the head of the patient and shaving the head from harmful things, Chapter in the patients sneeze, Turning the patient back on the right track, Chapter on healing with impurities, Treating a fever with cold water, reason of a fever, Chapter on various illnesses and their cure (1, 2)

They both mentioned a chapter in prophetic medicine and both mentioned at the end what is called '' Paste recipes that heal the heart and pushes away obsession (1, 2)

Then both state what they both called "other recipes" telling stories of DŪn-NŪn (1, 2)

We have previously mentioned the similarities that were stated in both publications were not just confined to the titles, but surpassed that to include the topics of both books combined. The only differences were the ones provided as misguidance or misrepresentation or the delay of one word or precedence of another word attributed to the author or editor of the publication or the original version of each of them.

Results and discussion

The following is clear through all that has been mentioned before and through the study of both al-Baġdādī 's 'Medicine in the Quran and Sunnah" and Ad-Dahabī's 'Prophetic Medicine":

1. Striking similarity in everything in these two authors information which reached the exact extent.
2. Mohamed bin Ahmed Ad-Dahabī has taken his book ' Prophetic Medicine 'from his predecessor Abdul Latif al-Baġdādī.

3. Ad-Dahabī ‘s impact on the book of his predecessor Al-Baġdādī is justified with Ad-Dahabī living in a different time from the age following Al-Baġdādī which was known for his interest and work in medicine. It is quite natural for a writer or creator or scientist to be influenced by what was shown by previous scientists or creators or continue where someone left off because knowledge is either a result of information put together by previous scientist or creators or the series of events complete each other.

Conclusion

The prophetic medicine is the sum of medical advice given to us by the prophet Mohammad peace be upon him in order to avoid sickness or to treat one who is ill. Many have written about the medicine of the prophet and have been influenced by the former authors. The goal of the study is to reveal the influence of one of the authors (Ad-Dahabī) by a previous one (Al-Baġdādī). The suprising thing is that the two books were so identical so we can indeed say that Ad-Dahabī ‘s book was a copy of Al-Baġdādī.

The importance of this study is that, it is the first study that we can find that concentrates on the resemblance of the two books of prophetic medicine by Ad-Dahabī and Al-Baġdādī.

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Health Requirements for the Storage of Grains by Qusṭā ibn Lūqā

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Summary

Introduction:The science of farming gained special interest by botanists because of their strong belief in the abundance of agricultural production. They believed that this abundance of agricultural production will not be achieved without the interference of scientific methods in farming. Therefore, the Arabic farming scientists started to sort many of the farming books. "The Roman Agriculture", by Qusṭā ibn Lūqā is considered one of the most important books in this field. Qusṭā ibn Lūqā wrote lots of information and experiences regarding the field of farming. During the Arabic Islamic civilization era, the scientific methods of farming were applied; therefore, the nation produced its nutritional needs and beyond. Thus, Qusṭā ibn Lūqā had an affective share in the development of food industry.

Objectives: Shedding some light on *Qusṭā ibn Lūqā*, in terms of its environment and the science in which it was created, then to talk about sanitary conditions to store grain and protect it from pests.

Methods: the historical retrieval approach, and by reference to the ancient Arabic roumea farming book, manuscripts and the search for them and that have not been achieved and studied to highlight them, and see how scientific progress and cognitive made in the Levant.

Results: Through this study, we conclude the following results**:**

1. *Qusṭā ibn Lūqā* have touched on all the methods used to save the grain from the moment of harvesting it to the last moment of storing it**.**
2. *Qusṭā ibn Lūqā* stressed the importance of the specifications of the warehouse in terms of methods of constructing it and the place of its construction and its conditions**.**
3. *Lūqā* depended on plant additives to protect grain against pests.

Conclusion: In this research, we will give picture of the methods used to store grain in a book al roumea farming, and to show the role of agricultural scientists in this area and take advantage of the plant additives they used.

Keywords: *Qusṭā ibn Lūqā*, Roumea farming book, Arabs agriculture scientists

Content

A. *Qusṭā ibn Lūqā*, - his environment and his period.
The primary resources and dictionaries did not give the same information regarding the exact dates of Luqa's birth and death. Some of the resources(6)
The eyes of the news at the seams doctors, Nizar achieve satisfaction, 1965, the German Orient Institute in Beirut, Dar issued Press, Beirut))

B. *mentioned that Qusṭā lived during the days of Al Muqtader, the Abbaside Caliphate, who ruled between (295AH/907CE-317AH/929AD.) Qusṭā was well-known for his passion and love of learning, no matter how much seeking knowledge had costed him for that of pain and tiredness. Ibn Al Nadeem mentioned Qusṭā by saying: "This scientist – Qusṭā- was talented in many sciences like medicine, engineering, calculus, music, astrology, natural sciences, logic and astronomy." (8)*

1. Treatment of grain after the maturity of the crop:

The preventive measures to maintain the protection of the grain against pests and insects are summarized in the following steps:

1. Grain Collection: The grain should be collected in piles in which its roots should be facing the south winds for the sake of protecting it from the hot winds that might speed up the process of drying. (3)
2. Grain Thrashing: "After drying the piles, the process of thrashing the grain would be initiated using machines and cows' treading. Exaggeration in grain

thrashing is required in order to separate the grain from the peel, and then knocking down the hay.".(3)

3. Formation of piles: "After the process of grain thrashing, this crop is all collected with its hay and gathered together in a rectangular shaped pile. One of its side is turned facing the east and the other side is facing the west. The workers stand in the north side and they winnow the crop once the north wind blows."(3)
4. Drying the piles: The grain should be let stand ten days in the desert after the winnowing, turning it occasionally under the sun. This place is safer than saving it in silos and is more protective against disease. (3)

2. Selection of field locations and their role

It is known that after the maturity and harvesting the crop, it is collected in piles or stacks. There are a number of things must be taken into account to keep these stacks safe:

1. The height of the stacks above ground: The stacks should be high enough above ground to protect it from water on one hand. On the other hand, the air will help in drying the stacks from the remaining moisture to avoid rot.
2. Being far from houses and vineyards: The positions of the stacks should be far from houses and vineyards because the dust produced by the hay of these stacks causes vision and breathing problems for the population. This dust is also harmful to the plants because it gathers on the leaves inhibiting the process of photosynthesis and breathing as a result of blocking light against the leaves and plugging respiratory gaps**.**

In this, *Qusṭā* says: "The places of the stacks should be high above the ground. This is more likely to be treated by the wind. They should not also be close to the doors and yards of the houses, nor close to any farm, a vineyard and a tree. If the stacks are close to these places, they will hurt them, and the wind will blow against the eyes of their inhabitants. It will also blow against the farms, fields, trees, and vineyards, so as not to damage the fruits, although the dust of the stacks if hits the roots of the trees is considered as beneficial as the manure, but it damages the leaves and branches and burns them down." (3)

3. Grain Drying before transfer it to storage

After the process of thrashing and winnowing the crop, the grain is transferred to be stored. However, the grain that is being transferred to the warehouse must be dry, so that it does not rot while storing it. So the grains are left for a period of time in the field turning it under the sun until it dries well.

4. The importance of choosing the appropriate storing place is vital in preventing storing-pests:

There are many things to keep in mind when storing grains in order to preserve them for a long time without any damage.

These include that the warehouses should be high above the surface of the ground in order to protect them from the flood waters; as well as, the warehouses should have windows facing the east and west to be ventilated and to prevent the high humidity inside. Nevertheless, these warehouses must be away from the kitchens and animal enclosures so as not to raise up the temperature inside. (3)

To protect the inventory from rodents and insects, the walls of these warehouses should be painted using special materials that repel pests.

In this, *Qusṭā* says: "It is necessary to mix the clay- that is used to build the walls of silo houses- with barley, with the juice of the olive leaves, and the sifted ashes. After building the silos, the walls should be treated again with the juice of olive leaves and ashes. Upon doing this, the silos will be protected from rats and other vermin." (3)

5. Protecting stored grains from different pests:

1. Anti-ants:

It is known that the grain stacks are attacked by ants that pick up pieces of grains and take it to their colonies to save it for the winter, and this leads to the loss of a good amount of production. Therefore, the books of agriculture mention methods to expel these insects and to prevent them from approaching the places of grain stacks. Some of these methods are:

1. "….. have white sifted dirt, then prose it around the stacks."
2. Also, the smell of sulfur and of the ruta, and Melissa officinalis, will repel the ants from the places of the stacks. For that Qusta says: "What prevents the ants from approaching the stacks is to grind sulfur with ruta and Melissa officinalis, then

prose some of it in the ants' house, so that makes the ants do not appear."[3]

It is known that the ants attack the grain either in the field or in the storage.

3. "Nevertheless, the farmer has to check the places of the stacks. Then, he has to spread some of the olive leaves water on the stacks, and then he has to run a heavy rounded stone on that spot, or a heavy tree trunk. He rolls it over the stacks so the leaves water runs evenly on the whole stacks. God's willing, the pile will be protected against the ants."[3]
4. The position of the field should be at the level of a hard, solid ground. That place should be also trampled by the workers with their feet until the surface of the ground is leveled. There shouldn't be any soil or lots of grass. Also the workers should sprinkle on that spot the turbidity of oil mixed with a little vinegar, and then trampled on it again. After that, the workers use palm tree or a piece of satin wood to smooth out the ground. This works against the ants and vermin, which seek the wheat and barley."[3]

2. Control of warehouse pests:

Grain pests:

It is known that stored grain may undergo some diseases, such as rot and harmful insects like mites. *Qusṭā* mentioned so many methods used to push these pests away off of stored grain. These methods are:

1. Plants extraction is one of the methods used to push these pests away. This method plays a big role as a sterile for grains.

   Qusṭā says: "Some scientists would grind a type of plants called Epheset in Romans. In Arabic, it is called Alruashim and in the Syriatic language, it is Blegma. After that they soak the ground plants in water for a whole day and night, then they take one measure of this mixture and splash it on thirty measures of wheat turning it until it overlaps and then leave it until it dries then store it. Thus, this wheat stays for a long time without spoiling."[3]
2. Ash works as a protection layer for the grain by covering it with a thin layer of its particles. In this *Qusṭā* says: "Some scientists would take a pound of pomegranate leaves or a pound of oak wood ashes, and mix it with 100 pounds of the grain, so this grain will be protected against the pests, God's willing."[3]
3. The shell of each piece of grain works as a shield against diseases and insects. *Qusṭā* says: "the pieces of grain will be protected for a longer time when they are reserved in their ears. It's been said that if the millet plant is raised in its ears, it would stay for a hundred years."[3]
4. Papyrus and Persian cane each reduces the humidity level, thus limiting the proliferation of microbiological elements that lead to the blackening of grains and changing their taste. The Centaurs also works to limit the spread of these pests because of its bitter taste.
   In this, *Qusṭā* says: "The grain becomes blackened and changes its taste over time. In order to avoid this change in color and taste, papyrus and Persian cane should be sprinkled on the grain. Also, if three hundred pounds of grain is mixed with some of Erythaea Centaurium, the expected damage will be avoided."[3]
5. In order to protect these grains during storage, a Borax will be heated with fire, then "mixed with soft, fine soil and then mixed with these grains. Each hundred pounds of this grain will be mixed with ten pounds of the Borax and soil mixture. Although, this will cause an increase in the weight of that grain, but it will work as a protection against the possible damage."[3]
6. Also, "one pound of ground dry basil leaves will be mixed with one hundred pounds of grains."[3]
7. "Whoever wants to save grains in a container, he should fill a span of one arm of hay at the very bottom of that container, then throws the grains inside it, stuffs another layer of hay around it until the filling reaches near the top, and leaves some room at the very top of the container to be trampled by the workers. It is suggested to leave a space that measures two or three arms.

After that, the workers have to close the top of the container with clay. Thus, the grain will be safe for fifty years by God's will."[3]

Barley pests*:*

When barley becomes old, it will taste bitter and becomes harmful to eat. The barley will be protected against pests if it treated with the following**:**

1. "branches of a tree called Laurus Nobilis are taken during blooming and laid down on top of the barley or underneath it."
2. "by mixing it with any type of ash, especially the ashes of the Laurus Nobilis tree, the ashes of basil that is called Ocimum Basilicum, or the ashes of Veronica Anagallis Aguatic."
3. "A jar filled with vinegar and buried in the middle of the stacks of barley; God bless that barley."(3)
4. "by wetting some of the barley and grind it until it drops its crust. Then, spread it under the sun for days. After that, it will be treated with its sap that had fallen from it, in a container**.** This will be better and safer than spoiling. However, when needed, it will be sifted and taken for food."(3)

Flour pests:

It is known that some diseases might cause flour to change its color, its taste and smell, and it becomes harmful to be consumed. Therefore, *Qusṭā* mentioned the following recipe to protect the flour against pests:

1. "A piece of cypress wood will be taken and knocked down into smaller pieces. These pieces will be collected then to be laid inside the flour."(3)
2. "Pinches of cumin and salt are to be grinded alone or together. Then this mixture or each of the ground salt or ground cumin is dispersed in the flour to prevent it from damage."
3. "Walnuts of the cypress trees or pine husks are recommended to be knocked down into smaller pieces. Then, small lumps are made out of these pieces in a size of one piece of a walnut. These lumps finally will be planted inside the flour that will be delivered away from being damaged; God knows the best."(3)

It is believed that the aromatic smell of these substances play as a repellent against the pests that attack the flour in its storage. It is also known that the seeds of the planted crops might be mixed with the seeds of many herbs in different ways. This type of mixing causes a lot of problems. It may lead to low quality specifications of the crops. Having herb seeds mixed with grain seeds will lead to having an unwanted taste or smell in the flour.

Recommendations

1. It is important that the modern agricultural books, which talk about conserving grains, to include in their pages an introduction that embrace the most important achievements of early Arab agricultural scientists.
2. It is also essential to take advantage of plant additives that's used to protect grain against pests.

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Air Pollution (Causes and Treatment) Material in the Book “to Stay in the Reform of the Corruption of the Air and Avoid Damage from the Epidemic” to the Doctor Attamimi AL-Maqdisi

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Summary

Introduction: Environment is the frame work in which man lives, affects it, and is affected by, which includes every thing that surrounds this man and touches of air and water….. Air Pollution is one of the most important phenomenons that dates back to the age of ancient civilizations. And this phenomenon had started since man’s knowledge of fire, or about 50 thousand years before.

Objectives: The research aims to study the causes of air pollution, how to prevent it And methods of treatment in a book entitled “to stay in the reform of air corruption and avoid damage from the epidemic” to the Arab doctor “Attamimi AL-Maqdisi”.

Methods: The Arab doctor “Attamimi AL- Maqdisi” who lived in the]4 CEAH/10thad[, is considered the first to write an entire book about environmental pollution with all its elements (air, water..). And make the material entitled “to stay in the reform of the corruption of the air and avoid damage from the epidemic”.

We will study what this doctor gave in the field of air pollution (causes –effects and ways to combat and prevent it), then compare it with scientific studies of contemporary environmental engineering to reach the level of knowledge to which the Muslim Arabs attained at that time.

Results: Attamimi mentioned nine causes of air pollution in his own time, put solutions, some of which were privileged to know how to deal with the corruption of the air; Like giving man some drugs to strengthen the body’s immunity against diseases and to take special measures to monitor places of transmission such as public bathrooms, making the book represent a new advanced step in the science of environmental engineering and the science of preventive medicine.

Conclusion: Air pollution significantly gained attention by Muslim Arab doctors for its impact on human health and life, have benefited from the experiences of their personal experiences, so they had an important role in the evolution of Environmental sciences.

Key words: Air Pollution in ancient civilizations, the causes of air pollution, air pollution treatment, Doctor Muhammad Ibn Saeed Attamimi AL- Maqdisi, book: to stay in the reform of the corruption or the air and avoid damage from the epidemic.

Introduction

Environment is the frame work in which man lives, affects it, and is affected by, which includes every thing that surrounds this man and touches of: air and water …. Air Pollution is one of the most important phenomenons that dates back to the age of ancient civilizations. And this phenomenon had started since man’s knowledge of fire, or about 50 thousand years before.

However, the contamination was of a limited size, didn’t exceed the first man cave. Then, the phenomenon of air pollution started to be clear in the Middle Ages because of increased rates of urban growth and development of industry, as the steady increase in population has led to a similar increase in the volume of environmental pollutants.

Objectives

Studying the causes of air corruption, how to prevent it and methods of treatment by the Doctor “Attamimi AL-Maqdisi, and showing the new ideas put forward by the doctor “Attamimi AL-Maqdisi” in this field and showing the impact of his ideas on the progress of environmen-

tal sciences in the field of air corruption and methods of treatment.

Methods

Mohammad Ibn saeed Attamimi AL- Maqdisi (1) is talking about why he authored his book, which is the negligence of doctors in some countries that have in fested the spread of epidemics factors, which lead to air corruption and called on them to guide their efforts to treat these diseases and focus on treating/ processing/the causes of the epidemic rather than treat the disease after taking place. (2)

Attamimi made his book in the form of articles, the second article included three sections, Looking at the main reasons for the corruption of the air and air role in transmission.

The causes of air corruption by Attamimi

1. Quarterly Coups: are of the most important reasons why this time of the year is the most times of the year corruption. Attamimi justifies the reason behind air diesase to the magnitude of the rude vapors of the land, saying: (and so that the sun attracts in excess days from the belly of the earth, thick, brownish, dark, intense heat and dry fumes taking breaths and AL akzam and causing quick death). And these vapors disturb the clean/ fresh/ air while mixing it. (If those dark brownish vapors mixed with fresh air then they would spoil it and forward to its condition. (Like water and ice) which mix with the Fresh water, spoil it and transmit it to its condition, so after sweetness odjaja, it becomes neither fresh nor drinkable. (3)

2. The escalation of fumes from the belly of the earth when it cracks in the summer and that spoils the air: It may occur BaL aracan, persia and cities mentioned during the summer, and in tense heat a steam rising from the belly of the earth, spoils the air and roils it, and that is during the blowing of the boy hood winds, but it displays that when the sun heat dries the earth humidities that become wet. It's a spoiled, roily steam, stagnates with air so it doesn't move in the wind and this roiling stands between sun beam and diseases, taking people's breath**.** (4)

3. Fumes from AL SboL, carrion and scavengers within the city: Which contain huge bacterial colonies and are a great source of pollution and diseases.

4. The impact of health human condition: Some people attribute their suffering from air corruption without being injured to moderate the moods of their bodies and justifies this saying; (so that if the moderate mood faced a bad air season out of moderation, resisted for a long time even if that corruption lasted, it would be un valid). (5)

And knowing these things is very important to counter the effect of this corruption in air mood, this can be done by controlling the six core reasons surrounding the man and in fluencing him dramatically:

1. Air surrounding bodies.
2. What they eat and drink.
3. Vomiting and refrain.
4. Movement and stillness.
5. Sleep and wake.
6. Psychiatric events.

IF the doctor negotiates the variable air with all these six aspects which still the causes by air in the temperament of moderation, maintaining bodies's health, having no disease, God willing.

5. Neighboring patients: Attamimi warns from neighboring patients suffering from diseases caused by air corruption, and it is transferred from Aristotle of his book "Natural Issues" saying:(That the right next door to the patient acquired the illness from air corruption and that was the right measure in the very integrity and didn't confuse a bad confusion for corruption mood and urges with that; the neighboring illness. So still breathing that rotten, bad air. Also, his body breaths bad air as long as being alone, so if he goes near the patient, it will double the scourge of collected things together- Imean breathing rotten bad air and drawing close to the patient). (6)

This is an evidence of their know ledge of the existence of some thing that is transmitted from the patient to the right, so the disease occurs, and for the prevention is to avoid being infected with the disease.

6. Enclosed public places: People are advised to refrain from entering the plagve public bathroom, only if the mood of their bodies contradicts the mood of that air. He says:

(Entering the bathroom in the case of air corruption, staying in its water and sweating in its atmosphere are gain for those, whose bodies are ready to accept the symptoms as diseases which are dangerous Like [cold-deadly Khawanic- gonorrhea]. (7)

and other diseases with high dioxide ratio of carbon in the air, and this gas is deadly if man breathes it.

Those who had a private bathroom, are advised to kindle tamarisk wood in the bathroom, fix the atmosphere with one of the useful millets for air corruption along with other tips for how to get in and out and showering in addition to types of food and drink.

7. Neighboring corrupt water: Attamimi indicates that air corruption of any kind of corruption within it spoils the neighboring water to that bad air, because water accepts what's happening in the air from heat or cold or mold or thick, so water and air are close/ neighboring elements, impossible to each other.

He quotes Hippocrates noted the severity of the bad and stagnant water damage, saying: (the poor stagnant water does make it short in a period of life and lacks the user age limit to other proper water and generates a pyramid quickly and accelerates old age (gray hair) especially if it were stagnant which means rotten) (8)

8. Exposure to certain wind without other wind: For example, In Egypt, contaminated wind comes from the south of the lakes of the Nile in Africa, because these winds carry a high degree of humidity, and high temperature. They are suitable and appropriate Factors to microbial activity.

9. Mutual impact between air, water and soil pollution: Attamimi ensured the previous opinions of the scientists in the mutual impact between air, water and soil pollution. (9)

One of the most important topics related to air pollution addressed by Attamimi also is when he assimilated the process of human respiration and the mechanism of lung function to combustion, and felt that if the air that surrounds the breathing person has not changed, then he chockes, like a fire that goes off when the air doesn't change around them, and the analogy is very accurate and the situation is expressed carefully, the lung puts carbon dioxide gas and the fire burned produces carbon dioxide, and if man breath's an atmosphere saturated with this gas, then he will chocke, as well as the fire extinguished when the surrounding air is saturated with carbon dioxide gas (10) **ways to address/ treat the causes of air corruption at Attamimi:**

He put seueral solutions for how to deal with the corruption of the air by (11):

1. **Steaming the rotten air with different types of ascending smoke of certain types of wood:** It is the best way to purify the air according to the opinion of Attamimi, so smokes fix air corruption and the ancients had burned incense to their homes in the event of epidemics and air corruption.
2. **Lighting Fires and burning substances of aromatic smells:** because fire generates air flow, this alows air switch accompanied by the expulsion of polluted air and the delivery of new one [air], and the fire caused by high temperature in the air is capable of Killing germs in the surrounding air.

   Making Fire and burning the materials which have aromatic smell; The way you burn helps to do away with the hydro carbonic pollutants to the air and its still existed until now. (12)
3. **Giving friends some medicines that strengthen the immunity:** to prevent morbidity, based on the principle, an ounce of prevention is worth a pound of core.
4. **Taking special measures to monitor the transmission of public places:** such as toilets.
5. **Giving appropriate medical treatments in the event of illness.**

Results and discussion

Attamimi gathered the views of his predecessors of scientists and doctors on the subject of air pollution and its impact on human health, so he discussed them, showed their validity, then added his own views, which gleaned from his observations during medical and scientific experiments. We find him counting the reasons of air corruption.

1. **Quarterly coups:** Attamimi knew that quarterly coups are/ were the most suitable times for the growth of germs and diseases emergence, because they are times of intense renovations in temperature and humidity.

   the atmosphere and the alterations which occur in it like (thermal coup, radical coup, ….) have a great impact on several types of pollutants because of the difference in temperature, humidity and air turbulence. The polluted molecules which have the big and medium size with the components of the air or the water vapor, so it comes once again to Earth, causing a lot of diseases and agreat pollution in the surrounding environment. (13)

2. **The escalation of fumes from the belly of the earth when it cracks in the summer and that spoils the air:** These gases resulting from internal interactions under the Earth's crust, or resulting from the breakdown of organic resources in the soil and the high temperature of the summer increases the proliferation of germs, this process has a detrimental effect on people's health. One of the most gases that pollutes the air (Ammonia), which informulated due to the non-air disintegration of the organisms in the soil like the animals 'corpse and their leftovers, and this gas is considered an azotes pollutant of the air. (14)
3. **Fumes from ALsboL, carrion and scavengers within the city:** Which contain huge bacterial colonies and are a great source of pollution and diseases. which are issued by gas (Mirkabtan), which is from the sulfur compound that pollutes the air. It's all about links consists of the Hydrogen molecule and the sulphur molecule SH, it comes out from the disintegration of the organisms and it has a terrible smell like H2S the poisonous one. (15)
4. **The impact of health human condition:** Attamimi proves that he is a clever (skilled) doctor, not attribute all ailments to air corruption but confirms the existence of other reasons as met all or some might cause serious diseases to human health.
5. **Neighboring patients:** It appears in an interview with Attamimi a kind of knowledge of what can be called now, immunity, where it refers to the possibility of not being injured when man smells rotten air, but when a healthy person is infected, it becomes worse if air corruption met with neighboring patient which weakens the body's immunity to disease.
6. **Enclosed public places:** People are advised when the emergence of plague to refrain from entering the public bath, because entering the bathroom with air saturated with moisture in the case of air corruption helps the proliferation of germs quickly and causes serious diseases especially the air in the bathroom doesn't change quickly but very slowly. where the concentration of CO2 coming out from the breathing process is increased, with the result that people die suffocating, as well as the spread of the playues in closed places is faster because of the huge number of people in one place, where the air is not renewable.
7. **Neighboring corrupt water:** It's well know at the present time that high humidity is one of the most important factors to help germs activity in the air, if the humidity was caused by stagnant water, water vapor would be the cause of this moisture originally infected with germs, so that it's a key reason for air pollution. Being close to dirty water: which is the result of the moors, the lakes, gas Methane which pollutes the air due to the non – air disintegration for the organisms in this water. (16)
8. **Exposure to certain wind without other wind:** For example, in Egypt, contaminated wind comes from the south of the lakes of the Nile in Africa, because these winds carry a high degree of humidity, and a high temperature, They are suitable and appropriate factors to microbial activity Seasonal winds that blow in the beginning of Spring from desert areas contain a small pieces of sand and dust which can pollute the air. So it goes into the structure of the air breathed by human beings causing them respiratory and allergic diseases like Asthma. (17).
9. **Mutual impact between air, water and soil pollution:** Attamimi realized that the contamination of one of these three elements can contaminate the other elements of pollution, and this is a civilized look at the environment that can be summed up to that, if one of the components because confused [disturbed] from its natural balance, it affects the other items. Then Attamimi proposes several solutions for how to deal with the corruption of the air.

Conclusion:

Attamimi _ book that its creation dates back to the tenth century_ The first specialist book with the knowledge of the environment and its impact medically on human health. So, he studied, in each section of it, an element of the environment elements dround us, clarifying the reasons of contamination, methods of prevention of the corruption and the methods used in the treatment

So, his book was the best proof of the scientific development that Arabs reached in the science of environmental engineering that's considered modern by scholars. (18)

We notice at Attamimi in his studies of the pollution of the air the same way the experts are following today

Here are the following ways in studying the air pollution:

1. The study of the creation of pollutants and its taking out from the resource.
2. Its movement and impact on the livings.
3. Removing it from the air. (19)

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Benefit of Unani Formulations as Adjuvant in the Management of Chronic Suppurative Osteomyelitis - A Case Study

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Summary

Osteomyelitis means the inflammatory involvement of the bone due to infective organism. Osteomyelitis can be broadly classified as acute Osteomyelitis, sub acute Osteomyelitis and chronic Osteomyelitis. Acute osteomyelitis evolves over several days or weeks, as contrasting to chronic osteomyelitis, which is somewhat defined as long-standing infection that evolves over months or even years, characterised by the persistence of microorganisms, low-grade inflammation, and the presence of dead bone (sequestrum) and fistulous tracts. The *Unani* system of medicine founded by Hippocrates (460-377 BC) is based on the concept of equilibrium and balance of natural body humors (blood, bile, black bile and phlegm). If imbalance occurs in these four types of humors, diseases appear and if these four types of humors remain balanced then health is present in the body. The treatment modalities of the diseases in Unani system are based on the four modalities i. e *Ilaj-bit-Tadbeer* (Regimenal therapy), *Ilaj-bil-Ghiza* (dietotherapy), *Ilaj-bil-Dawa* (pharmacotherapy) and *Ilaj–bil-Yad* (Surgery). The present case report emphasizes the importance of potency and efficacy of Unani medicine in treatment of a patient suffering from chronic suppurative osteomyelitis.

Key words: Osteomyelitis*, Marham-e-raal, Baboona, Nakhoona, Sufuf-e-zaaj.*

Presentation of the Patient

A male patient of age 56years, resident of 6th cross, 2nd main Kauripura Bangalore, visited in surgical OPD of National Institute of Unani Medicine on 21-02-2017 with the chief complaint of pain and swelling at left knee joint since 7 months. He was illiterate with personal habit of on and off smoking 2 to 5 bidis per day since 20 years. The patient's diet was good and dietary habit was vegetarian. Professionally he was a farmer with laborious life style.

Medical presentation

According to the statement of the patient, he was apparently well before 7 months. The patient then underwent an accident. A long log of the tree fell on the left leg. He got injured and thus a wound formed at the left knee joint. This resulted fresh bleeding from the site of the wound. The amount of bleeding at first was about 20 to 25 ml. The patient's relative then wrapped a cloth on the site of injury. This accident put the patient in a painful condition. The character of pain was severe burning and aching. The pain was so severe in nature that the patient was unable to even walk. The pain was confined to the knee only. There was no radiation, referring and shifting of the pain. Ultimately patient had to visit nearby govt. hospital where the wound was cleansed and dressed and patient was prescribed some analgesics. Following this pain relieved up to some extent after taking the pain-killers but again appeared after the effect of analgesic subsided. Subsequently the pain aggravated on walking, standing, moving and exercising and relieved on rest and taking pain killers. Whenever pain appeared, it is also felt by the patient the radiation of the pain to the surrounding structure of left knee joint.

According to the statement of the patient, he also noticed some amount of discharge from the wound site 6 months back. The nature of the discharge was purulent, the amount of the discharge was about one cup per day for about first 4 to 5 days initially which reduced in

amount with the passage of time. The discharge put the patient into panic zone and insisted him to visit nearby clinic for the same problem. He then regularly visited clinic where the wound was dressed daily. The dressings resulted into the reduction of discharge but did not accelerate the healing process. Moreover, the pain also did not subside but remained unchanged with the same aggravating and relieving factors. In other words, the wound did not respond to conservative treatment but remained unresponsive towards healing.

There is history of on and off fever since last one month. The fever normally appeared during evening and subsided on taking antipyretics. There is no shivering associated with the fever. With all above described complaints, he visited NIUM and got admitted for further management.

Local examination

Swelling was present at left knee joint covering almost all patellar regions. A small wound was present over the swelling. Thick purulent discharge was seen coming out of the wound. The edges were irregular with surrounding region indurated, swollen and edematous. There was no active bleeding from the wound when the patient was admitted. Local temperature of the part was increased with severe tenderness. Fluctuation was present over the swelling and the movement of the knee joint was severely restricted and painful. Peripheral pulsation like dorsalis pedis, anterior tibial artery, posterior tibial artery, popletial artery and femoral artery were clearly palpable.

Investigations

Patient was routinely investigated after admission to NIUM. His hematological values were Hb 11.5%, TC 7000%, DC (P 70%, L 20%, E 05%, M 05%, B 0%), ESR 64 mm/1Hr, BT 2min, CT 3:30 min. Clinical pathology of urine showed 10-12 pus cells/hpf with motile bacteria. Serum calcium was normal i.e. 9.3 mg/dl. Biochemical investigations were within normal limit i. e. FBS 101mg/dl, PPBS 134 mg/dl, Blood urea 26 mg/dl and Serum creatinine 0.8 mg/dl. Serological investigations were normal i.e. HIV I & II as non reactive and HBsAg as negative. Pus collected from wound was sent for culture and sensitivity and the culture report was positive with the infection of Klebseilla pneumoniae bacteria with sensitivity to azithromycin and ampicillin. X-ray of left knee with AP and lateral projections of central rays showed mild joint effusion with bony reactions (Features of osteomylitis).

Treatment Given To The Patient

After careful history and examination of the patient with vigilant local examination and necessary investigations, he was diagnosed as post traumatic osteomylitis of left knee joint. Patient was prescribed Unani formulations as *Majoon-e-Ushba* 6 gm 12 hourly and Natool of the local part with decoction of *Baboona*, *Nakhoona* and *Namak-e-Ta'aam*. Patient was advised to wash the wound with *Sufuf-e-zaaj* followed by application of *Marham-e-raal*. Inj. Ampicillin 500 mg 12 hourly for 5 days and Tab Azithromycin 500 mg 12 hourly for 10 days were also given as per culture and sensitivity report. He was instructed to maintain personal hygiene with intermittent movement of left knee joint in order to avoid arthrosis.

Discussion

Osteomyelitis means the inflammatory involvement of the bone due to infective organism.[1, 2, 3] Osteomyelitis due to local spread from a contiguous contaminated source of infection follows trauma, bone surgery, or joint replacement. It implies an initial infection that gains access to bone. It can occur at any age and can involve any bone.[2] Osteomyelitis can be broadly classified as acute Osteomyelitis, sub acute Osteomyelitis and chronic Osteomyelitis.[1, 3, 8] Chronic Osteomyelitis can further be subdivided into chronic pyogenic Osteomyelitis, syphilitic, tuberculous, Brodie's abscess, typhoid, brucellar, mycotic and parasitic Osteomyelitis.[1] Acute osteomyelitis evolves over several days or weeks, as contrasting to chronic osteomyelitis, which is somewhat defined as long-standing infection that evolves over months or even years, characterized by the persistence of microorganisms, low-grade inflammation, and the presence of dead bone (sequestrum) and fistulous tracts.[2] The most common causative organisms for the infections are staphylococcus aureus[1, 2, 4] (penicillin resistant or sensitive), staphylococcus and streptococcus.[1, 2, 5] Occasionally haemophilus influenza,[1, 4] pneumococcus and salmonella may also cause bony infections.[1] Mostly the metaphysic of the bone is the starting point of the infection. The metaphysic is mostly involved due to following points.[1, 6]

1. Presence of numerous blood vessels and more blood flow in metaphysis which is prone to infection.
2. The rapidly growing cells of metaphysic are prone to infection.
3. The delicate vessels of metaphysic are prone to injury which leads to hematoma formation and the hematoma is most common nidus for bacterial growth.

As the age is concerned, it is the diseases of childhood and adolescence. But post traumatic osteomyelitis can be at any age.[1, 6]

Pathologically there are four stages of osteomyelitis viz. stage of suppuration, stage of necrosis, stage of new bone formation[1, 3] and stage of involvement of superficial tissues.[1, 4] As far as stage of suppuration is concerned, the disease starts as an abscess in metaphysis.[1, 6] As it comes out of the bone it comes under the periosteum and forms the subperiosteal abscess. In stage of necrosis, the subperiosteal pus tracks both longitudinally and circumferentially around the bone stripping the periosteum. The blood vessels run transversely from periosteum to cortex in this space. Accretion of the pus makes the blood vessels narrowed resulting in the hampered blood supply of cortex which gradually becomes devascularised and necrosed. In cases where the main branch of nutrient artery undergoes infective thrombosis, a big area of the bone becomes dead causing massive sequestrum formation. Osteoblasts in the inner layer of the periosteum are responsible for new bone formation. This value of the periosteum is maintained even if there is subperiosteal pus formation. When there is new bone formation, the new bone is formed encasing the subperiosteal pus and sequestrum. This is called an involucrum. If the treatment is not given to the patient, the subperiosteal pus bursts through the periosteum and tracks through the muscles to present in subcutaneous tissues.[1, 4]

As far as the clinical features are concerned, the pain is the most common symptom the patient presents with.[1, 4, 5, 8] Swelling at the site[4], with relatively reduction in the movement of adjacent joint is possible.[1, 5] High rise of temperature with chills, rigor,[4, 8] backache and headache are also present in advanced stage due to septicemia and toxemia.[1] On inspection, there are the signs of inflammation viz. redness, swelling, tenderness and increased local temperature.[4, 5, 8] Pus may be seen coming out of the osteomyelitic sinus if present.[1, 4] Fluctuation may also be present if there is collection of pus. Moreover the neighboring joint may show decreased and painful movement. Blood investigations show increased ESR[4] and total count.[1] The blood or pus culture may show infective organism.[1, 4] X-ray of the affected part shows the patchy rarefaction, joint effusion,[1] lytic changes,[7] soft tissue swelling and periosteal thickening.[4, 7] General complications include septicaemia, pyaemia, bacteraemia and toxaemia.[1, 9] Local complications are chronic osteomyelitis, Brodie's abscess, altered length of bone and pathological fracture. The disease is differentially diagnosed with acute suppurative arthritis and acute rheumatism.[1]

The treatment approach includes analgesics to relieve pain, antipyretics to reduce body temperature and antibiotics to kill micro organism. Local treatment includes splintage[1] and drainage of the abscess.[1, 6, 9]

On the basis of clinical history and examination, we provisionally diagnosed the patient as osteomyelitis. After necessary investigation like X-ray of the affected part and blood investigations, the diagnosis was confirmed as chronic suppurative osteomyelitis the cause of which was traumatic infection.

The patient had visited numbers of the hospitals in order to get the treatment and he off course got treatment but did not cure. After we admitted him in NIUM hospital block, we carried out the culture and sensitivity of the wound pus. The report showed infective micro organism with heavy load. X-ray of the part showed joint effusion and bony lytic changes. These are the findings which favors the diagnosis as chronic suppurative osteomyelitis.

After all the necessary investigations, he was prescribed antibiotics in injection form, analgesics, antipyretics with Unani treatment as *Majoon-e-ushba*, *natool* of the affected part with *baaboona, nakhoona* and *namak-e-ta'aam*. The schedule of the treatment was as follows. Patient was prescribed Inj. Ampicillin 500 mg 12 hourly for 5 days and Tab Azithromycin 500 mg 12 hourly for 10 days. Unani medicinal interventions were *Joshanda-e-Musaffi* 10 gm 12 hourly, *Majoon-e-Ushba* 6gm 12 hourly and Natool of the local part with decoction of *Baboona*, *Nakhoona* and *Namak-e-Ta'aam* for 10 days. Patient was advised to wash the wound with the solution of *Sufuf-e-Zaaj* (Alum Powder) and lukewarm water followed by application of *Marham-e-raal* on the osteomyelitic sinus from where the pus usually oozed. He was instructed to maintain personal hygiene with intermittent movement of left knee joint in order to avoid arthrosis. After 10 days of treatment, we noticed

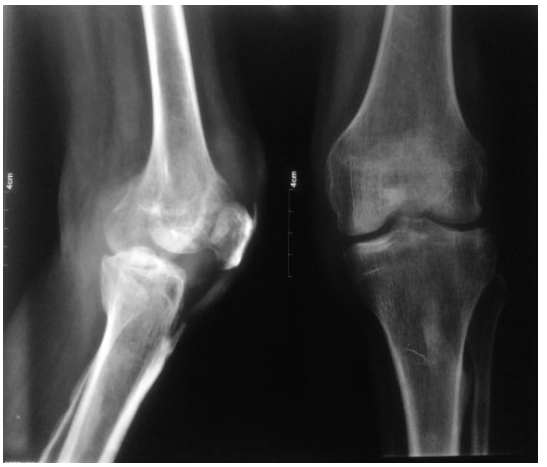

Fig. 1. X-ray left knee joint. Before treatment. Note the soft tissue swelling around the joint. Periosteal thickening between femur and tibia. Note rarefaction of the density of the joint.

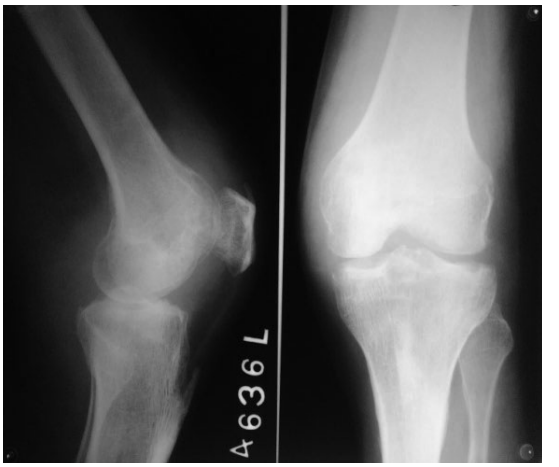

Fig. 2. X-ray left knee joint. After treatment. Note the soft tissue swelling disappeared. Periosteal thickening between femur and tibia disappeared. No rarefaction of the density of the joint.

the astonishing effects on the patient. The pain, swelling and purulent discharge subsided at the end of treatment. Also the osteomyelitic sinus showed the signs of healing at 5th day which gradually healed at 11th day. The fever and generalized weakness was also reduced and the patient felt much better than before. The movement of joint became less painful. Now patient was able to walk independently without mechanical support. The X-ray images of left knee joint before and after treatment are being displayed below.

As we discussed above that the patient was prescribed AMAs with adjuvant Unani treatment including *Majoon-e-Ushba,* Natool of the local part with decoction of *Baboona*, *Nakhoona* and *Namak-e-Ta'aam* and wound wash with the solution of *Sufuf-e-Zaaj* (Alum Powder) and lukewarm water followed by application of *Marham-e-raal*.

Majoon-e-Ushba is a potent blood purifier with main ingredient as *Ushba.* The *Ushba* (Smilax aristolochiaefolia Miller) in English Sarsaparilla is anti-inflammatory, antipruritic, blood purifier and antiseptic. The roots and rhizomes of sarsaparilla contain saponins based on aglycones sarsapogenin and smilagenin, the major one being parillin (sarsaponin), with smilasaponin (smilacin) and sarsaparilloside; beta-sitosterol, stigmasterol and their glucosides. Parillin shows antibiotic activity.[10]

Baboona (Matricaria chamomilla Linn) in english Chamomile is anti-inflammatory and antispasmodic. (*The British Herbal Pharmacopoeia*) In chamomlile extracts, chamazulene has been found responsible for anti-inflammatory activity. Matricine and alpha-bisabolol also show anti-inflammatory and analgesic activity. Bisabolol exhibits ulceroprotective effect. The polysaccharides are immunostimulating and activate macrophages and B lymphocytes; play an important role in wound healing.[10]

Nakhoona (Melilotus officinalis Linn) in English melilot is an astringent, wound healer, styptic, anti-inflammatory, sedative, mild analgesic, anticoagulant and spasmolytic. In Europe and China, the plant extract is used for inflammations, arthritis and rheumatism. Animal experiments show an increase in healing of wounds.[10]

According to the *Unani* literature *Marham-e-Raal* is used for chronic ulcers to gain intensive and quick response in wound healing. It helps in growth of healthy tissue at the site of ulcer. It removes the dead tissue from the site. It is well established formulation for the ulcers which are resilient to healing.[11] The contents of the *Marham-e-Raal* are *Mom* (Bees wax/Cera)*, Kafoor* (Cinnamomum camphora)*, Raal hindi* (Vateria indica Linn)*, Kaat hindi* (Acacia catechu) and *Roghan-e-gao/*Ghee.[12] *Mom (bees wax)* is an important content of the *Marham* (ointment) and improves the action of its contents. It helps in penetration of the contents of a *Marham* into the floor of wounds because the constituents of the *Marham* are dessicant and astringent and without *Mom (bees wax)* fail to penetrate.[13] *Kafoor (Cinnamomum camphora)* has antiseptic, stimulant and rubefacient activity. When applied

locally, *Kafoor* dilates the blood vessels and increases the circulation at the site.[13] It has antiseptic, demulcent and anodyne properties.[14, 15] *Raal hindi* (*Vateria indica Linn*) has detergent activity.[15] It washes the wound and makes the wound free from the pus. Its ointment is beneficial in long standing wounds.[13] *Raal hindi* has anti parasitic property and rubefacient activity.[14] *Kaat hindi (Acacia catechu)* is used for itching, burn ulcers and syphilitic ulcers in form of ointment. Dispersion of its *sufuf* over an ulcer stops bleeding.[13] *Kaat hindi* has been reported for having strong astringent and anti parasitic property.[14, 15]

Conclusion

The Unani medicines conserve the potent action and efficacy in it and should therefore be used either singly or as adjuvant as condition permits in various diseases. As we have discussed in detail above about the efficacy and safety of Unani formulations in osteomyelitis of knee joint, it should be further evaluated and proved by clinical trial on large number of cases in order to establish and validate their already described effects and actions in Unani literature.

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Revival of Garam Hammam

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Summary

Unani system of Medicine is an oldest system of medicine which uses four comprehensive methods of treatment namely- Ilaj-bit-tadbeer (Regimenal therapy), Ilaj-bil-ghiza (Dietotherapy), Ilaj-bil-dawa(Pharmacotherapy) and Ilaj-bil-Yad(Surgery). Garam Hammam is a form of Ilaj-bit-tadbeer(Regimenal therapy) which has been used since thousands of years. The complete discussion of Garam Hammam has been mentioned and documented in all classical Unani books with all its benefits, structure, indications etc. But unfortunately these details are found only in literatures and its proper practical part is still in vain. Dr. Hakeem S. Akbar Kausar, a popular Unani Hakeem of our country explored and revived this practical aspect of Garam Hammam after a deep extensive study travelling all over the world and finally built a 'Shahi Garam Hammam' at Vaniyambadi, Tamil Nadu(India) which is in tune with the principles of Unani system of Medicine. This paper is an attempt to reveal how he explored and revived Garam Hammam practically.

Key Words: Unani system of Medicine, Garam Hammam, Ilaj-bit-tadbeer

Introduction

Unani system of medicine is one of the oldest systems known to the mankind, in which many regimens are described and practiced since long time for the prevention & management of diseases Hammam is included among them.

The Hammam, an Arabic word meaning 'spreader of warmth', is a symbol of the East and the very long and rich culture of bathing of the Romans, Greeks, Ottomans, Persians and Arabs. Turkey and particularly Istanbul, with feet in both the West (Europe) and the East, is a symbol of crossing over a cultural divide. The word Hammam is derived from Arabic word Ham which means heater or warmer, in other words vapour room. Hammam is constructed in a large area consisting of three chambers/ rooms. Technically Hammam is referred to a building comprising of three portion or rooms, each portion has different temperament and specific objective.

History of Garam Hammam

The Hammam is probably the oldest surviving bath tradition in the world. Hammam has an age old history and it became popular in Roomi era The history of Hammam is very old. Some roman emperor builds Hammam like the Hammam of Antaqia, Caracalla and Deokalesian situated in the Tadammur. In the Islamic period Hammam was first build up in the Syria. Hammam Qusair-e-Amra was first Hammam build in the period of Islam situated in the Syria. Hammam-e-Qasrul Hayer Gharbi was built in the period of Hasham Bin Abdul Malik (723-744 AD) in the Damishq (Damacus). In Islamic period a lot of Hammam were built, there were separate Hammam for rich and general people and also attached with big mosque. According to history of Damishq, Baghdad, Qartaba, Istambul, Asfihan and other Islamic cities there were more than 600 Hammam were mentioned.

Importance of Garam Hammam

Unani Scholars had elaborately discussed the importance of Hammam, characteristic of a good Hammam and precautions regarding it.

Skin is the largest organ of body and, it plays a role of protective layers against harmful germs including bacteria. Human body is assailed by various harmful chemicals, begrime and soil. Skin necessitates especial care and attention which is attained by a nice hot bath. Water is a beneficial source of taking out toxicants from the body. Warm water bath open the pores of the body, helping to cleanse it. While Cold water cleans the pores as well and

closes them, it helps in increasing the metabolism of the body. So it is necessary that one should be aware of the uses and benefits of using cold or warm water in bath.

From the very beginning human being knows about the importance of water for life, they established their dwellings and houses near water sources so the old cities of world are nearer to the rivers with development of utilisation. They also took care about his cleanliness. For the purpose of cleanliness the importance of Hammam was increased. The word Hammam is derived from Arabic word "Hamm" which means "warmer" or "steam bath room", in French it is known as "Bain maure". In ancient times Hammam got an important position in the society. After that Hammam is considered as hugely substantial place in the development of cities.

Benefits of Hammam, depend upon the temperature, time of stay and use of water in the Hammam. In general following benefits are found in Hammam. It produces Hararat, Baroodat, Yaboosat and Ratoobat. It opens pores of skin. It disperses the rooh. It removes the flatulence. It uplifts the appetite. It produces sleep. It checks loose motion. It acts as Mahallil Fuzlat (waste products). It produce nuzj in madda and helps in removed them from body. It protects body from dirt. It also produces tajfeef. It produces rutoobat in the body. It reduces the pain.

Ancient Unani physicians have described the importance of Hammam in their classical texts, they also mentioned about the usefulness in the treatment of different diseases as follows- Kuzaz (tetanus), Ashob-e-chashm (conjunctivitis), Colitis, Istesqaye zaqi and lahmi (ascites), Ishaal-e-mevi (type of dysentery), Ishal-e-takasfi (type of dysentery), Zaheer-e-sadiq(type of dysentery), Bawaseer (Haemorrhoids), Wajaul warak (Low Back & Hip ache), Irqun Nasa (sciatica), Hummay-e-yaum (Type of Fever), Hummay-e-ghazbiya (Type of Fever), Hummay-e-sahriya, Hummay-e-ta'abiya (Type of Fever), Ghibb-e-khalis (Type of Fever), Hummay-e-diq (Tuberculosis), Jarb-o-hikka (Scabies and Pruritis), Laghri (Debility) and Farbahi (Obesity). It produces Nuzj in Nazla and Zukaam (Sinusitis). It also produces Tarqeeq and Tahleel (dilution) of Fuzlat (wastes). The thesis of Dr. M. A. Qasmi Saheb - Deputy Advisor (Unani) Ministry of Ayush, Govt. of India, describes more than 450 khilthi amraz which can be treated by Unani Garam Hammam.

The hypothetical mechanism of action of Hammam is supposed to work due to its properties of Tahleel, Taqtee and Talteef. Tahleel is by removing of waste and morbid matter of body, part by part from its attached sites, heat used in Hammam is known to have property of Tahleel. Taqtee is a property due to which, penetration into interstitial spaces of the organ is achieved in case of Hammam hot water is used for this job. Talteef is property by virtue of it warm water used in Hammam reacts with body's Quwwat Tabiya to divide the morbid matter into smaller parts.

Dr. Akbar Kausar's Exploraton of Garam Hammam

Dr. Hakeem S. Akbar Kausar had a keen interest in translating Unani books in other languages and hence he started many monthly health magazines in Tamil, English, Hindi and Bengali for which he had to study many medical books. During this time he came through a book called 'THE BOOK OF BATH' published by Abe Books in which he came across a sentence as:

"The Hammam is a magical place which according to popular belief, was once thought of capable of saving the sick who lay at death's door."

This amazing proverb arouses his interest in 'BATH' and thereby he started reading various books on baths and public baths. There are many pictures of ancient bath in this book which attracted him more. In centuries past and even today the Hammam is known as the 'silent doctor' – a place of cleansing and healing for both body and soul.

Govt. Of Tamil Nadu through the Dept. Of Indian Medicine and Homeopathy with a special Govt. order gave him the work of translating Unani books in Tamil language. During this translation period he had the opportunity to read most of the classical Unani books. Here he found to his interest that all ancient Unani scholars like Zakariya Razi, Ibn Rushd, Ibn Sina, Majoosi, Raban Tabri etc have mentioned about Hammam in their treatment aspects. Thereby Dr. Hakeem S. Akbar Kausar did a deep extensive study to know what is Garam Hammam in all Unani and other books and started his research journey to know its importance, mode of action, how to construct Garam Hammam, how to bring Unani steam and to explore its technology.

In India, before freedom, during the reign of Mughals, there were many Garam Hammam built by Mughal emperors but today they are all under the archaeological Dept. - Govt. of India. Hence this was not an easy job to

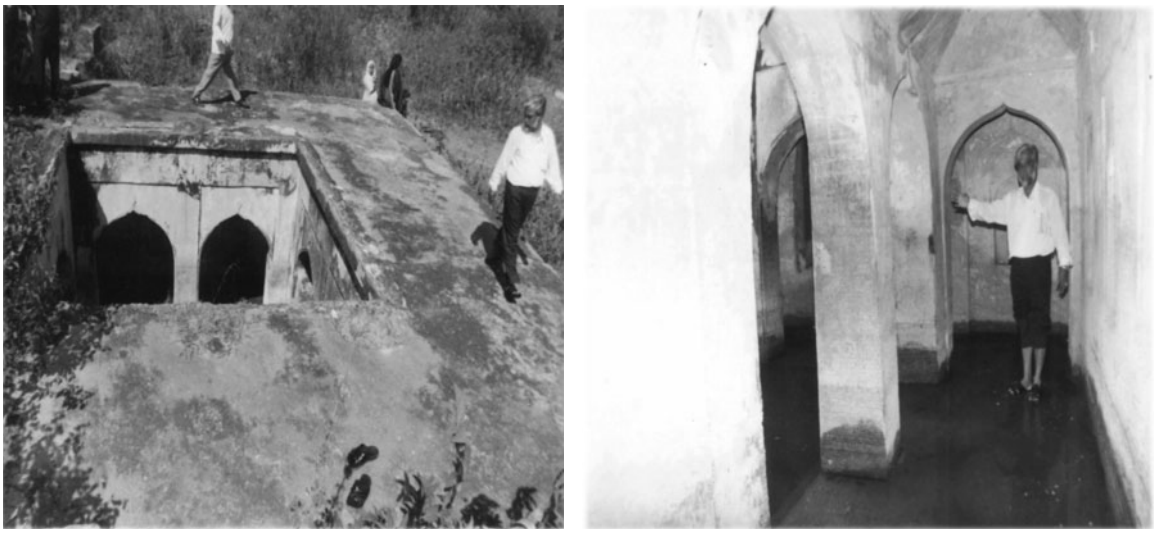
explore these places but as 'Where there is a will, there is a way', Dr. Akbar Kausar went ahead with his team of Unani scholars, architects and photographers to visit and explore these Royal Garam Hammams especially in Bhopal, Hyderabad, Lucknow and Kashmir.

Research Trip To Hyderabad

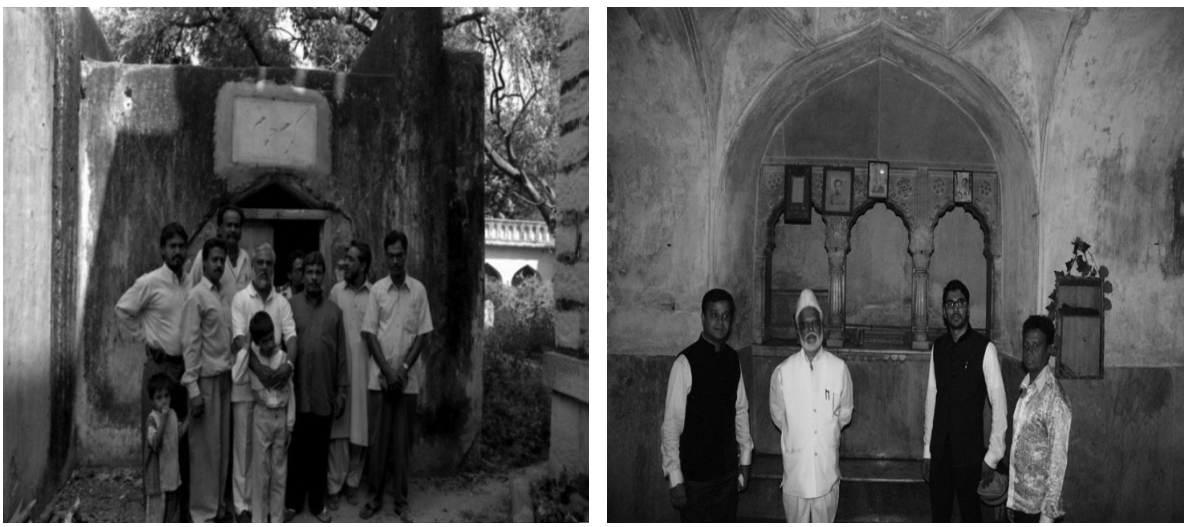
In Hyderabad, Dr. Akbar Kausar visited Govt. Nizamia Unani Medical College, Golkunda Garam Hammam and Miyan Mishk Garam Hammam.

Mian Mishk Masjid is an old mosque located in Hyderabad, Telangana, India. It is located near Purana Pul. It has a garam hamam, which offers a hot bath, complying with the Islamic principle of hygiene and purification. It is among the 137 heritage list of Hyderabad Urban Development Authority. Dr. Akbar Kausar visited this ancient Garam Hamaam and explored its technology by taking its photo and videography.

This research trip gave him valuable information and basic understanding of Garam Hammam.



Golkunda Garam Hammam, Hyderabad



Mian Mishk Masjid Garam Hammam, Hyderabad

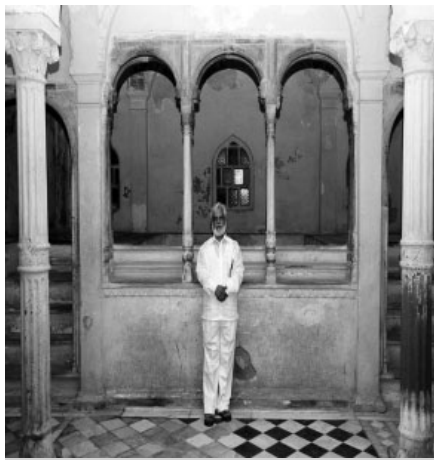
Islam Nagar Garam Hammam, Bhopal

Research Trip to Bhopal

Dr. Akbar Kausar under the leadership of Dr. Asad Pasha, Joint Advisor (Unani) Ministry of Ayush, Govt. of India, visited and explored the 300 Years Old Nawab Sardar Dost Mohammad Khan's Shahi Garam Hammam(-Chaman Mahal) at Islam Nagar, Bhopal. This Shahi Garam Hammam located inside the Islam Nagar fort called Chaman Mahal was built in Mughal style in 1715 A. D. There is one dressing room in it. The main room can be approached through galleries, where water tanks are constructed on three sides. A copper plate is fixed at the base of one water tank beneath which a furnace is constructed for providing water.

Next, Dr. Akbar Kausar visited Gond Ruler's Qadimi

Qadimi Shahi Garam Hammam (Hammu Khalifa Ka Hammam) Bhopal



Chota Imam Bara Shahi Garam Hammam, Lucknow

Shahi Garam Hammam (Hammu Khalifa Ka Hammam) at Vardhman, Bhopal, Madhya Pradesh built in 1715. It remains open from Deewali to Holi. This Hammam has a room before the entrance door which has a normal environment. There is another 12'x12' high roofed room adjoining this room. It is hotter and moist. Inch by inch measurement and photography of the entire Hammam was taken by Dr. Akbar Kausar and his team of explorers.

Research Trip to Lucknow

Dr. Akbar Kausar visited the 177 years old Shahi Garam Hammam and Mughal Garden built by Nawab Muhammad Ali Shah in 1838, inside 'The Palace Of Lights called Roomi Darwaza'in Chota Imam Bara Complex in Lucknow, UP, India. The design pattern used in the monument is Indo-Islamic in nature but rather has a generous dose of Persian crafts.

Research Trip to Kashmir

Mughal emperors who ruled Kashmir for 167 years developed several Garam Hammams and traditional Natural Health Resorts in their Mughal Gardens for their royal family members, governors and also for holding ourts in their period. Their Mughal Gardens were created on 'Charbagh' theory based on four elements concept of Unani system of Medicine.

Dr. Akbar Kausar visited and explored the 396 years old Shalimar bagh and its Shahi Garam Hammam in

Shalimar bagh Shahi Garam Hammam, Srinagar, Kashmir

Achabal Bagh - Shahi Garam Hammam, Kashmir

Srinagar, Kashmir which was built by Mughal Emperor Jahanghir for his wife Nur Jahan. During the restoration and conservation work implemented by the department of floriculture and INTACH, Jammu & Kashmir chapter in Shalimar garden built and used by Mughal emperors, there was a Shahi Garam Hammam found hidden under heap of earth, garbage and waste deposited at the site over a period of many decades. These archaeological explorations have revealed the heating system and its topical over view of the way of this unique Garam Hammam structure functioned. An important discovery of the exploration was the discovery of original Mughal octagonal brick tile pavement that was hidden under a 2 feet earth deposit. Mud pots and Tsonga oil lamps were found during the excavation work which were used during bath in Shahi Garam Hammam, they were safe inside the Hammam.

Rediscovering the hidden layers of Garam Hammam of Mughal Emperors at Achabal Bagh in Kashmir, Dr. Akbar Kausar visited and explored the Shahi Garam Hammam in Achabal garden at Anantnag, Kashmir built in 1620. A Shahi Garam Hammam was constructed by Empress Jahanara Begum, the eldest daughter of Emperor Shah Jahan in the 17th century inside the Achabal bagh. This is a large building with a swimming tank for ladies in the centre of Garam Hammam. Achabal garden had many Hammams (cold pools used for bathing which used to get heat from small oil lamp known as 'Tsong' in local parlance). Fabrications of the Duri stones, lime flooring, bricks and mud work are the speciality of this Hammam and garden. Tsong butter lamps are bid inside the first room during bathing in Gram Hammam.

In Kashmir, Dr. Akbar Kausar visited and rediscovered the 357 years old Mughal crowned Prince Dara

Dara Shikoh's Shahi Garam Hammam at Naagar Nagar, Srinagar

Mullah Shah Akhoon Public Shahi Garam Hammam

Shikoh's Shahi Garam Hammam at Naagar Nagar, Srinagar- Kashmir built in 1658. The main entrance doorway to this Hammam gives us a historical message which is engraved on a black stone in Persian language. It gives information of the date of construction of Shahi Garam Hammam, Public Garam Hammam and Akhoon Mulla Shah's mosque built by Prince Dara Shikoh, between 1649 to 1658 AD. The Shahi Garam Hammam is under the encroachment of the local people. They have converted it to a residential bulding. Now the Govt. Of Jammu & Kashmir has taken some steps to get back the Hammam building and have 50% succeeded and have started the renovation work.

Dr. Akbar Kausar also visited and explored the 387 years old Mullah Shah Akhoon Public Shahi Garam Hammam built by Dara Shikoh at Naagar Nagar, Kashmir in1628. This Shahi Public Garam Hammam is a part Of Mullah Shah Masjid surrounded by a series of cells, sarai, 8 bathrooms and pond built on Iranian pattern where water was drawn to the place using special equipments.

International Research Journey

Dr. Akbar Kausar with his zeal, passion, keen interest and enthusiasm visited more than 17 countries all over

Grand Mosque of France (Paris) – Garam Hammam


The Baths of Caracalla, Rome

the world in search of Garam Hammam. During his international research trip he visited the Grand Mosque of France (Paris) inside which there is a special Garam Hammam for ladies.

Dr. Akbar Kausar visited the famous unique Baths of Caracalla in Rome in where more than 8000 people used to take bath at a time. The Baths of Caracalla (Italian: Terme di Caracalla) in Rome, Italy, were the second largest Roman public baths, or thermae, built in Rome between AD 212 (or 211) and 217, during the reigns of Septimius Severus and Caracalla.

Dr. Akbar Kausar also visited the famous ancient Bath of Decolatian of Rome which is 1800 years old, which is still alive today. During his trip to China, he saw and observed the model of 1000 years old Garam Hammam in the meuseum of Beijing. He also visited China, Hongkong, Singapore, Saudi Arabia and Gulf countries etc. in search of Garam Hammams.

Construction of Dr. Akbar Kausar's Al-Kausar Shahi Garam Hammam at Vaniyambadi, Tamil Nadu

Nearly 16 years of research journey, Dr. Hakeem S. Akbar Kausar after visiting and exploring different types of the lost technology of Garam Hammam in national and international level, he finally built a complete Unani 'Al-Kausar Shahi Garam Hammam' in his 100 acres Mughal Garden at Vaniyambadi, Tamil Nadu. Bringing these ancient technologies in this modern world was not an easy job but Dr. Akbar Kausar succeeded in his mission to build Garam Hammam with a unique Unani hospital. Dr. Akbar Kausar's Garam Hammam is built according to the Unani principles of Medicine which has three tombs and three rooms of different temperatures and one time burnt steam for four hours gives a constant temperature of 40°-42°C for four days and four nights in its inner room.

Many emiment personalities, VIP's, ministers, Govt. Officials, including NIUM Director - Dr. M. A. Siddiqui Saheb, Dr. Asad Pasha - Joint Advisor (Unani) Ministry of Ayush, Govt. of India, Dr. M. A. Qasmi Saheb - Deputy Advisor (Unani) Ministry of Ayush, Govt. of India, Prof. Hakeem Khalifathullah Saheb, Shri. Choudhary Laal Singh - Hon'ble Minister for Forest, Environment, Ecology, Jmmau & Kashmir etc visited Dr. Akbar Kausar's Al-Kausar Shahi Garam Hammam and appreciated. This Garam Hammam is not yet inaugurated because Dr. Hakeem S. Akbar Kausar wanted to create a complete Unani environment around this Hammam. Hence, keeping in mind the basic principles of Unani including the four element theory and humoral theory, he planted 70, 000 medicinal plants around it. Within a few months, as soon as the flowers blossom on these medicinal plants, this Shahi Garam Hammam with its beautiful Unani hospital will be a proud and a great privilege to Unani system.

Beautiful View of Dr. AKbar Kausar's Al-Kausar Shahi Garam Hammam, Tamil Nadu

AL-KAUSAR SHAHI GARAM HAMMAM

DOME OF GARAM HAMMAM

FIRST ROOM - AL-KAUSAR SHAHI GARAM HAMMAM

SECOND ROOM

CORRIDOR

THIRD ROOM

THIRD ROOM - TEMPERATURE 40 TO 42°C

CHULHA

Conclusion

The detailed description of Hammam in Unani medicine illustrates the application of it in various diseases and in healthy individuals. Dr. Akbar Kausar's 'Al-Kausar Shahi Garam Hammam' at Tamil Nadu(India) which is built in tune with the basic principles of Unani system of Medicine Inshallah will be a privilege to Unani system and a great boon to humanity. This Hammam apart from giving medical service may also serve as an active, positive and valuable means of eco friendly medical tourist venture.

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Topical Plants for Ophthalmological Diseases in *Kitāb Al-Raḥma fi'l-Ṭib wa'l-Ḥikma*

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Summary

Arab physicians wrote about pathology, including ophthalmology, and shed much light on ophthalmological medicine. One such work is the *Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma* ("The Book of Mercy in Medicine and Wisdom"), which exists in a unique Istanbul manuscript and contains fascinating information on eye diseases and their causes, symptoms, and therapies. In particular, the author discusses plants used in bandaging the eye to treat various diseases as a kind of integrative medical treatment.

Methodology: This unattributed unique medical handbook of an unknown provenance is an important late medieval source on the practice of Islamic ophthalmology and the treatment of eye diseases. This paper focuses on the plants which the author mentions in the topical preparations for eye diseases, and presents a scientific study of each plant, including a general description, an identification of the parts used, as well as historical and current medical uses.

Results: The following questions are addressed in this study: 1- What are the eye diseases and plants used topically in this work? 2- Which of these plants have been studied for these medical purposes nowadays? 3- What possibilities are there to use new plants as an integrative treatment for ophthalmological diseases?

Keywords: integrative treatment; Topical treatment; ophthalmological diseases; *Kitāb Al-Raḥma fi'l-Ṭib wa'l-Ḥikma*.

Authorship of the *Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma* (The Book of Mercy in Medicine and Wisdom)

The electronic reference of library of Faculty of Medicine at Istanbul University attributes authorship of the work to Mahdi Ibn Ali ibn Ibrahim al-Yamani who died 815/1412AD. The historian Kaḥḥālah refers to the author as Mahdī ibn Alī Ibn Ibrāhīm al-Yamanī, stating that he was a good physician (Kaḥḥālah 1993, 3:493, 736). Likewise, other historians like al-Baghdādī I. and Hāgī Khalīfa have considered him the author of this work (Al-Baghdādī 1951, 2:484; Hāgī Khalīfa 1941, 1:836).

On the other hand, al-Zirkelī claims that the author is Jalāl al-Dīn al-Suyūṭī (al-Zirkelī 2002, 7:313). Ḥamārnah S. points out that there is great confusion about the authorship of this work (Ḥamārnah 1969, 449), a question which remains unresolved and which may be a situation where the two above attributions, Mahdī Ibn Alī Ibn Ibrāhīm Al-Yamanī or Jalāl Al-Dīn Al-Suyūṭī, may have composed different works with the same title.

Description of the *Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma*

The manuscript is saved at Istanbul University Medical Faculty, Ms. Çapa no. 44, currently housed at the Çapa History of Medicine and Ethics Department, it is 173 folios, and there some lacks in papers of it, and its status is a bit bad, some damage because of humidity had occurred for the edges of papers.

The copyist used wrote in a legible hand, rendering the titles of chapters elegantly in red ink. The names of diseases and simple drugs are likewise in red ink.

The work begins with an introduction discussing some general points of medicine. It is divided into four

main sections:

- First section: on the importance of medicine and general information on ancient medical knowledge on temperaments, the humours and souls, in addition to the effect of causes upon the human body.
- Second section: on the abnormal things which play a role in the health of the human body and how they might affect in the temperament of the body and its health status.
- Third section: on the anatomy of the human body, and the reader of ancient medical texts knows that it was the routine of writing Arabic medical books.
- Fourth section: on diseases and their causes, symptoms and therapies, with a focus on simple drugs (*Kitāb Al-Raḥma fi'l-Ṭib wa'l-Ḥikma,* Istanbul copy, folio 3).

The most interesting chapters in this section deal with ophthalmology. The author mentions around 16 different kinds of ophthalmological diseases, and his method of listing them is fascinating. First he starts with the identity of disease, then he mentions its causes and symptoms, then he refers to methods of treatment, and finally he list the main plants to be used topically in treating the disease (*Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma,* Istanbul copy, folio 73).

Methodology: The author focuses on a group of nine plants to be used topically for all ophthalmological diseases mentioned in the work. We will now turn our attention to these nine plants providing their scientific classifications, morphological descriptions, origins, parts used, and historical medical uses alongside current improved uses with some medical notes about their uses.

Finally, and according to the compatibility between historical and recent medical uses, the paper will try to answer the question whether the author's use of these plants as topical medications for ophthalmological diseases is medically sound according to current medical understanding.

The List of Topical Plants for Eye Diseases

1. Aloe vera

Scientific Classification: *Aloe vera* L.

Family: Liliaceae (Bīk 1930, 10).

Synonyms: (صبر), curacao aloe, laloi (French); echte aloe (German); aloe vera (Italian) (Wyk and Wink 2004, 41).

Description: Flower and Fruit: The inflorescence is forked once or twice and is 60 to 90 cm high. The raceme is dense, cylindrical and narrows toward the top. The terminal raceme is up to 40 cm high while the lower ones are somewhat shorter. The bracts are almost white, and the flowers are yellow, orange or red, and are 3 cm long.

Leaves, Stem and Root: The lily-like succulent-leafed rosette shrub either does not have a stem or has a 25 cm stem. The stem has about 25 leaves in an upright dense rosette. The lanceolate leaf is thick and fleshy, 40 to 50 cm long and 6 to 7 cm wide at the base. The upper surface is concave, gray-green, often with a reddish tinge, which sometimes appears in patches in the young plants. The leaf margin has a pale pink edge and 2 mm long pale teeth (Gruenwald et al. 2000, 16).

Origin: Aloe is thought to have originated in the Sudan and the Arabian Peninsula. Today the species is cultivated and found in the wild in northern Africa, the Near East, Asia, and in the southern Mediterranean region. The plant is cultivated in subtropical regions of the United States and Mexico, and on the Dutch Antilles, as well as coastal regions of Venezuela.

Part Used: The medicinal part of the plant is dried juice of the leaves (Gruenwald et al. 2000, 16).

Ophthalmological Diseases: It is used as an eye lotion for ophthalmia, epiphora, and hordeolum, but it is used as powder for trichiasis, ophthalmic ulcer, and hypopyon ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: It is considered among the best herbal treatments for stomach ailments, and it has also been used for genital ulcers, and ulcers in the mouth and nose, and as an astringent, laxative, and (Ibn al-Bayṭār 1992, 3:104; Tūrkmānī 2000, 1:205).

Recent Medical Uses: Laxative effects, antibacterial/antiviral effects, antineoplastic effects; approved by Commission E for Constipation (Gruenwald et al. 2000, 17). It has the following activities: anti-allergic, anticancer, demulcent, emmenagogue, hypoglyce-

mic, stomachic, and sunscreen (Duke et al. 2002, 17). It also heals wounds, is an emollient, and stimulates secretion of bile, (Chevalier 2000, 60).

Notes: Aloe is contraindicated in cases of intestinal obstruction and acutely inflamed intestinal diseases. Moreover aloe should not be used during pregnancy, and it should not be prescribed to children less than 12 years of age (Gruenwald et al. 2000, 18). In addition, it may be secreted into breast milk, and it should not be used more than 8–10 days or in cases of abdominal pain or diarrhea (Kraft and Hobbs 2004, 263).

2. Boswellia


Scientific Classification: *Boswellia serrate* ROXB.

Family: Burseraceae (Bīk 1930, 32).

Synonyms: (كندر), frankincense tree, arbre-a-encens (French); Weihrauchbaum (German); incense (Italian) (Wyk and Wink 2004, 69).

Description: *Boswellia carteri* is a richly foliated tree whose leaves alternate unevenly on the branches to the tips. The 10 pairs and one leaflet are short-stalked, elongated, blunt, serrate, finely pubescent and mostly alternate. The base of the leaf is a fleshy cup-shaped disc that is larger than the corolla. The plant grows on few roots, which appear to be fused with the stony soil via an inert mass.

Origin: It is found in Somalia and parts of Saudi Arabia.

Part Used: The medicinal part of the tree is the resin gum exuded when incisions are made in the bark of the trunk (Gruenwald et al. 2000, 319).

Ophthalmological Diseases: it is used as an eye lotion for ophthalmia and ophthalmic ulcer, and as powder for trichiasis, pterygium, and epiphora ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: It was used to treat ulcers, and stop bleeding, and as a stomatic tonic, expectorant, carminative, anti-emetic, and it was useful for palpitation (Tūrkmānī 2000, 2:316).

Recent Medical Uses: It has the following activities: analgesic, anti-allergic, anticancer, anti-inflammatory, antipyretic, anti-rheumatic, astringent, carminative, collyrium, cox-2-inhibitor, demulcent, depurative, diaphoretic, diuretic, emmenagogue, expectorant, sedative, and stomachic tonic (Duke et al. 2002, 113). There is an evidence that boswellia may be valuable in autoimmune conditions such as ulcerative colitis (Chevalier 2000, 179).

Notes: The drug is considered obsolete for medicinal use because its mode of action has not been documented. It can cause mild irritation of the skin (Gruenwald et al. 2000, 319).

3. Broad Bean


Scientific Classification: *Vicia faba*.

Family: Fabaceae (Bīk 1930, 189).

Synonyms: (باقلاء), Broad bean, Fava bean, Faba bean, Field bean, Bell bean, English bean, Horse bean, Windsor bean, Pigeon bean

Description: *Flower and Fruit:* The white or bluish short-pedicled flowers have black spots on the standard. They are arranged in groups of 2 to 4 in the upper leaf axils. The calyx tips are uneven, with the upper ones shorter than the lower. The pod is leathery and velvety on the flat surface. The seeds are large, flat, ovate or oblong, and brown.

Leaves, Stem and Root: The plant is 60 to 125 cm high. The stem is erect and has no climbers. The leaves are pinnate and the leaflets elliptical, fleshy, blue-green and terminate acutely. The stipules are ovate and semi-sagittate.

Origin: The plant is indigenous to the temperate regions of the world.

Part Used: The medicinal parts are the fresh flowers (Gruenwald et al. 2000, 120).

Ophthalmological Diseases: It is used as a poultice for ophthalmia and Iridectasis, while the powder of it is used for hypopyon ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: In addition to its effect in reducing diuresis**,** broad beans are used as a bandage for the swelling of genital organs and stops diarrhea due to intestinal ulcers; it has been used to treat facial vitiligo and prevents the creation of kidney stones, it is also useful for coughs and swelling in the ears and under the eyes (Ibn al-Bayṭār 1992, 1:106; Tūrkmānī 2000, 1:17).

Recent Medical Uses: Formerly, broad bean flowers were used in the treatment of coughs and kidney and genital complaints. Externally, they are used as a poultice for skin inflammation, warts and burns. An essence of the fresh plant after flowering is used in homeopathy. It has the following activities: anti-alcoholic, aphrodisiac, diuretic, estrogenic, expectorant, hypertensive, and stomachic tonic (Duke et al. 2002, 291).

Notes: No health hazards or side effects are known in conjunction with the proper administration of designated therapeutic dosages. The intake of large quantities of raw or only briefly cooked seeds can lead to queasiness, vomiting, diarrheal and feelings of vertigo (Gruenwald et al. 2000, 120).

4. Gum Arabic Tree


Scientific Classification: *Acacia arabica* Willd.

Family: Fabaceae (Bīk 1930, 2).

Synonyms: (أقاقيا)**,** Acacia gomme arabique (French), Verek-akazia (German), Acacia del Senegal (Italian).

Description: This is a small thorny tree up to 6m, with a rounded to spreading crown, compound leaves, and elongated spikes of pale yellow to cream-colored, fluffy flowers, and thorns arranged in groups of three (Wyk and Wink 2004, 29).

Flower and Fruit: The flowers are yellow and sweetly scented. Two to 6 inflorescence peduncles with capitula-like inflorescences grow from the axils of the upper leaflets. The flowers have short calyces with numerous overlapping sepals. The completely fused petals are almost twice as large as the sepals. The fruit is a 12 to 16 cm long and 1. 5 cm wide pod. The pod is straight or lightly curved, flat to convex, and pinched in to create segments. It is matte-black to dark-red. The seeds are 7 x 6 mm and the same color as the pod.

Leaves, Stem and Root: Acacia arabica is a 6 m high tree with a compact, round to flat crown. Older branches are bare, younger ones measuring 15 to 20 mm in diameter are covered in hairy down. The bark is black and fissured; the coloring in the fissure changes to red-brown. There are stipule thorns at the nodes. The leaflets of the double-pinnate leaves are in 3 to 12 pairs on the bare to downy petiole, which is covered with glands, the leaflets are oblong, blunt, and bare or thinly ciliate (Gruenwald et al. 2000, 3).

Origin: Africa (Mali, Mauritania, Senegal and especially the Sudan).

Part Used: Gum: this is the air-dried exudates that may flow naturally from the trees, and is simply collected. It is tasteless and odourless.

Ophthalmological Diseases: it is used as a poultice for eye ophthalmia, and as a lotion for ophthalmic ulcer, and as powder for logades ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: In addition to its effect in reducing diuresis, it stops bleeding and avails the aphtha and the wounds in the gum and is also useful for the blisters of eyes (Ibn al-Bayṭār 1992, 4:257; Tūrkmānī 2000, 1:10).

Recent Medical Uses: It is a strong astringent, and is used to contract and toughen mucous membranes throughout the body. It is also used as a lotion for bleeding, a gargle for sore throats, a wash for eczema, a douche for excessive vaginal discharge, and internally as an anti-diarrheal. A study published in 1993 concluded that it stimulates insulin release from the pancreas and lowers blood sugar levels. Medicinally, gum arabic have been used as emollient and skin protective agent in the pharmaceutical aids, it is sometimes used to treat bacterial and fungal infection of skin and mouth.

Notes: it is used for skin forms or included in formulations of tablets, and are used commercially as additive in the food industry. Large doses taken internally can lead to indigestion and constipation (Chevalier 2000, 158; Wyk and Wink 2004, 29; Gruenwald et al. 2000, 3-4).

5. Pomegranate


Scientific Classification: *Punica granatum*

Family: Lythraceae (Bīk 1930, 151).

Synonyms: (رمان), Grenadier (French), Granatapfelbaun (German), Melograno (Italian) (Wyk and Wink 2004, 263).

Description: The pomegranate is a spiny, deciduous shrub or small tree of about 5m in height, it has small leaves clustered at the branch tips, attractive orange-red flowers, a characteristic large fleshy fruit crowned with a persistent calyx and numerous seeds, each with a bright red fleshy edible layer.

Flower and Fruit: The flowers are infundibulate or rotate, usually solitary or in pairs of threes at the tips of the branches. The calyx and receptacle are bright coral-red and have a tough margin. There are 5 to 8 bright-red campanulate nodding petals and numerous stamens. The filaments are orange-red and the anthers yellow-gold. The ovary consists of 2 or 3 layers lying on top of one another. The fruit is an apple-sized, round, 1. 6 to 12 cm wide false berry whose skin turns from bright red to leather-brown. The seeds are roughly square and purple, later acquiring a soft red outer skin.

Leaves, Stem and Root: The plant is an erect, roughly branched shrub up to 1. 5 m high or a small, tree 3 to 5 m tall with a curved trunk and glabrous 4- to 6-edged, sometimes spiny-tipped branches. The branches are narrowly winged when young. The trunk later becomes fissured and twisted. The leaves are generally opposite. They are deciduous, simple, pinnate-veined, short-petioled, glabrous, and hard with a tough middle rib (Gruenwald et al. 2000, 605).

Origin: South-eastern Europe, the plant appears to be an ancient cultigen, and still a minor fruit crop and medicinal plant in the Mediterranean region (Wyk and Wink 2004, 263).

Part Used: The medicinal parts are the roots, the bark, the fruits, the peel of the fruit, and the flowers.

Ophthalmological Diseases: it is used as a bandage for ophthalmia and ophthalmic thrush, and as an eye lotion for pterygium and ophthalmic itching ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: In addition to its effect in reducing the diuresis, it is an astringent and avails the glowing stomach, and useful for itching and scabies, it increases the strength of vision, and avails the dry cough, and the flowing of liquids from womb, also useful for the ulcers in the mouth and stomach, and for the pain of ears and ulcers in the nose (Ibn al-Bayṭār 1992, 2:439; Tūrkmānī 2000, 1:139).

Recent Medical Uses: Pomegranate is considered to be specific remedies for tapeworm infestations, is also astringent and treat diarrheal and to comfort an upset stomach and as a remedy to relieve gas and flatulence. Pomegranate is used for dysentery, as an abortifacient and astringent; externally used for hemorrhoids and as a gargle in cases of sore throat. It has also activities for childbirth, cholera, and diabetes. Root is traditionally used as a vermifuge to treat intestinal parasites, the dried fruit is common remedy for upset stomachs, and fruits are used to produce grenadine.

Notes: No health hazards are known in conjunction with the proper administration of designated therapeutic dosages, it will interact with nicotinic acetylcholine receptors, and it absorbed through the intestine and cause undesirable CNS (Central Nervous System) effects, the large quantities might be dangerous (Chevalier 2000, 258; Duke et al. 2002, 582; Gruenwald et al. 2000, 605; Wyk and Wink 2004, 263).

6. Rose


Scientific Classification: Rosa gallica.

Family: Rosaceae (Bīk 1930, 156).

Synonyms: (ورد), eglantier (French), Hundsrose, (German), Rosa canina (Italian) (Wyk and Wink 2004, 275).

Description: This deciduous shrub growing to about 1. 5m has a smooth stem, sharp thorns, serrated leaves with 2-3 pairs of leaflets, semi double deep pink or red flowers and scarlet hips (Chevalier 2000, 262).

Origin: It is considered to be of Iranian origin, has given rise to a bewildering diversity of cultivars through crossing and backcrossing with other species.

Part Used: dried, ripe fruit with the seeds removed, dried seeds, dried flowers and essential oil distilled from flowers (Wyk and Wink 2004, 275).

Ophthalmological Diseases: It is used as an eye lotion for ophthalmia, blepharosynechia, logades, ophthalmic itching, scleriasis, and epiphora, and for ophthalmic thrush. It could be used in both bandage and eye lotion ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: It has the following effects: useful for stomach and liver, antipyretic, useful for ulcers, abrasion, and warts (Tūrkmānī 2000, 2:396).

Recent Medical Uses: diuretic, hypoglycemic and astringent, the seeds oil reduce scars and wrinkle, and the essential oil is used in aromatherapy as a mild sedative, antidepressant, and anti-inflammatory remedy, the rosewater makes a valuable lotion for inflamed and sore eyes (Wyk and Wink 2004, 275; Chevalier 2000, 262).

Notes: Do not take the essential oil internally without professional supervision, and it is probably time for re-evaluation of its medical benefits (Chevalier 2000, 263).

7. Saffron Crocus


Scientific Classification: *Crocus sativus*

Family: Iridaceae (Bīk 1930, 60).

Synonyms: (زعفران), saffron, safran (French, German), Zafferano (Italian) (Wyk and Wink 2004, 116).

Description: Flower and Fruit: The lily-like flowers have two 2 bracts at the base. There is a pale violet-veined calyx, yellow anthers and a white filament. The thread-like style is 10 mm long. The stigma is bright orange. The plant is non-fruit-bearing. Leaves, Stem and Root: The grass-like plant is a perennial that grows 8 to 30 cm high. There is a large squat tuber, surrounded by reticulate and fibrous sheaths. The leaves are erect or splayed, narrow, and have a ciliate margin and keel (Gruenwald et al. 2000, 653).

Origin: The plant is indigenous to India, the Balkans and the eastern Mediterranean region. It is cultivated in India, Spain, France, Italy and the Middle East (Gruenwald et al. 2000, 653).

Part Used: The medicinal parts are the stigma and style (Gruenwald et al. 2000, 653).

Ophthalmological Diseases: it is used as eye lotion for ophthalmia, ophthalmic thrush, and cataract, and as powder for hydatid, and epiphora ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: it was used as: diuretic, antispasmodic, aphrodisiac, cardio tonic, utero tonic, aperitif, and sedative (Ibn al-Bayṭār 1992, 2:467; Tūrkmānī 2000, 1:150).

Recent Medical Uses: It has the following activities: abortifacient, analgesic, antidepressant, anti-hysteric, antioxidant, antiseptic, antispasmodic, anti-tumor, aphrodisiac, cardio tonic, carminative, diaphoretic, ecbolic, emmenagogue, emollient, expectorant, hemostat, hypotensive, sedative, utero tonic (Duke et al. 2002, 640-41).

Notes: Health risks or side effects following the proper administration of designated therapeutic dosages are not recorded. Moreover the herb is not to be used during pregnancy, and lethal poisonings can occur with overdoses or through the abuse of larger doses as an abortifacient (Gruenwald et al. 2000, 654). It's good that saffron is so expensive; we won't have too many fools overdosing on it. Preferring to err on the safe side, let's think of saffron only as an expensive spice to be used judiciously (Duke et al. 2002, 641).

8. Sumac


Scientific Classification: *Rhus aromatica*

Family: Anacardiaceae (Bīk 1930, 156).

Synonyms: (سماق), Polecat-Bush, Smooth, Sumach, Sweet Fragrant Sumach, Sumac.

Description: *Lower and Fruit:* The flowers are in 1 to 1. 5 cm long, false likes. They are yellow-green and often appear before the leaves are fully developed. The fruit is a globular, yellow-red, pubescent drupe.

Leaves, Stem and Root: The plant is a fragrant 1 to 2. 4 m high shrub with glabrous red-brown annual growth and small to 10 cm-long trifoliate leaves. The leaflets are oval and the middle one is cuneate at the base. The leaflets are irregularly dentate and initially pubescent on both sides. Later the leaflets turn glabrous on the upper surface and eventually pubescent only on the ribs of the lower surface.

Origin: The plant is indigenous to Atlantic North America.

Part Used: The medicinal parts are cortex (bark), radix (root), and fruit (Gruenwald et al. 2000, 748; Wyk and Wink 2004, 425).

Ophthalmological Diseases: it is used as eye lotion for ophthalmia, pannus, ophthalmic itching, and ophthalmic thrush ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: In addition to its effect in reducing the diuresis, it avails the chronic diarrheal, and the thrush and stops the sudden itching in eyes, and avails the aphtha, also prevents the metrorrhagia or hemorrhoids, also it avails the intestinal ulcers and prevents bad swelling (Ibn al-Bayṭār 1992, 3:38; Tūrkmānī 2000, 1:175).

Recent Medical Uses: Sumac is used to alleviate diarrhea and dysentery. It is applied externally to treat excessive vagina discharges, and used as a gargle for sore throat, and as a diuretic. But two older studies describe an improvement in the symptoms of urinary incontinence. The drug has an antimicrobial and antiviral effect due to tannins (Gallic acid). In animal experiments it increases contraction of the smooth muscles of ileum.

Notes: No health hazards or side effects are known in conjunction with the proper administration of designated therapeutic dosages (Chevalier 2000, 261; Gruenwald et al. 2000, 748).

9. Sweet Violet


Scientific Classification: *Viola odorata* L.

Family: Violaceae (Bīk 1930, 189).

Synonyms: (بنفسج), wild pansy, heartsease, pensee sauvage (French), Feldstiefmutterchen (German), viola del pensiero (Wyk and Wink 2004, 341).

Description: Flower and Fruit: The dark violet flowers are solitary on 3 to 7 cm long pedicles. The flowers are 1. 5 to 2 cm long and fragrant. The 5 sepals are obtuse, glabrous and have an appendage. There are 5 uneven petals, which are unevenly spurred and which have a broad margin. The 5 stamens have an appendage at the tip. The flower has 3 fused ovaries. The fruit is a globular capsule, approximately 7. 5 mm. It is 3 to 6 sided, clearly and densely short-pubescent and often violet. It can be found pressed to the receptacle.

The leaves are petiolate, broadly cordate, and obtuse

or short acuminate and crenate. The leaves, which appear first, are reniform-cordate and the younger ones are rolled up. There are lanceolate stipules at the base of the leaves (Gruenwald et al. 2000, 750).

Origin: The plant is indigenous to or naturalized in large parts of Europe and the Middle East as far as central Asia; it is also found in North America.

Part Used: The medicinal parts are the essential oil from the leaves, the dried flowers, the air-dried leaves collected during the flowering season, the flowering herb, the dried rhizome, the fresh aerial parts collected during the flowering season and the whole plant (Gruenwald et al. 2000, 750).

Ophthalmological Diseases: it is used as an eye lotion for night-blindness, and as a bandage for Iridectasis ("Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma" Istanbul, Ms. Çapa no. 44).

Other Historical Uses: laxative, useful for gastritis, antitussive, useful for the pain of hemorrhoids, and the pain of bladder, and analgesic (Ibn al-Bayṭār 1992, 1:156; Tūrkmānī 2000, 1:31).

Recent Medical Uses: It has the following activities: antibacterial, anti-inflammatory, antipyretic, antiseptic, antispasmodic, antitussive, aperient, demulcent, depurative, diaphoretic, diuretic, emetic, sedative (Duke et al. 2002, 715). The flowers and leaves are used in British herbal medicine to treat breast and stomach cancer, and at high doses it is emetic (Chevalier 2000, 282).

Notes: No health hazards or side effects are known in conjunction with the proper administration of designated therapeutic dosages (Gruenwald et al. 2000, 750). Regulated in the U. S. as an allowable flavor only in beverages, large overdoses may impair circulation, causing dyspnea, gastritis, and nervousness (Duke et al. 2002, 716).

Discussion

- The author mentions that these plants could be used topically as lotion, or powder, or bandage.
- The *Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma* mentions the following 17 different ophthalmological diseases: epiphora, hordeolum, hypopyon, ophthalmic ulcer, trichiasis, ophthalmia, pterygium, iridectasis, logades, ophthalmic thrush, ophthalmic itching, cataract, hydatid, pannus, night-blindness, blepharosynechia, and scleriasis.
- Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma refers to the following group of nine plants used topically for ophthalmological diseases:

Common Name	**Scientific Name**	**Family**
Aloe vera	*Aloe vera* L.	Liliaceae
Boswellia	*Boswellia serrate* ROXB	Burseraceae
Broad Bean	*Vicia faba*	Fabaceae
Gum Arabic Tree	*Acacia arabica* Willd	Fabaceae
Pomegranate	*Punica granatum*	Lythraceae
Rose	*Rosa gallica*	Rosaceae
Saffron Crocus	*Crocus sativus*	Iridaceae
Sumac	*Rhus coriaria*	Anacardiaceae
Sweet Violet	*Viola odorata* L.	Violaceae

- The logical discussion according to recent medical uses of these plants, and the diseases in which they were used by author might lead to:
- Aloe vera: all of ophthalmia, ophthalmic ulcer, hypopyon, and hordeolum are infection diseases, and the recent studies on Aloe vera show it has antibacterial and antiviral effects which make it has the ability to heal these diseases, in addition it was used for epiphora which is happened under allergic causes, and the studies show Aloe vera has anti-allergic effect which make it useful for this disease.
- Boswellia: according to its recent proved effect it might be used only in treating the epiphora because its anti-allergic effect has been proved.
- Broad Bean: it has been proved for skin inflammatory which might be helpful for treating of hypopyon.
- Gum Arabic Tree: as it is used recently for bacterial/fungal infection of skin and mouth, so it might be used for treating the ophthalmia and ophthalmic ulcer.
- Pomegranate: as it is used for sore throat topically, so it might be used for the ophthalmic thrush as same.
- Rose: it has been proved that rosewater makes a valuable lotion for inflamed eyes.

- Saffron Crocus: because it has antiseptic effect, it might be used for ophthalmia, ophthalmic thrush, and hydatid.
- Sumac: as it is used for sore throat topically, so it might be used for the ophthalmic thrush as same.
- Sweet Violet: although the author was used it as for night-blindness, and Iridectasis, but according to its recent proved uses as antibacterial and anti-inflammatory, so it might be used for ophthalmia, ophthalmic thrush, hypopyon, and hordeolum.

Conclusion

- The author of the *Kitāb al-Raḥma fi'l-Ṭib wa'l-Ḥikma* sheds light on eye diseases and their therapies and mentions 17 different kinds of diseases, and nine plants used topically in the treatment of these eye diseases.
- Only the rose (*Rosa gallica*) has been proven in the treatment of eye diseases by recent studies which show that rosewater is effective in treating inflamed eyes.
- The other plants might be used to treat eye diseases topically according to their proven effects which are useful for these diseases.

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The Contents of Ḥasan al-‘Aṭṭār’s Manuscript “*Rāḥat al-Abdān*”

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Summary

Introduction: Medicine in the Ottoman Empire changed radically during the time of reforms up to the Tanzimat period. We know very little about the practice of medicine in the period. The famous Egyptian scholar Ḥasan al-‘Aṭṭār (1766-1835 A. D.), was visiting Istanbul to study medicine. He left an important Arabic manuscript (al-‘Aṭṭār 1813) in which he detailed his experiences in the Ottoman capital, he also gives some references to anatomy teaching, of which we possess only very vague information for the period in question.

Ḥasan al-‘Aṭṭār was a famous Egyptian scientist; when he traveled to Istanbul; he studied medicine there, and then moved to Damascus where he wrote his main book on medicine “*Rāḥat al-Abdān fi Nuzhat al-Azhān*”. In this book he discussed the medical opinions of Dāwūd al-Āntākī (d. 1008/1599 A. D.).

Ḥasan al-‘Aṭṭār’s manuscript was the most important work on medicine in the Arab world in the early nineteenth century and is perhaps the first work by an Arab to discuss the ancient Arab medicine. Regrettably this manuscript has not yet been studied from the perspective of history of medicine, Lowry and Stewart (2012) published an article with reference to this text.

Objective and Method: In this research I am going to speak about this manuscript and describe the overall shape and contents, and then make a discussion about its subjects including e. g. the sources of al-‘Aṭṭār, plants and compound drugs, diseases, etc. So the main objective is to get full knowledge about this manuscript and its contents.

Conclusion: This research will lead to full image about Ḥasan al-‘Aṭṭār and his manuscript “*Rāḥat al-Abdān fi Nuzhat al-Azhān*” in order to be known to whom interested to either make more studies in this manuscript, or studying the history of ottoman medicine during the 19th century.

Keywords: Ḥasan al-‘Aṭṭār, “*Rāḥat al-Abdān fi Nuzhat al-Azhān*” manuscript, Dāwūd al-Āntākī.

The Biography of Ḥasan al-‘Aṭṭār

Ḥasan al-‘Aṭṭār (1180-1251/1766-1835 A. D.): Egyptian Shīkh one of the most famous people in the 18th and 19th centuries, he was popular with literature, sciences, medicine, and history, he traveled to Istanbul on 1217/1802A. D. he learnt the medicine at Ḥekimbaşı school in Istanbul, then moved to Damascus on 1225/1810A. D. and stayed there where he wrote some medical books, after that he return to Cairo. On 1246/1830A. D. he hired as Shīkh al-‘Azhar, which means the higher scientific position in the University and still in it until his death on 1251/1835A. D. (Brömer 2009, 340)

Ḥasan al-‘Aṭṭār has many books in various fields of science; unfortunately lots of them are missed; some of these books are:

“*Risalāt al-‘Aṭṭār fi ‘ilm al-kalām*”, “*Ḥāshīyāt al-‘Aṭṭār ‘alā l-Samarqandiyyah fi ‘ilm al-Bayān*”, “*Tafsīr Maqalāt Arisṭū li- Abī al-Faraj*”, “*Dīwān al-‘Aṭṭār*”, “*Ḥawāshī al-‘Aṭṭār ‘alā Sharḥ al-Manẓūmah al-Ṭibbiyyah*” (Lowry and Stewart 2012, 57-60)

During his stay in Istanbul he met many European physicians whose were working there, he told them about Ibn al-nafīs and his explanation of the Micro-circulation, Peter Grand published a study about Ḥasan al-ʻAṭṭār, he said that he found a completed quote from Ibn nafīs speaking and explaining the Micro-circulation (Brömer 2009, 341).

Ḥasan al-ʻAṭṭār was the teacher of Rafāʻa al-Ṭahṭāwī (1216-1290/1801-1873A. D.); who considered the leader of Enlightenment in the current age, he was sent to Paris for scientific scholarship by Muhammad Alī (1182-1265/1769-1849A. D.), after he returned to Cairo he was drawing out his similar book: "*Takhlīs al-Ibrīz fi Talkhīṣ Pārīz*" (Brömer 2009, 341).

"*Rāḥat al-Abdān*" Manuscript

Ḥasan al-ʻAṭṭār wrote "*Rāḥat al-Abdān*" manuscript in Damascus on 1813, there is a copy of it in Riwāq al-Maghāribah, al-Azhar. Cairo, under number (MS 3434) (Lowry and Stewart 2012, 57), it is 251 folio; each folio contains two pages, twenty two lines in each page, 11-12 words in each line. It is characterized with clear hand-writing, there are some margins around the text, these margins either a lack of text and al-ʻAṭṭār wrote them with note that they are from the original text, or explanation from al-ʻAṭṭār himself about some terms. As al-ʻAṭṭār said it takes three months to finish its writing, and when he was in Cairo he read it again and added the margins (al-ʻAṭṭār 1813, last folio).

On the cover of manuscript there is a signature from person called Muhammad al-Tuhamī, he mentioned that it is written by al-ʻAṭṭār himself, and he found it with completed state, and there is no lack in it. Also on the cover there is numbers as following 851, 98574.

Finally, there is a note that said: This book had been dedicated by al-ʻAṭṭār for the student of science in al-ʻAzhar University.

The first page of "*Rāḥat al-Abdān*"

Ḥasan al-ʻAṭṭār began his manuscript as is usually with glorification of ALLAH, and thanks for all graces, then he spoke about the medicine and its importance for people, with the valuable place to whom studies it, or working on it, then explained the joint points between medicine and religion, and how was medicine important and interested to be studied by himself (See figure 1 at the finish of article).

The last page of "*Rāḥat al-Abdān*"

Ḥasan al-ʻAṭṭār told in the last page about the period it took to write the book, and how he was suffering from alienation in Damascus where he felt alone far away from his friends in Cairo, he mentioned that he wrote the draft in Damascus, and after he returned to Cairo, and before his travel to Ḥijāz for Ḥajj he had finished read the draft text and added all its margins, and the date of finishing as he said was: 4:00 P. M. on Saturday, 6th Shawwāl, 1228 H/ 1st October 1813A. D. (See figure 2 at the finish of article).

The current state of "*Rāḥat al-Abdān*"

"*Rāḥat al-Abdān*" is a manuscript kept in Riwāq al-Maghāribah, al-ʻAzhar. Cairo, under number (MS 3434), this copy wrote by al-ʻAṭṭār himself, on September 2014 and with kind patronage from Tübitak (The Scientific and Technological Research Council of Turkey), I began transcribe the text and prepare the related annexes, in the near future the full editing Arabic text will be available for scholars.

Why did al-ʻAṭṭār write "*Rāḥat al-Abdān*"

When Ḥasan al-ʻAṭṭār arrived Damascus he stayed in Badra'aī School, it was very important school for medical sciences, many people were coming there to study medicine and meeting with scholars in order to discuss and learn medicine.

The main source of them was Dāwūd al-Ānṭākī's book "*Nuzhat al-Azhān fi 'iṣlāḥ al-Abdān*" from 16th century, when al-ʻAṭṭār read it he found a lot of mistakes in it, and there were more contradictions either itself, or with other famous medical books like al-Qānūn by Avicenna (370-428/980-1037A. D.) which was very important references to all arabic physicians after Avicenna lifetime (al-Zirkelī 2002, v. 2, p. 242).

Because of that reason and the scientific exaggeration of people to the value of Dāwūd al-Ānṭākī's book, al-ʻAṭṭār decided to write an explanation of it and show its mistakes and contradictions, but by the meantime al-ʻAṭṭār did not deny al-Ānṭākī's efforts in maintaining the Arabic medicine (al-ʻAṭṭār 1813, 5/front).

The importance of “*Rāḥat al-Abdān*”

Ḥasan al-‘Aṭṭār’s manuscript has two main imports: 1- Explanation of Dāwūd al-Ānṭākī’s book “*Nuzhat al-Azhān*” and compare its subjects with ancient medical books, 2- Transmission of medicine from Istanbul where his book is reflecting about the relationship between traditional Islamic medicine transmitted and what he had learnt in Istanbul through his encounters with European physicians.

The contents of “*Rāḥat Al-Abdān*”

After he thanks ALLAH for his graces, he started his manuscript with speaking on his journey and departure the Cairo, it was so clear how he was suffering from alienation, and filled with longing to his friends and his neighborhood in Cairo.

The distinguished mark of this introduction was the poetry, there were a lot of them described the alienation feelings, some of them wrote be al-‘Aṭṭār himself, and other from different historical periods in the history of Arabic literature.

To make full commands on al-Ānṭākī’s book, al-‘Aṭṭār followed the same division of it through introduction and seven chapters, he took each sentence of al-Ānṭākī speech and explained it and showed the mistakes into it. Therefore the contents of al-‘Aṭṭār’s manuscript were as the following:

1. The introduction of al-Ānṭākī’s manuscript**:** After he finished his introduction, he began with commands on al-Ānṭākī book, the first part as all medical books were started about the definition of medicine and what are its parts, and if we can divide it into theoretical part and practical part, he also mention some thoughts from ancient physicians and philosophers, and demonstrated the different opinions on the nature or the quality of medicine (al-‘Aṭṭār 1813, 9/pack).

2. The 1st chapter**:** In this part he spoke about the term of natural things, which is known now physiology, and then he explained all physiological process in body such as circulation, respiration, digestion, and nervous systems (al-‘Aṭṭār 1813, 16/front).

3. The 2nd chapter**:** The title of this part was the anatomy; he described body’s sections, not only that he added the religion view of why making this organ in this place and what is its specific function according to the anatomical shape (al-‘Aṭṭār 1813, 69/front).

4. The 3rd chapter: In this part al-‘Aṭṭār spoke on the main necessary causes which can be divided into: air, foods, drinks, sleep and wake up, movement, calmness, retention, excretion, and finally psychological disorders (al-‘Aṭṭār 1813, 105/pack).

5. The 4th chapter**:** This part was specified for the statues of human body, he mentioned three statuses: the health, the sickness, the third one which is neither health nor sickness, he considered older is the best example of it. In addition he spoke about many kinds of dealing and taking care of: foods, drinks, seasons, sleeping, sport, coitus, pregnant, infants, atmosphere, and water (al-‘Aṭṭār 1813, 121/pack).

After that he began speaking of diseases and its types, sections, stages, and symptoms, and then he finished this chapter with the urine test and its significances (al-‘Aṭṭār 1813, 172/pack).

6. The 5th chapter**:** In this chapter al-‘Aṭṭār spoke about the regulations and some commandments for physicians related with different therapies e. g. the laws of vomiting, laws of diarrhea, laws of phlebotomy, law of surgery, and laws of cupping (al-‘Aṭṭār 1813, 178/pack).

7. The 6th chapter**:** This part of manuscript seems as a Pathology section; he mentioned different diseases according to human organs, e. g. diseases of head, eyes, noses, mouth, stomach, intestines, lungs, heart, liver, kidneys, and sexual diseases (al-‘Aṭṭār 1813, 187/front).

8. The 7th chapter: In this part he spoke about diseases happened in the skin that we could see and observe them; it seems as a Dermatology section (al-‘Aṭṭār 1813, 241/pack).

9. The conclusion of al-Ānṭākī’s manuscript: The last part of this manuscript was an explanation of al-Ānṭākī’s conclusion which contained other subjects of medicine such as: toxicology, nutrition, the treatment of fractions, and the cosmetology and skin health care (al-‘Aṭṭār 1813, 247/front).

Discussion of contents

By focusing on the contents of Ḥasan al-‘Aṭṭār’s manuscript, it was very rich with medical information; in addition it was so clear that al-‘Aṭṭār wanted to make

it as a summarized encyclopedia of Arabic medicine through the history either through using ancient sources or through speaking about his experiences in Istanbul. Moreover it was so clear that al-‘Aṭṭār wanted to show the mistakes of al-Ānṭākī and the conflicts of his opinions with other Arabic important physicians like Avicenna.

Therefore the main important points for the contents of “*Rāḥat Al-Abdān*” were as following:

The sources of Ḥasan al-‘Aṭṭār

Ḥasan al-‘Aṭṭār used more than 35 sources for his information, he was mentioning either the name of author or the name of his book that he took from; some of these sources are:

- Dāwūd al-Ānṭākī (d. 1008/1599 A. D.): He is Dāwūd Ibn Omar al-Ānṭākī, Physician, blind person, he became the president of physicians, he born in Hatay “Ānṭākiya”, and he read Quran, mathematics, logic. And was fluent in Greek, he traveled to Cairo, then Mecca and died there, he had many important medical books: “*Nuzhat al-Azhān fi ‘Iṣlāḥ al-Abdān*”, “*al-Nuzhah al-Mubhijah fi Ta’adīl al-Amzijah*”, and “*Tazkira ‘Ulī al-Albāb wa al-Jāma’ lil ‘Ajab al-‘Ujāb*” which is known by al-Ānṭākī’s *Tazkira* (al-Zirkelī 2002, v. 2, p. 333; Kaḥḥālah 1993, v.1, p. 710).
- Ibn Hubal (515-610/1122-1213 A. D.): He is Alī Ibn Ahmad Ibn Alī Abū al-Ḥasan, he nicknamed Ibn Hubal, physician from Baghdād, stayed in Musil then Mārdīn, and returned to Musil when he had been blind, and died in it, his well-known book was “*al-Mukhtarāt fi al-Ṭib*”; which was in three volumes (Ibn Abī ‘Usaībi`a 1965, 408; al-Zirkelī 2002, v. 4, p. 256).
- Ibn Rushd (520-595/1126-1198 A. D.): He is Muhammad Ibn Ahmad Abū Al-walīd, from Cordoba City, European scholars called him Averroes, he was interested with Aristū books, and he translated them into arabic, he had many important books such as: “*Al-Kullīyyāt fi al-Ṭib*”, “*Kitāb Sharh Alfīyīt al-Shīkh*”, and “*Kitāb Sharh al-Qānūn*” (Ibn Abī ‘Usaībi`a 1965, 531, 32; al-Zirkelī 2002, v. 5, p. 318).
- Jalāl al-Dīn al-Sīūṭī (849-911/1445-1505A. D.): He had an important book which its title was: “*Ghāyīt al-Iḥsān fi Khalq al-Insān*”, he spoke about creation of human body, and he mentioned the names of organs (Khalīfa 1941, v.2, p.1188, 89; Kaḥḥālah 1993, v.2, p.82)
- Najīb al-Samarqandī (d. 619/1222A. D.): He is Najīb al-Dīn Muhammed Ibn ‘Alī, was famous in medicine, he killed in Harrāt in Khurāsān (al-Ḥamawī 1977, v. 5, p. 396) when Tatars entered it, and he left many books such as: “*Aghdhīyet al-Marḍā*”, “*Kitāb al-Aqrabādhīn al-Kabīr*”, “*Resālah fi Mudāwāt Waja’a al-Mafāṣil*”, “*al-Najībīyyāt*” (al-Zirkelī 2002, v. 6, p. 280; Kaḥḥālah 1993, v. 3, p. 524).

The plants of “*Rāḥat al-Abdān*”

The manuscript was full of plants and there was more than 240 plants used and mentioned by al-‘Aṭṭār, some of these plants are:

- Barbaris (سيرابربمأ; Berberis Vulgaris L.) (Bīk 1930, 30): It is very useful for liver and intestines, switch off thirsty, prevent the ulcers in stomach and intestines, and may be useful for swellings (Ṭūrkmānī 2000, v.1, p. 11).
- Chamomile (الجنوبابل; Chamomilla Officinalis C.) (Bīk 1930, 46): It was used as: diuretic, increasing the menstruation, useful for liver disorders, and good for headache and migraine pains (Ṭūrkmānī 2000, v.1, p. 15).
- Garlic (الموثل; Allium Sativum L.) (Bīk 1930, 9): We can use it as a laxative, diuretic, anthelemintic, but it may cause Hemorrhoids and headache (Ṭūrkmānī 2000, v.1, p. 48).
- Onion (البصل; Allium Cepa L.) (Bīk 1930, 9): It is very useful for: hemorrhoids, visual impairment, full of hair, tinnitus, hypoacusis, and increase the sexual activity (Ṭūrkmānī 2000, v.1, p. 24).
- Rice (الرز; Oryza Sativa L.) (Bīk 1930, 131): It has good nutrition, increase the sperm, and very useful for intestinal disorders, switch off thirsty, and increase the weight of human body (Qūṣūnī 1979, v.1, p. 203).

The mineral and rocky drugs in “*Rāḥat al-Abdān*”

In addition to using plant drugs, Arab physicians used mineral and rocky drugs, al-‘Aṭṭār used them too, and he spoke about 24 drugs of them such as:

- Boric acid: There are many kinds of it, the important one which is come from Armenia, it has an anthelmintic usage, increasing the sexual activity, laxative, and useful for spasmodic (Ibn al-Bayṭār 1992, v.1, p. 170; Qūṣūnī 1979, v.1, p. 290).

- Coral: It is cold and astringent, prevents the bleed, and strength the heart and useful for cardiac defibrillator (Qūṣūnī 1979, v.1, p. 147).
- Gold: It is very useful for cardiac disorders and defibrillator, and used as a kuḥl for eyes, and decreases the Halitosis, and whenever you wear it, it reduces the pain in fingers (Azdī 1995, v. 2, p. 492).

The compound drugs in "*Rāḥat Al-Abdān*"

Arabic medicine as general was built on single drugs, but also they used the compound drugs in order to get more advantages and increase the bad qualities of some simple drugs, also al-ʻAṭṭār has mentioned 9 compound drugs e. g.:

- Iyāraj: It is a compound of bitter drugs, and the main use of it was as laxative drug (Qumrī 1911, 87; Qūṣūnī 1979, v.1, p. 103).
- Metrūdīṭūs: This is a Greek name for paste, and it was called by the name of his creator, this drug had best benefits for different diseases like urinal retention, psychological disorders, visual impairments, skin care, appetite, and increases the sexual activity (Azdī, 1995, v. 2, p. 839).

The diseases in "*Rāḥat al-Abdān*"

As the manuscript has an index of disease al-ʻAṭṭār mentioned 52 diseases some of them are:

- Gout: The inflammatory of the fingers of hands and feet (Qumrī 1911, 67).
- Halitosis: It means the smelly of mouth (Qumrī 1911, 56).
- Smallpox: Here al-ʻAṭṭār told his expertise of treatment the smallpox, he used for it the Ḥinna (Lawsonia Alba) (Bīk 1930, 106); in the manuscript he spoke about his guy who was serves him in his journeys, when he was in Izmir, he suffered from smallpox, he began to put Ḥinna on the skin and during three days the guy cured from smallpox (al-ʻAṭṭār 1813, last page).

The pharmaceutical forms in "*Rāḥat al-Abdān*"

There are many forms to use the drugs through according to infected organ and the benefit of therapy; al-ʻAṭṭār mentioned 20 forms; some of them are:

- Al-Kuḥl: Everything that was using for eyes was called "*Kuḥl*", as general they are used to keep the health, prevent infections of eyes, and improve the vision (Qūsūnī 1980, v. 2, p. 30)
- Jawārish: They have suit taste and aromatic smell; it is Persian term that was meaning the digester and the main nature of it is to be aromatic drugs (Qumrī 1911, 87; Qūṣūnī 1979, v.1, p. 224).
- Naṭūl: The drug after boiling if we put it directly on the patient, or through a cloth, and must be hot when it is using was called "*Naṭūl*" (Qumrī 1911, 76).

The foods in "*Rāḥat al-Abdān*"

Foods have an important place in Arabic medicine, physicians also spoke about their benefits for the human bodies, and they also connected between mode and characters of human bodies and the different kinds of foods, they were using some foods for medical usage, al-ʻAṭṭār mentioned about 20 kinds of them for example:

- Al-Jalnjabīn: If we make the rose's jam with sugar or honey, it was called by this name "*al-Jalnjabīn*" (Ibn al-Bayṭār 1992, v.1, P. 228).
- Asfīdibāj: It was a term for food that made from soup and species of meat, they used it to improve the power and increase the amount of blood in human body (Qūṣūnī 1979, v.1, p. 90).
- Jawāzib: It was a term for food that made from sugar and rice and meat, it is very useful for respiratory inflammatory, and also helps for sexual activity (Qūṣūnī 1979, v.1, p. 22).

Conclusion

Ḥasan al-ʻAṭṭār studied medicine in Istanbul between 1802-1810A. D. and left an important eye-witness account of Istanbul's medical practice in his unedited manuscript "*Rāḥat al-Abdān fi Nuzhat al-Azhān*", now in al-ʻAzhar (Cairo).

Formally, Al-ʻAṭṭār's work is a commentary on a 16th century work by Dāwūd al-Āntākī "*Nuzhat al-Azhān fi 'Iṣlāḥ al-Abdān"*, which has recently been edited (Āntākī 2007). However, Al-ʻAṭṭār's writing goes far beyond the scope of Āntākī's work, reflecting about the relationship

between traditional Islamic medicine and his encounters with European doctors in Istanbul.

“*Rāḥat Al-Abdān fi Nuzhat al-Azhān*” manuscript seems as a summarized encyclopedia of Arabic medicine in 19th century. Moreover it contains rich information about: sources, plants, mineral and rocky drugs, compound drugs, diseases, pharmaceutical forms, and foods.

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Fig. 1. The first page of “*Rāḥat Al-Abdān fi Nuzhat al-Azhān*” manuscript.

Fig. 2. The last page of “*Rāḥat Al-Abdān fi Nuzhat al-Azhān*” manuscript.

Interpretations on Weather Changes in the Turkish Medical History (According to Prof. Dr. Besim Omer Akalın)

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Summary

We see some interpretations on air change and precautions to be taken against this and on the matter of rain in Turkey in the early 20th century. This subject is especially important in terms of public health. Related to this subject, famous Turkish physician Prof. Dr. Besim Ömer Akalın's suggestions are useful and the measures which he wrote are true today as well. In his article on rain, he discusses the harms and the composition of the rain water.

Interpretations on Air Change and Rain in Turkey in the early 20th Century to Prof. Dr. Besim Ömer Akalın

According to Akalın, "Rain occurs as a result of jamming and merging of fog and clouds or falling to the earth after a sudden concentration of a lot of water vapor. The amount of precipitation falling in a place is related to the geographical condition of that place: It rarely rains at the poles. It pours down in some places. But, in some places, it rains a lot."

Moreover, this famous physician divides seasons into wet and dry. In very hot countries, there are only two seasons: wet season and dry season. In those countries, every country has its own wet season. In hot climates, it rains more in the summer. However, in cold climates, although it rains more in the winter, it is not so much. It rarely rains inlands of Russia and Siberia; in those regions, the wind rarely blows. There are some mountains sprinkled with a rain of a few minutes at a certain time every day due to their geographical locations. This is caused by the transformation of vapor coming from nearby seas into precipitation at certain times."(1)

In the meantime, Akalın also mentions the effect of rain. The effect of rain changes according to season. The rain added to the sweltering temperatures of the summer gives harm to people with heart diseases and cold. It facilitates the spread of diseases. The effect of an ordinary rain is temporary. If there is cold together with rain, it affects badly. It causes the breaking out of many diseases varying from the ordinary cold to most serious ones, especially inflammations, rheumatisms, podagras, kidney disease and diabetes. The body weakens. It paves an appropriate way for all microbes, especially for tuberculosis.

In the same article, information is given about the composition and the measurement of rain: "Humidity in the air is determined via tools. Moreover, these tools are used to measure humidity at a certain time period. The essential of these is so simple. With a funnel, rain water is filled in a bottle. The height of this bottle was determined in millimeter. There is also an additional section to prevent the vaporization of the water coming to the funnel and the bottle via that tool. With this tool, rain is measured every day.

Humidity and Rain Measurement

Humidity and Rain Measurement in Istanbul in 1315 (1899)

Rain	**Humidity Measurement**			
Measurement Centimeter Height	**Average**	**Minimum**	**Maximum**	**Months**
6,570	73,64	41	100	March
1,655	78,7	43	10	April
0,144	77,12	30,5	100	May
2,39	71,30	34	100	June
1,625	76,22	34	100	July
3,270	70,25	34	100	August
6,547	78,4	40	100	September
4,170	80,4	42	100	October
9,474	81,18	52	95	November
6,619	79,76	60,5	97	December
9,797	62,8	53	96	January
9,987	20,25	65	89	February
61,3245	83,302	30,5	100	

Humidity and Rain Measurement in Istanbul in 1316 (1900)

Rain		**Humidity Amount**			
Millimeter Height	**Liter**	**Average**	**Minimum**	**Maximum**	**Months**
25,612	6,403	74,86	34	98	March
12,332	3,083	71,19	28	98,5	April
22,356	5,589	72,96	30	98	May
7,920	1,980	69,36	33	95	June
6,322	1,580	74,02	35	99	July
6,388	1,597	65,92	25	99	August
1,312	0,328	69,15	30	99	September
24,688	6,172	68,69	35	98	October
44,352	1,088	0	00	00	November
28,720	7,180	63,57	61	100	December
19,400	4,850	77,58	46	98	January
30,076	7,519	77,50	38	95	February
229,478	57,369	23,15	25	100	

Besim Ömer also gives some information about air change in another article of his. According to him, the dirty and bad air of cities deteriorates people's health. As civilization develops, people having newly come out of nomadic life style are suffocated in narrow and crowded neighborhoods with bad air and almost fade in this "seething crowd" which we call city. Due to crowds of people influxing from villages to towns and cities, people are being considerably affected by dust, smoke and unnatural foods and gradually poisoned. As a matter of fact, in this case, are there any people who do not desire to leave their homes and run to the wild?

The need of people having impoverished, turned pale in every sense and patients for countryside, fresh air has increased a lot. For the crowd of cities is increasing with every passing day, housing is arising everywhere and those big orchards, gardens in the alleys of cities are being broken and turned into neighborhoods and houses are being expanded outside and inside of cities by turning big gardens into building plots.

Moreover, stories rising to the sky and gradually increasing in number are deadening light and spoiling the air. No matter how warm the climate and how pleasant and airy the location and the condition, cities are harmful to health. And in order to get rid of these harms or at least compensate the damages of the winter in the hottest season of the year, it is necessary to leave there.

A countryside or a plain with wide meadows, trees and clear streams takes us away from traffic noise, exercises our mind and is good for our thoughts, soul and heart. It reinvigorates us by giving strength and health to our body. If dust rising off streets, smoke from factories are taken into consideration, it is well understood that staying in a city in summer is so harmful to health: "It is so harmful to stay in cities encircled by houses and be boxed up at homes surrounded by walls and deprived of two important factors such as air and light!"(2).

The author also mentions about what should be done for air change: "For change of air, against a life spent in "A Need for Fresh Air" and "Dull Living Style" in winter, we should go clean locations to spend a purer and cleaner season, keep our body in the best climactic conditions, sit under trees, by the grass or in groves, stop by roadsides, walk about and have fun. The purpose of people going to countryside, coves or highlands after a winter lasting some six months is to spend a nice season, get rid of an (chronic) illness of theirs by appealing to the ways of "treatment via fresh air".

However, it shouldn't be forgotten that the purpose of air change is not only breathing fresh air. For there is the same air everywhere. Here the important thing is the change of environment. Here everything in the nature such as soil, water, forests, sea and waves, rain, fog, dew which can be mentioned under the name of "climate" has an effect on people's health. Here every place, which is more or less far away from one another, has a separate climate.

For it is nearly impossible to find the same conditions everywhere; just as every individual is a different world, the nature, every place, neighborhood, village or a countryside is a separate climate. Even the villages, countrysides around Istanbul have separate characteristics. Some places like Bakırköy and Kadıköy which are swimming in dust and smoke and scorching life with a fateful temperature have remain located within the city. Everybody knows this.

Just as the characteristics of foods have an important effect on stomach diseases, so does the air on the treatment of weakness. Most of the time, convalescence is more serious than a disease which it follows; air change is important for severe tuberculosis and pleurisy. Even this truth has been determined so scientifically that separate "convalescent hospitals" are being built in various places of Europe today.

In almost every hospital, apart from patient rooms, there is a separate convalescent room in completely different conditions. These special places are the convalescent places for patients having recovered from an illness. Patients gain strength in a short time in "convalescent rooms" built in the middle of a fancy garden with a small forest with a lot of trees, flowers and grass."

Akalın states that air change is also good for children: "Children also need air change a lot. In the development period, children should walk, play and act in countryside, streams and hills. If a child spends his/her life in dark, dusty, smoky, dirty rooms, that poor child will have a pale complexion, be weak, predisposed to be ill and a worthless thing. As a physician says, "A child is like a flower and if s/he lives in shady, boring, dusty places, s/he will have a wrinkled and pale complexion and eventually s/he will fade. (3)

If s/he stays in the sun, open air, s/he blooms; even if s/he fades later, s/he sometimes leaves a delicious fruit and sometimes flower seeds which will become ornament of another spring with his/her development."

Yes, more than everybody, children need open air and change of place; even a breast-fed and soothing babies should be provided with pure air so as to prevent the illness of hunchback called "rachitism" mostly appearing in children grown in closed places. Moreover, older children should live in wide places, airy neighborhoods so that they can run, play and act. Air change is the most important cure for the general weakness, rachitism and scrofula seen in children."

Moreover, the same author also gives ideas about this matter for adults: "Adult men, those who are acting in material and spiritual lives, particularly those who are working physically, bodily and mentally should change air on some days of the week even if it is not possible in some seasons of the year. Young girls, boys get benefited from air change a lot."

According to Besim Ömer, air change is vital for patients: "But, more than everybody, those who need air change are "patients". Who is a patient? I can say that – They are the people who do not derive pleasure from life and have an illness. It should be known well that an illness is a serious condition. It is useless to hope that a person will recover from an illness by giving him/her two spoons of drug, a few bites of food. Do we need to prove that climate and dwelling place have a great effect?

Mostly patients, those who are likely to become ill and exposed to an illness need air change. Where to go for air change? Here, at this point, like everybody, we hesitate over it. Family members will give up their economic life and live nicely by making every kind of; but where they are supposed to go, live?

Here the matter splits in two: One is to send them to remote places, another climate, which is controversial. Then, organizations and places such as health resorts, farms, countries, Syrian and Mediterranean coasts sanatoriums, hospitals, naval hospitals come to mind.

The other is groups of families migrating from Istanbul to the vicinity of the city every spring. Here, there are two cases: Either they will build a summer house, place or mansion or rent one of them.

It is really difficult to determine the place to go for air change. For, continuation of work for economic reasons, transportation vehicle, health condition, family and every member composing the family have separate effects on this.

However, in every side, place of our city, it is possible to find a summer house, place built in line with health for air change and wherever you go, you can see a beautiful scenery and find a different delicacy: Erenköy, Kızıltoprak, Yakacık and Çamlıcas with their air quality, Bosphorus with its sea pleasure and enjoyment, Islands, Eyüb hills, farms are all summer places.

There are places between them such as Kadıköy, Kurbağalıdere, Haydarpaşa, but since they have merged with the city, they are no longer summer places and do not provide air change. However, the cheapness and easiness of transportation draws many people and patients to these places and air makes some places of Kadıköy and Haydarpaşa summer places. (4)

Air change does not mean going out of the portcullis, taking a boat trip somewhere, a nearby village and renting a suitable mansion to get rid of the air of the city when it affects health badly. Here the place to go should be chosen. It is not appropriate to choose a place by chance.

For the temperature degree and humidity level, altitude, winds, waters, forest and soil compositions of the place to go and the mansion to rent for air change should be examined and the body structure, predisposition and the illness of the person to go for air change should be completely determined. When air change is mentioned, we usually understand it as having a swim or going to a hot spring. This is associated with family members' desires and whims.

Those who suffer from chest diseases should avoid humidity and sea. For these people, not hot weather but stable air is needed. Rather than Bakırköy, Ayestefanos, Boshorus, the inner and dustless parts of Erenköy, Maltepe, Alemdağı and Çamlıca outskirts, Islands, İçerenköys can be more suitable. For there is plenty of fresh air and grass and also there are many humid-free areas and meadows in these places.

It is seen that tranquility and health spring from trees, pines, vines, rocks, streams, everywhere. Such places are safest healing places for chest diseases, rheumatism, diabetes and mild and moderate heart diseases. Especially, the air in Yakacık is very suitable for nervous and anemic people.

Almost all of the villages located along both sides of the Bosphorus are good for health; although they are very suitable summer places for children and many families, the construction methods of the buildings and the incorrect choice of materials is a matter of criticism.

The construction styles and the place choices of the waterfront residences, while one of which is extending into the sea, the other is embedded in the dimness of a hill, or the secluded parts of it and giving that coy and poetic Bosphorus a silly and stumpy appearance, are not in any way suitable for health. Attention should be paid to the way of constructing a summer place.

Here, the construction of separated mansion is newly started. However, one cannot be said to have gone for air change by residing in a neighborhood or deciding to give a break alongside roads, in dusty and quiet places. Especially patients should live outside cities, houses and keep away from congested neighborhoods and dusty places as much as possible. People insist on building dense buildings in neighborhoods, street alleys instead of covering the island with mansions. (5)

Kurbağalıdere, Kuşdili Meadow, to some extent, callow places of the vicinity of Göksu, Karaağaç and Kağıthane are not good for the ones with marsh fever and the weak. They should go to the islands and the outskirts of Çamlıca.

Even if place selection is to be done in line with pleasure, economic status, the rental houses in Bakırköy, İhsaniye and Salacak neighborhoods of Üsküdar, some neighborhoods of Erenköy, Kadıköy and Moda should be examined carefully and should not be inhabited before achieving a good health condition inside them.

However, in order to get benefited from summer places and air change life, some health rules should be obeyed. In the countryside, there should be proper streets and also roads which are suitable for patient cars. Weak and paralytic patients should not be left between walls at homes, but instead they should be taken to summer places in appropriate conditions. These people should be given appropriate foods and exercise.

It should be well-known that treatment via climate and air is important. It is a treatment method which is more effective, purer and more natural than any drugs, tonics, massages, etc.”(6).

Result

As it is seen, Besim Ömer Pasha provided important information about the effects of rain and air change on human health 100 or more years ago**.**

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١٦٨ نوسال عافيت

باش كوسترەرك شهرك آره‌لقلرندەكى اوجسيم بستانلر، بغچه‌لر پارچه‌لەرك محله حالله قونويور ، مسكنلر خارجه ، اطرافه باخصوص بيوك بيوك بغچه‌لرك عرصه حالله كتيرلسيله داخله دوغرى يايله‌رق وسعت ارض آزاليور ، اماكنك هوايه دوغرى بوكسلن وكيتدكجه عددى آرتان قاتلرى ايسه حزمات

بيوك آمله .

حياتبخشاى ضيائك مرورنى ، هواى محيطك جيادتى اخلال ايدييور . بناءعليه، شهرلر نه قدر معتدل اقليمده ، نه‌درجه لطيف وهوادار بر موقع ووضعيتده بولنورسه بولنسونلر يه صحته مضر درلر ؛ ايشته بوضررلرك تحفظ وتوقى وهيچ اولماز

١٦٩ تبديل هوا

ايسه سنه‌لك الك صيجاق برموسمنده قيشك زياده تضمين وتلاقى آنجق شهرى ترك ايله كويلره ، قيرلره چكيلمك سايه‌سنده ممكن اولور . واسع چايرلرى ، سايه‌دار آغاجلرى ، براق وآقار صولرى اولان بر قير ، بر اووه قولاقلرى آرايه كورلتيلرندن ، كوزلرى كوته‌بينلكدن خلاص ايدر ؛ فكرى ، ذهنى آچار ، دوشونجه‌مزه وسعت ، روحمزه نشاط ، كوكلمزه انبساط ويرمكله برابر الك زياده وجودمزه ايثار قوت وعافيت ايده‌رك بزى يكى باشدن صرف مساعيه تشويق ايلر .

بيوك آمله .

انسان غليه‌لكنك افساد ايلديكى برهوا — آغاجسزلق ، بغچه‌سزلك كبى احوال محتشكنانه ايله صفوت بوزى كوره‌مديكندن صرف نظر — ده آرايه‌لردن، حركتدن، آياقلردن ، بيك درلو اسبابدن دولايى سوقاقلردن قوپوب قالقان توزلرك ، فابريقه‌لردن چيقان دومانلرك بربرينه انضمامى كوز اوكنه كتيريلديسه بازين شهرده اقامتك صحت وحياته نه قدرفنا كلمه‌جكى ايجه كديريلير؛ بركره‌دوشونولسون: درت‌طرفى‌اولرله، ديوارلرله قوشادلمش ، هوا وضيا كبى ايكى «قوىء اساسى»

١٣

A Page from The Book with the Name of Hava Değişimi (Change of Climate)

Life Substance (*Màddat al- Hayàt*) by Muhammad Al-Farisi who Died in (677H/1278A.D)

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Summary

Introduction: Arab and Muslim doctors contributed a lot to the development of toxicology and left clear fingerprints in this field. The importance of toxicology and knowledge is limited to some scientists. Our idea came in dealing with the manuscript of Life Subtsance (*Màddat al- Hayàt*) in order to its importance in several fields such as symptoms of poisoning and its treatments and their antithesis and ways of prevention.

Aim of research: Highlighting the Life Substance *Màddat al- Hayàt* of Muhammad Al-Farisi (677H/1278AD), and it's one of the most recent books that deals with details of toxins and defines of the chapters of the manuscript.

Importance and purpose of research: The importance of the research comes from the need to introduce the scientist, who is Muhammad Al-Farisi (677H/1278 AD), a scientist of the 7th century H/13th AD, and the Life Substance *Màddat al- Hayàt*, which we didn't reached a book similar to it in form and content in the period that followed its authorship.

Material and methods: the historical method was followed in this research, in returning to sources and references that contains translations of scientist and doctors to develop a translation of the scientist of Life Subtsance (*Màddat al- Hayàt*), Mohammed Al-Farisi, and show the difference we had, and we suggested the name we saw fit because of the repetition between those sources and references. We have defined the manuscript of Life Subtsance (*Màddat al- Hayàt*) and mentioned the sources and references that mentioned the manuscript in addition to where the copies exist, and we defined the seventeen manuscript chapters, we concluded many results and we put the recommendations, in addition to show the resources and references that we returned to.

Results and discussion: After returning to the relevant sources and references, we have ascertained that Muhammad Al-Farisi is the author of the manuscript of the Life Substance (*Màddat al- Hayàt*); In a book of *Kashf Al-zunun* for Haji Khalifa, the scientist mentioned the manuscript in the name of "*Màddat al- Hayàt Wa Hefiz al- Nafs Min al- Afat*" for its author Muhammad Ibn Abi Baker Al- Farisi [1], and in the book of *Al A'lam* for al Zirkli the author mentioned the manuscript in the name of "*Màddat al- Hayàt Wa Hefiz al- Nafs Min al- Afat*" for its author Muhammad Ibn Abi Baker Ibn Muhammad Ibn Ali Al Taimi Al- Farisi [2].

Al-Farisi in his book followed the experimental approach in the treatment cases of poisoning; because he used the word "experimented" many times.

Al- Farisi was honest in his transfer of scientists and other doctors in his talk about the symptoms of poisoning and methods of treatment; He mentioned several names, including "Galenos" once, and "Aristallis" five times, "great and wise men of India" five times.

Conclusion: The book of Life Substance (*Màddat al- Hayàt*) is one of the most books that explain the symptoms and treatments with medicines and antidotes, and he followed the experimental method in treatment.

Key Words: History of Medicine, Toxins, Life Substance, Màddat al- Hayàt, Muhammad Al- Farisi, Arab and Muslims Doctors.

Introduction

Since the existence of human planets has been an essential part of his life, where he depended on it as a source of food, and then turned to, which was one of the first signs of human civilization, and the development of this science opened up new opportunities for humans to use these plants for his benefit, and also plants can be used as a medicine for many diseases and prompted him to search for more plants and experience. This has led to the discovery of their qualities and classification and isolation from each other as toxic or therapeutic plants. Arab and Muslim doctors contributed to the development of toxicology and left clear imprints in this field. Toxicology is of importance and knowledge is limited to some scholars, our idea has come in dealing with the manuscript of

Life Substance (*Màddat al- Hayàt*) for Muhammad Al-Farisi who died in (677H/1278 AD).

The author

Name: The sources and references differed by specifying the full name of Muhammad Al-Farisi, in the book *Kashf al-zunun ʿan asami al-kutub wa-al-funun* for Haji Khalifah he said: "Muhammad Ibn Abi Baker Al- Farisi" [1], and in the of book of *Al A'lam* for Al Zirkli the name is "Muhammad Ibn Abi Baker Ibn Muhammad Ibn Ali Al Taimi Al- Farisi" [2], and in the book of *Dictionary of Authors* for Omar KAHALA: "Muhammad Ibn Abi Baker Ibn Muhammad Ibn Hasan Ibn Ali Al- Farisi" [3], we suggest that it be named "Muhammad Ibn Abi Baker Al-Farisi" because of repeating this name in all the sources and references.

Date and birth: The sources and references did not specify the time of his birth, but they agreed on the time of his death (677H/1278 AD). [1] [2] [3]

Books: *Màddat al- Hayàt, Wadae al- Alhan, Al-Tabsara fi Elm al- Baytara*. *Al- Dora al- Montakhabe*. [2]

Resources and References that Mentioned the Book

The manuscript came in many names:

Two copies of Ahmed III`s library in Turkey:

"Màddat al- Hayàt Fi Alamat Jamie al- Ashiae al- Masmome Min al- Mataem wa al- Mashareb wa Elaj Zalek" [4]

Copy of the Library of the Egyptian Library No. 134 / Medicine of Timor:

"Màddat al- Hayàt Wa Hefiz al- Nafs Min al- Afat" [1][2]

In the book of *Hadit al- Arefin* for Al- Baghdadi:

"*Màddat al- Hayàt"* [5]

In the book of *Geshichte der Arabichen Littereture* for Brocklmann was entitled:

"Màddat al- Hayàt" [6]

Description of the manuscript

In returning to the copies of the manuscripts available in the library of the Institute for the History of Arab Science at the University of Aleppo, we find that:

The first copy starts with a more extensive introduction than the second one, and it contains verses from the Holy Quran, then moves to the chapters without mentioning the names of those chapters in the introduction. In the second copy begins with a less expansive introduction of the first copy and contains the introduction to the names of the seventeen chapters, and then goes to explain those chapters.

The author divided his book into seventeen chapters, began with: "In reliable reasons for those who wanted to be safe from assassinations by fasting", and ended with chapter seventeen "The types of animals have not to leave the councils of kings to show the wonders of their actions and what appears on poisoned things and avoidance".

In each chapter, Al- Farisi mentioned signs of poisoning, what happens because of poisoned foods and drinks, and then the methods of treatment and how to prevent them, as well as the antidotes.

We find that Al- Farisi had mentioned the views of some wise men, and we find that in his words: "the mention of Aristotelians and Galen and others", "the great doctors of India".

Introduction to manuscript chapters

Màddat al- Hayàt consists of seventeen chapters, which are:

Chapter one: "In reliable reasons for those who wanted to be safe from assassinations by fasting" [7]: in this chapter, Al- Farisi spoke of those who wanted to avoid the assassination by poisoning, he should avoid the sweet and sore foods. Salty foods are less likely to have toxins, and Galen was quoted as a recipe for treatment and said it was experimented.

Chapter two: "In the sign of cooked food poisoned and its form and what happens from it after eating it and the medicine of that and its antidote" [7]: In this chapter, Al- Farisi spoke about the toxic signs of cooked food, and what happens to the food, symptoms and signs, and how to prevent it.

Chapter three: "In the sign of dried poisoned foods which calls for the multiplication of eating and the symptoms of them" [7]: In this section, Al- Farisi spoke about the toxic signs of dry and grilled foods, the symptoms of this poisonous food and the ways to prevent it.

Chapter four: "In the sign of what happens of foods that do not have a broth if it's good for eye does not realize them" [7]: In this section, Al- Farisi spoke about the description of foods that do not have a broth, such as sweets, and signs of what happens to these poisonous foods, and added the appropriate antidotes to treat these cases.

Chapter five: "In the sign of milk, cheese, butter, fat, and the treatment of what happens from it, and its antidote" [7]: In the fifth chapter, Al- Farisi talked about poisoned foods such as cheese and milk, signs of eating this poisoned foods, and how to treat this and two treatment Recipes.

Chapter six: "In the sign of poisonous drinks of water, wine, and sugar, and all that is made of drinks of honey, sugar, and what works of oils and what happens from it, and treat that benefit from it" [7]: In this chapter, Al-Farisi talked about drinks, which were poisoned by water, wine, sweet drinks such as rose syrup, violet and others, and the signs of the toxic and how to treat them, and the method of treating each of these drinks.

Chapter seven: "In the sign of poisoned fruit and what happens from it, and how to treat it and its useful antidote" [7]: in this section Al- Farisi described the fruits such as grapes, figs, unripe, pomegranate and seeds such as nuts, pistachios and pine, and described the forms of poisonous fruits and signs of what happens to the human how take one of these fruits, and the way to treat these cases with suitable drugs and antidotes.

Chapter eight: "In the sign of teeth medicines (such as the used to wash the flowers, camphor, water and others, and the treatment of what happens from these toxins" [7]: In this chapter, Al-Farisi spoke about the teeth medicines, which are the drugs of the teeth and what happens to the human who took these poisons medicines, symptoms and how to treat them.

Chapter nine: "In the sign of the immersion that is used to clean the face and purify the skin and that ointments used in the bathroom" [7]: In this chapter, Al-Farisi dealt with ointments that used for the face, body and teeth, and Al-Farisi said that it could not recognized it if its toxic or not before you use it, and it would do syndromes like itching.

Chapter ten: "In the sign of toxic water and its antidotes" [7]: In this chapter Al-Farisi spoke about the signs of poisonous water, how it is distinguished, and the treatment of poisoned water.

Chapter eleven: "In the sign the poisonous flowers and its treatment" [7]: In this chapter, Al-Farisi talked about the poisoned flowers and their signs, and the way to treat them with medicines and appropriate antidotes.

Chapter twelve: "In the sign of what is worn and looked of cotton, linen, cedar, wicker, silk, wool, lint and muzzle and all that is above the body of the catchers, napkins, trousers, turbans, trousers" [7]: In this chapter, Al-Farisi spoke about what is wearing such as silk, wool, cotton and what is sitting on like pillows and nests, including what is not noticed that he is poisoned after wearing and how to prevent poisoning and treatment methods.

Chapter thirteen: "In the sign of the types of fragrance like lute and Amber and what we can use in treatment such as: musk and camphor and signs of what happens from it and the treatment" [7]: In this chapter Al-Farisi talked about the all perfumes and incense, and a prescription for treating these cases with medicines and antidotes.

Chapter fourteen: "In the sign on all the fats that are used for the head and the body, such as the fat of the milk, the fat of the lily, the fat of the nardins, the fat of the dill, and the fat of violet, rose" [7]: In this chapter Al-Farisi spoke about the change of fats if mixed with some of the toxins and what happens to their color and form, and the method of treatment of these cases and sores resulting from them.

Chapter fifteen: "In the sign of what happens from the poisonous eyes medicines and the use of drugs for eye and treatment" [7]: In this chapter, Al-Farisi talked about the poisonous eye medicines, and the resulting signs and their treatment.

Chapter sixteen: "In the saying about the properties found in gemstones, which should be worn by kings and greats" [7]: In this chapter Al-Farisi spoke about the stones from the book of Aristotelians book describing the characteristics of stones, such as diamonds, gold, silver, magnets, and its benefits in prevention of toxins.

Chapter seventeen: "In mentioning the types of animals that should not be separated from the councils of kings and greats to show the wonders of their actions and the characteristics of their properties on poisonous objects and avoidance" [7]: Al-Farisi in this section dealt with animals that must not leave the councils of kings and their actions that showed something poisonous such as peacock, parrot, chicken and others, in this chapter the Al-Farisi finished the book.

Results and discussion

After returning to the relevant sources and references, we have ascertained that Muhammad Al-Farisi is the author of the manuscript of the Life Substance (*Màddat al- Hayàt*); In a book of *Kashf Al-zunun* for Haji Khalifa, the scientist mentioned the manuscript in the name of "*Màddat al- Hayàt Wa Hefiz al- Nafs Min al- Afat*" for its author Muhammad Ibn Abi Baker Al- Farisi [1], and in the book of *Al A'lam* for al Zirkli the author mentioned the manuscript in the name of "*Màddat al- Hayàt Wa Hefiz al- Nafs Min al- Afat*" for its author Muhammad Ibn Abi Baker Ibn Muhammad Ibn Ali Al Taimi

Al- Farisi [2].

Al-Farisi in his book followed the experimental approach in the treatment cases of poisoning; because he used the word "experimented" many times.

Al- Farisi was honest in his transfer of scientists and other doctors in his talk about the symptoms of poisoning and methods of treatment; He mentioned several names, including "Galenos" once, and "Aristallis" five times, "great and wise men of India" five times.

Conclusion

The book of Life Substance (*Màddat al- Hayàt*) is one of the most books that explain the symptoms and treatments with medicines and antidotes, and he followed the experimental method in treatment.

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Terms of Oral and Dental Diseases in the *Book of Al Ma'a* by Al Üzdi Al Sahàri

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Summary

Introduction: The scientific terms for each science, are the basis of the concepts and understanding of this science, and the link between the specialists. As these terms come as a result of the development of science and its growth and prosperity over time, the collection and explanation and regulation was and still necessary for workers and specialists in any art or profession or science.

Aim of research: To shed light on the terminology related to oral medicine and dentistry in a heritage book that is devoted to explaining medical and scientific terms.

Importance and purpose of research:

The importance of the research comes from the importance of the book ***Al Ma'a*** as a medical dictionary that did not appear to light only for a short time since 1996 and is a huge book that combines a large number of terms exceeding more than two thousand terms.

Material and methods: the historical method was followed in this research, by going back to some important old books that speaks about the life of Arabic scientists, and the book of *Al Ma'a* by Al Üzdi Al Sahàri (456H/1064AD). Then we compared the scientific material of the study (oral and dental diseases terms) with the book *Al A'in* by Al Khalil Al Farahidi (died 170H/793AD) and with terms of modern science in the modern dental references.

Results: Arab and Muslim scientists knew the importance of providing special books specialized in explanation of medical terms that are used between doctor's community but the material of oral and dental diseases did not have that big volume or quantity in this kind of books because of not being a unique science, but a part of medical knowledge.

Conclusion: the medical knowledge of Al Uzdi reflected on the count of medical terms and the way they were explained comparing this to lexicons of that age, but also less than modern count of terms though we notice that some old words are no longer in use in our time.

Key Words: Al Ma'a, Al Uzdi, dental terminology, history of medicine, history of dentistry, oral diseases, dental diseases.

Introduction

Since the period between the 4th and 5th centuries H / 10th and 11th century AD is the period of the richest scientific production, mental and intellectual at various levels in the Arab and Islamic state, and transition from the era of translation to the era of authorship and creativity, it was natural to be accompanied by the movement of active authoritative books to explain the general and special medical terminology contained in the doctors' books and articles such as the book of ***Al Ma'a*** by the Üzdi Al Sahàri (died 456 H / 1064 AD).

The old medical terminology books collected a large number of medical terms in general and dental terminology in particular. These terms have been heavily influenced by the linguistic books or lexicons, but they have maintained the scientific aspect that explains the author's knowledge of medicine and its branches. The book *Al Ma'a* is one of these books that spread between scientists due to the development of science and medicine and the abundance of terms for each science in which the writer combines the linguistic, medical and therapeutic explanation of diseases.

The Role of Scientific Terminology in The Era of Writing the Book

The Arab scientists have endeavored to transfer the scientific terms from the foreign languages to the Ara-

bic language. They have resorted to different ways. Some words have meaning that can be translated, and in other terms they use a well-known Arabic terms for metaphorical use. And sometimes resorted to the localization of some of the foreign terms, and after the many tries and the many methods of work, the availability of Arabic a large number of scientific terminology has become necessary interpretation for doctors and medical students. Hence the need to write a new type of medical books is the one that defines the scientific term "glossary" of definitions or medical boundaries [1].

This is what we notice in the 4th century AH / 10th century AD, where we notice the emergence of books to explain the purely scientific words (not used among people outside the category of scientists or doctors), including the book of ***Al Ma'a*** for the Üzdi Al Sahàri.

Abdullah bin Muhammad al-Uzdi (456AH/1064AD) and the book of *Al Ma'a*:

Ibn Abi Usaibia said about him in *Uyūn ul-Anbāʾ fī Ṭabaqāt al-Aṭibbā*: 'He is Abu Muhammad Abdullah bin Muhammad al-Uzdi and he is known as Ibn al-Zahabi, one of the caretakers of the medical industry, and of reading the books of philosophers. He was commissioned to make the chemistry industry diligent in its request'[2].

He was born in Suhar, Oman. He moved then into Basra, then to Persia where he studied under Al-Biruni and Ibn Sina. Later he migrated to Jerusalem and finally settled in Valencia, in Al-Andalus.

He is famous for his book ***Kitab Al-Ma'a*** (*The Book of Water*), which is a medical encyclopedia, that lists the names of diseases, its medicine and a physiological process or a treatment [3]. It is the first known alphabetical classification of medical terms. In this encyclopedia, Ibn Al-Thahabi not only lists the names but adds numerous original ideas about the function of the human organs. Indeed, he explains an original idea of how the vision takes place. It also contains a course for the treatment psychological symptoms. The main thesis of his medication is that cure must start from controlled food and exercise and if it persists then use specific individual medicines if it still persists then use medical compounds. If the disease continued, surgery was performed [4].

Kitab Al-Ma'a is a medical dictionary written by the author on the letters of the alphabet, and make the materials of pure medicine sometimes, and the mix between medicine and language at other times, although in a few times overcome the nature of language suffices to mention the linguistic meaning of the word when it does not have a special medical meaning, and the explanation of the logical and philosophical terms is not so important for Al Uzdi which may explain that the book was written in intention to make it easy to understand for whoever reads the book, doctor or otherwise.

The author has divided it into sections, each of which bears the name of the letter in which the words in it begin. Uzdi is usually committed to starting the linguistic sense of the word sometimes and sometimes quotes on the validity of that meaning, and finally the medical meaning and related description of a disease or medicine, and sometimes just the medical sense.

As for the reason for writing the book, al-Uzdi says: "I intend to write a book that combines medicine and Arabic language, and includes diseases, illnesses and medicines, and what must come to them from the treatments and medicines... I established this book on the characters of the language starting with Al Hamza then AlBa'a then Al ta'a (A, B, C,), to the last letters… And named it *Kitab Al Ma'a (book of water*) in the name of its first Chapters, as painted by Abu Abdel Rahman Khalil, may God have mercy on him" [4].

The book was Edited by Dr. Hassan Hadi Hamoudi, based on two copies of manuscripts, which he found in a personal library in the Maghreb. It was printed twice in the Ministry of Heritage and Culture in the Sultanate of Oman in 1996 and the second edition in 2015.

Terms of Oral and Dental Diseases in the Book of *Al Ma'a*

Terms of Gingiva diseases

1. **Halitosis (Al Bakhar) اَلبَخَر:** bad smell (stinking) is in the mouth and other. The mouth's halitosis is caused by either rotten moisture in the tooth., or in the flesh of the gums, and from a rotten humor in the mouth of the stomach, choleric or phlegmatic. And if the cause was in the tooth the treatment is extraction but if in the flesh of gum, the treatment is to pierce its head [4].
2. **Gingivitis (Al Thatan) اَلتَّنَثُل:** al Thatan happens

in flesh, Thatan of gingiva is tissues looseness [4].

3. **Calculus (Al Kalah) الكَلَح:** yellowish on the teeth and accumulated dirt stuck on them due to long while of leaving Siwak (tooth brush) [4].

Terms of teeth diseases

1. **Teeth loosing (Darad) الدَرَد:** being edentulous [4].
2. **Teeth loosing (al Daram) المَرَد:** being edentulous [4].
3. **(Thahar al Fam) الفم رَهَذ:** blackening of teeth [4].
4. **Sour teeth (Al Daras) الضرَس:** numbness happens to teeth after chewing citric foods [4].

Terms of tongue diseases

1. **Stuttering (Ta'ta'a) تأتأة**: symptom of speaking inability due to problems with speaking organs (tongue) [4].
2. **(Al Tahtaha) التهتهة**: tongue twisting while speaking [4].
3. **(Al Hakal) الحكل**: Hakal in tongue is that bending that permits of sending proper voices and speech [4].

Terms of lips and oral mucosa diseases

1. **(Al Tharad) الثرد:** Cracking lips [4].
2. **Thrush (Al Sulaq) السلق:** Blisters graduated in the tongue or in its origin, or peeling get in the assets of the tooth. Medically: small blisters in the mouth generated because of hot vapors escalateed from the stomach [4].
3. **Ranula (Al Divda') الضفدع:** semi-solid gland under the tongue, similar to the head of the frog. The treatment is by section (incision) if blood was most [4].
4. **Leukoplakia (Al Talawa) الطلوة:** rest of food in the mouth, or the saliva gets thick because of thirst or sickness and it's the saliva drying on teeth and the term has no plural [4].
5. **Aphtha (al Kula') القلاع:** an ulcer could happen to the oral mucosa or the tongue with spreading and wideness, happens often to child because of bad milk or incomplete digestion in the stomach. The cause could be the blood and the signs are reddish and fever and it is treated with incision or mouth washing with boiled vinegar with Sumac. If the reason was salty phlegm and signs were whiteness and little sore feeling the treatment is by rinsing with coriander water. If the reason was black bile and this is the worst type the treatment is rinsing with boiled vinegar [4].

Terms of Oral and Dental Diseases in the Book of *Al A'in* of Al Khalil Al Farahidi

Terms of Gingiva diseases

1. **Halitosis**: bad smell coming out the mouth of a man or a woman [5].
2. **AL Hafar الحَفر:** what sticks on the teeth from inside or outside [5].
3. **Calculus:** yellowish of teeth [5].

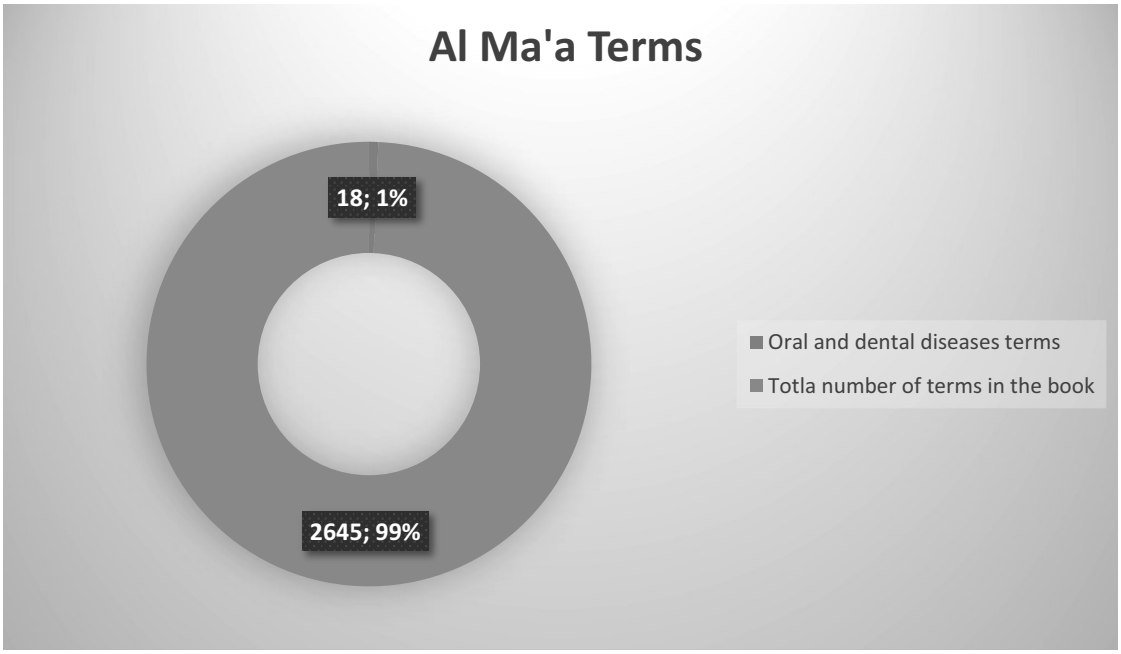
Terms of teeth diseases

1. **Teeth loosing (Durd) الدُرْد:** being edentulous [5].
2. **Al Daram المَرَد:** teeth breaking and notch like appearance on their surfaces [5].
3. **Al Kadah الحُدَق:** Al Kadiha (name of subject of Al kadeh verb) is the worm that eats tooth [5].
4. **Sour teeth (Al Daras) الضرَس:** numbness happens to teeth after chewing citric foods [5].

Terms of lips and oral mucosa diseases

1. **Thrush (Al Sulaq) السلق:** Blisters graduated in the tongue [5].
2. **Leukoplakia (Al Talawa) الطلوة:** Saliva that dries on teeth because of hunger [5].
3. **Al Nakira النكرة:** the name of everything that comes out an abscess like pus or blood [5].

Proportion of oral and dental diseases terms to the total number of terms of the book (*Al Ma'a*)



- **Oral and dental diseases terms:** 18 term.
- **Total number of terms in the book:** 2645 term.

Comparison with modern science terms

Terms of Gingiva diseases

1. **Halitosis:** Bad breath, also known as halitosis, is a symptom in which a noticeably unpleasant odor is present on the breath [6].
2. **Gingivitis:** non-destructive disease that occurs around the teeth. The most common form of gingivitis, and the most common form of periodontal disease overall, is in response to bacterial biofilms (also called plaque) that is attached to tooth surfaces, termed *plaque-induced gingivitis* [7].
5. **Calculus**: calculus or tartar is a form of hardened dental plaque. It is caused by precipitation of minerals from saliva and gingival crevicular fluid (GCF) in plaque on the teeth. Terms of teeth diseases [8].
6. **Edentia:** the condition of being toothless to at least some degree; in organisms (such as humans) that naturally have teeth (dentition), it is the result of tooth loss [8].

Terms of tongue diseases

Stuttering (Ta'ta'a) ةأتأت: Stuttering, also called stammering, is a speech disorder where an individual repeats or prolongs words, syllables, or phrases [9]

Terms of lips and oral mucosa diseases

1. **Thrush (Al Sulaq) السلاق:** a medical condition in which a yeast-shaped fungus called *Candida albicans* overgrows in the mouth and throat [10].
2. **the cleft lip lower-lip deformity:** cleft in inferior lip [10].
3. **Ranula (Al Divda') الضفدع:** the term ranula is derived from the Latin word *rana,* meaning frog, and describes a blue, translucent swelling in the floor of the mouth reminiscent of the underbelly of a frog. The lesions most often appear early in a patient's life, ie, in the first, second, or third decade. Reported ranulas usually exist in association with oral mucoceles. Ranulas may be classified based on their site of presentation into oral, plunging,

or mixed lesions. Oral lesions are confined to the floor of mouth. Plunging ranulas occur less commonly than the oral form [11].

4. **Leukoplakia (Al Talawa) قوالّطلا:** Leukoplakia generally refers to a firmly attached white patch on a mucous membrane which is associated with an increased risk of cancer [10].
5. **Aphtha:** Aphtha is defined as an oral disease with small white or yellowish ulcers. These ulcers are often surrounded by redness and can be found on the inside of the mouth, inner lips and the tongue [12].

Results

1. The obvious difference in the number of oral and dental diseases terms between the two books *Al Ma'a* for the Uzdi and the *A'in* of Al Khalil and this shows us the predominance of the medical aspect of the language in the book and that the Uzdi was a doctor to describe the disease and treatment of his experience and culture.
2. Al Uzdi was precise in describing diseases and treatments.
3. the material of oral and dental diseases did not have that big volume or quantity in this kind of books because of not being a unique science, but a part of medical knowledge.
4. Some old terms that were used in the history of Arab and Islamic heritage are now forgotten and not used in oral and dental terminology.

Conclusion

Al-Uzdi has been an expert doctor in diseases and medicine and methods of treatment, and this is what we note through what he added to the terms of AL Khalil in *Al A'in* book in the field of medical terminology (oral and dental diseases), as we find that Al-Uzdi added terms and expanded the explanation of other terms, though he said that he was influenced by Al Khalil, The book of water is a large book that contains a huge number of terms, which we find that some of them are absent from contemporary use.

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History and Origin of the Most Important Scientific Dictionaries Specialized in Medical Terminology in the Arab Scientific Heritage

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Summary

Introduction: The Arabic dictionaries concerned with medical terminology in the Arab and Islamic scientific heritage are among the most important books that have not been entitled to research and academic studies. They are among the few books that have been concerned with the interpretation of the medical terminology contained in doctors' books in particular and the philosophical and linguistic terms related to medicine and its branches.

Aim of research: Highlighting the importance of the medical scientific term and the most important dictionaries that have specialized in explaining these terms.

Importance and purpose of research: The importance of the research comes from the importance of the old medical terminology, which remained in circulation for years, and the lack of researches that highlighted the role of medical dictionaries in the Arab and Islamic scientific heritage.

Material and methods: the historical method was followed in this research, and the definition of the emergence of scientific medical term in the Arab scientific heritage and the definition of the most important books that have been devoted to explain medical terms such as the Book of *Al-Tanweer* and the book of *Miftahu Al Tibb* of **Ibn Hindu** and the book of *Al Ma'a* for ***AL UZdi Al Sahari*** and others.

Results: The movement of the creation of specialized medical lexicons was accompanied by the movement of the translation of medical books from non-Arabic languages until it became a specialized book explaining the medical term used among physicians in the Arab and Islamic countries, the authors of the medical dictionaries were doctors in addition to their knowledge of linguistic and lexicography.

Conclusion: The medical terminology was one of the most important books to explain the terminology in the doctors' books. It came in conjunction with the translation movement from foreign languages. Its authors had linguistic and medical expertise, which contributed to the creation of comprehensive knowledge books to serve the medical language used by doctors.

Key Words: dental terminology, history of medicine, history of dentistry, medical terminology, Arab scientific heritage.

Introduction

The need to collect medical terminology was linked to the translation movement, which reached its peak in the tradition of traditional medicine historians and some orientalists in the third century AH / 9th century AD, but the translation movement has undoubtedly begun before. If the Umayyad era was not known for medical translations in the scientific sense, some notes may be written in Arabic. If we assume that the doctors made these observations in Greek or Syriac languages and not in Arabic, we must assume that the Arabic language was used in the understanding between the doctor and the patient every time the patient was an Arab, and this is enough to begin the process of transferring ideas and medical names to Arabic [1].

Stages of forming a specialized medical dictionary in the Arab scientific heritage

In his article on medical dictionaries specializing in Arab and Islamic heritage, Dr. Nashaat Al-Hamarna said: "At the beginning of the translation stage, many medical translations have appeared to make it easier for doctors and translators to work. This type of book must have been necessary throughout the age of translation, and the stage of the use of several languages in the codification of the

field of medicine. The latest of these books **Hunain ibn Ishaq [2]**, and was called at that time in its Syriac name (Bashkeshmahi), which means: explanation of names". [1]

The translation of the book **Dioscrides** (*the five essays*) [3] and the book of **Galen** (*single medicines*) [2] has had a great impact on the initiation and development of the specialized scientific dictionary in Arabic. The Arab scientists praised these two Greek scientists and took their traces. It follows from this that the Arabs knew the authorship in the field of the scientific lexicon – which began and continued to write in the individual medicines - influenced by the Greeks, other than the composition in the area of the general lexicon, which was made by their pure discovery and experience. It is not surprising that the origin of the authorship in the General Dictionary was related to the interpretation of the Qur'anic text and its strangeness. As for the composition in the specialized lexicon, its inception was associated with the emergence of an innovative subject in the Arab culture, belonging to the category of science that remained until the end of the fourth century AH / 10th century AD at least called the (sciences of Al Ajam) which means (the science of foreign nations). [4].

Ibn Murad also mentioned that [4] "the authorship of medicines has been known to the Arabs as two different ways: the first approach is to consider individual medicines as research in addition to general medicine, they are complementary and not an independent subject, so they were mentioned as a single section between other sections related to medicine and pharmacy in general. This method was followed by **Abu al-Hasan Ali ibn Rubban al-Tabari** (died 250 AH / 846 AD) in his book *Firdous al-Hikma*, [2] in which he devoted the first chapter in the second article of the sixth type to single medicines and plant drugs, and **Abu al-Qasim Khalaf ibn Abbas al-Zahrawi** (died 404 AH / 1013 AD) in his book *AL-Tasreef*, [5] the twenty-ninth article was devoted to the designation of drugs in different languages and their allowance and ages and explain the names in the books of medicine and others, such as **Avicenna** (died 428 AH / 1037 AD) in the book of *Canon in medicine* [2] has been devoted to the second book of individual medicines.

He went on to say that [4] "the second approach was that the authors went to separate individual medicines in independent books that were scientific dictionaries in the strict sense. This type of authorship began to appear in the first half of the third century AH / ninth century AD, after the translation of **Dioscrides** and **Galen's** books in single medicines The books of authors encyclopedias attributed to **Hunain ibn Ishaq al-Abadi** (260 H / 873 AD) a book in the name of *the individual medicines on the letters of the dictionary*, and to another scientist named **Isa ibn Saharbakht** (date of birth and death unknown in the sources and references [6]) a book entitled *the strength of individual medicines on the letters* ".

The individual medicines of **Abu Ya'qub Ishaq ibn Omran** (d. 279 AH / 892 AD) [5] could be the first true specialized dictionary. However, the book of **Ibn omran** today - apparently - is missing, and we have left from him evidence taken by **Abu Jaafar Ahmed bin Mohammed Al-Gafiqi** in his book *single drugs* [5], and **Abu Muhammad Abdullah Ibn al-Bitar** in his comprehensive book of *the names of medicines and food (Al Jam'e)* and *Al-Mughni* [4].

The most important conclusion from these evidences is that Ibn 'Imran used to build his glossary on five pillars: The first is the linguistic definition, and the second is the nature of the plant in terms of strength and degree of temperature, coldness, dryness and humidity, and the third description of the plant scientific description accurately, and the fourth is to mention its therapeutic properties in terms of benefits, and the fifth is to mention the replacement in the absence of it. The importance of the Dictionary of **ibn Omran** is particularly noteworthy in the mention of new medicines - especially from the plants - the ancient Greeks had no knowledge of them, they are the plants of the Islamic land, in the east and west. [4]

We conclude from all that: the books of the specialized medical lexicons were the result of successive and overlapping efforts in terms of the method of authorship and the purpose for which they were written. The first attempts in the field of authorship in the specialized medical dictionary came in order to develop definitions of medicinal plants and individual medicines in general. Here is worth mentioning what Dr. Nashat al-Hamarna said: [1] "The Arabs have known the book of **Galen** in *medical names*, a book that **Hunain** described. **Hubaish[2]** also translated a part of it into Arabic. This book defines the terms used by doctors in specific technical meanings. The name of the book, as mentioned by **Hunain**, gives the very best description for which the book was written: "*The book of medical names used by doctors and for what meanings they used it*". Thus, Scientific knowledge of medicine or vocabulary acquired with the translation

and practice the meaning of medical terminology, and the use of the efforts of lexicographers had led at the end into the area of the creation of medical lexicons to explain the medical terminology used in the of doctor's speech and contained in their books, which we find on the three forms through our research:

- Dictionaries that were in the form of chapters or sections in general medical books.
- Dictionaries that have served other medical books in interpreting their terms.
- Comprehensive dictionaries that were in the form of books dedicated to explaining general medical terminology.

The most famous medical dictionaries in the Arab and Islamic scientific heritage

1. Kitab AL-Tanweer of Al Hassan ibn Nuh Al-Qumri:

The author: Hassan Abu Mansoor bin Nuh Al-Qumri, was a doctor in Bukhara and lived in the 4th century AH / 10th century AD, and we know little except for what is said about him to be the teacher of **Avicenna** in medicine [7], and this is what Ibn Abi Usaibiaa said:

"The master of his time, known for quality in the medical industry with good methods in the implementation, and he was a well treating doctor and well distinguished by the kings in his time, with a lot of respect for him"[2].

The book: It may be the oldest medical dictionary if not the first in the history of Arab medicine. It dates back to the fourth century AH / 10th century AD.

In the introduction to the edited book of *Al-Tanwer* by Dr. Ghada Karmi, she said that: it is a short book consists of definitions of vocabulary and medical terminology that does not exceed in most of the definitions of a sentence or two sentences and although the book is unknown at the present time, but it had a high position in other time, as al **Qalansi[2]** mentioned *Al-Tanweer* in his famous book of *Al Akrabathin* [8].

The book is written in twenty pages and has ten chapters. **Al-Qumri** said that he knows the virtue of the medicine industry and the amount of people's need for it at all times and their desire to learn it. Therefore, he collected many medical books and wrote the doctors' statements about the things needed by the practitioner for the medical industry that he may not find easily unless he searches in various books. And then goes on to say in his *Tanweer* that he cited interpretations of the conventions without looking at the causes and perhaps that was for the purpose of brevity [7].

2. *Miftahu Al Tibb* wa *Minhaju Al-Tullab* of Ibn Hindu:

The author: Abu al-Faraj, ibn Hindu; he is Ali ibn al-Husayn ibn al-Hasan ibn Hindu, a philosopher, doctor and Arab writer. ibn Hindu was born in the city of Qom, so he is sometimes called Qummi. He went to al-Rai, where he spent thirteen years, then went to Baghdad to study medicine at the hands of **ibn Al- khamar[2]**. He left for Nisapur and went to serve Shams ibn Qaboos bin Washmakir [9] (403 AH / 1012 AD).

ibn Hindu, is one of the distinguished scholars in the sciences of health, medical matters and famous classifications. [2].

The book: His most famous book, The Key to Medicine (*Miftahu Al Tibb*), was published in Tehran in 1989, with the editing of Dr. Mehdi Mohaqeq.

It consists of ten chapters; **ibn Hindu** dedicated the first chapter to talk about the urge to learn the industries in general and learn the medical industry in particular, and where medicine was considered the most important industry when he expressed this by saying: "Medicine is one of the glories of things and industries…"[10].

Dr. Abdul Naser KAADAN had described the book as following [23]:The second part is to prove the medical industry, and he has criticized the words of those who said the invalidity of this industry, and then **ibn Hindu** in the next three sections talked about the definition of medicine and its sections, and here he referred to that medicine is the best industry, and the seventh section devoted to talk about the ways in which the industry of Medicine was found, and then spoke in the eighth section of what the doctor should know of science, in which he assured that it is not necessary for every doctor to be surrounded by all the sciences of philosophy, but limited to what is related to the industry of medicine.

In Chapter 9, **Ibn Hindu** talked about how the student of medicine has to progress and mentioned the three arrangements used, and talked about the books that

those who want to learn the medical industry should read. He pointed out that who wants to be a doctor should learn ethics.

In the tenth and last chapter of the book "Key to Medicine", **Ibn Hindu** spoke about the medical terms and Al-Akrabathin, which is a very important part of this book, and divided it into twelve sections which reviewed through these sections all the definitions covered by or related to the science of medicine including weights, Single and compound medicines.

3. ***Book of Al Ma'a*** **by Al Üzdi Al Sahàri**:

The author: Ibn Abi Usaibiaa said about him in *Uyūn ul-Anbāʾ fī Ṭabaqāt al-Aṭibbā*: 'He is Abu Muhammad Abdullah bin Muhammad al-Uzdi and he is known as Ibn al-Zahabi, one of the caretakers of the medical industry, and of reading the books of philosophers. [2].

He was born in Suhar, Oman. He moved then into Basra, then to Persia where he studied under **Al-Biruni** and **Avicenna**. Later he migrated to Jerusalem and finally settled in Valencia, in Al-Andalus.

The book: He is famous for his book ***Kitab Al-Ma'a*** (*The Book of Water*), which is a medical encyclopedia, that lists the names of diseases, its medicine and a physiological process or a treatment. It is the first known alphabetical classification of medical terms. In this encyclopedia, Ibn Al-Thahabi not only lists the names but adds numerous original ideas about the function of the human organs. Indeed, he explains an original idea of how the vision takes place. It also contains a course for the treatment psychological symptoms. The main thesis of his medication is that cure must start from controlled food and exercise and if it persists then use specific individual medicines if it still persists then use medical compounds. If the disease continued, surgery was performed.

Kitab Al-Ma'a is a medical dictionary written by the author on the letters of the alphabet, and make the materials of pure medicine sometimes, and the mix between medicine and language at other times, although in a few times overcome the nature of language suffices to mention the linguistic meaning of the word when it does not have a special medical meaning, and the explanation of the logical and philosophical terms is not so important for Al Uzdi which may explain that the book was written in intention to make it easy to understand for whoever reads the book, doctor or otherwise [11].

The author has divided it into sections, each of which bears the name of the letter in which the words in it begin. Uzdi is usually committed to starting the linguistic sense of the word sometimes and sometimes quotes on the validity of that meaning, and finally the medical meaning and related description of a disease or medicine, and sometimes just the medical sense.

As for the reason for writing the book, al-Uzdi says: "I intend to write a book that combines medicine and Arabic language, and includes diseases, illnesses and medicines, and what must come to them from the treatments and medicines... I established this book on the characters of the language starting with Al Hamza then AlBa'a then Al ta'a (A, B, C,), to the last letters… And named it *Kitab Al Ma'a (book of water*) in the name of its first Chapters, as painted by Abu Abdel Rahman Khalil, may God have mercy on him" [4].

The book was Edited by Dr. Hassan Hadi Hamoudi, based on two copies of manuscripts, which he found in a personal library in the Maghreb. It was printed twice in the Ministry of Heritage and Culture in the Sultanate of Oman in 1996 and the second edition in 2015.

4. ***Mufid al-Ulum Wa Mubid Al Humum*** **of Al Sijzi:**

The author: he is Abu Jaafar Ahmed bin Mohammed bin al-Hash'a, an obscure Tunisian flag that lived in the first half of the seventh century AH and was in the service of the Hafsian Sultan Abu Zakaria Yahya bin Abi Mohammed Abdul Wahid bin Abi Hafs (625 AH / 1228 AD - 647 AH / 1249 AD) [5]. He has written his book by the sultan's order. There is no specific date for the death of Ibn al-Hash'a and it seems that he died within the year 647 AH / 1249 AD. The most important work of this scientist is a treatise in the interpretation of the medical vocabulary contained in the book of *Mansoori* by Al-Rhazes, entitled *Mufid Al-Ulum Wa Mubid Al-Humum*, which is the only book attributed to him on what we have reached in the sources and references available.

The book: It is a book explaining the medical terminology contained in the book of *Mansoori* written by Muhammad ibn Zakaria al-Razi (313 H / 925 AD) [12], classified by the letters of alphabet according to

the use of the people of Morocco, and the interpreted terms with linguistic concerns, including what is in the individual medicines, and what is in the general medical terminology, but we may find in the book general language terms that the author intended to explain in order to facilitate understanding. [4].

5. ***Hakayek Asrar Al-Tibb*** **of Al-Sijzi**:

The author: he Is Mas'ud ibn Muhammad al-Sijzi, born and raised in the province of Sijistan of Khorasan in the last third of the seventh century AH. He has moved to study the sciences of the elders and has interested to acquire the medical sciences and became famous in it through his practice of medicine [13]. He was an obscure scientist who seems to have lived in the late 7th century AH and in the first half of the eighth century [4].

The book: The Book of Truths The secrets of medicine, a glossary by topic, in general medical terms. It included the definition of the terms used for diseases and medicines - individual and compound - and food, drinks and others. [4].

In the introduction to the book, Dr. Fuad Al-Thakri mentioned that after the accumulation of new medical terminology and concepts in the sixth and seventh centuries AH, this was what led to Sijzi in the eighth century AH and felt that it was necessary to preserve this heavy medical material accumulated during the previous centuries Medical terminology and its codification in a systematic scientific way, he showed his medical dictionary (the facts of the secrets of medicine), which - in the words of al-Thakri - the first independent dictionary dedicated to the independent Medical panels and includes a summary of medical knowledge until his time [13].

6. ***Bahr Al-Jawaher*** **of Al Harawi:**

The author: He is Muhammad ibn Yusuf al-Harawi, from the people of Herat [14]. He was alive in 924 AH / 1518 AD and died in 1921 AH / 1542 AH [15]. Muhammad ibn Yusuf al-Harawi, whose works flourished in the late ninth to early tenth century, was a physician and author of at least two medical studies, including the *Sea of Gems in Medical Terminology (Bahr Al-Jawaher).* The work is a medical dictionary arranged in alphabetical order, covering anatomical terms, pathology, and therapeutic materials [16].

The book: *The Book of Sea Gems in the collecting and editing of medical terminology of Arabic, Latin and Greek*, has been a famous book and then wrote many other books [17]. It is a dictionary of medical vocabulary in Arabic and Persian. Written by an order of the famous minister of **Amir Beck**, the book was printed in Calcutta by the editing of Hakim Abdul Majid in 1830 at Hakim Abdul Majid Medical Press.

7. ***Qamus al atibbaa Wa Namus Al Alibba'*** **of Al Kawsuni**:

The author: Madin bin Abdul Rahman Al-Kawsuni, Egyptian doctor, was a doctor at the (Dar Al-Shif'a) in Egypt [18] and the head of the doctors, he took the science of **Sheikh Abdul Wahid al-Burji** and medicine of Sheikh **Dawood [20], [5]** and Crowned as Sheikh of doctors in Egypt. [21]. The narrators differed in the date of his birth. Al-Mahabbi said in *Khulasat Al-Athar*: "The goal of what I achieved from his tales that he was alive in the year 1044 AH / 1634 AD".

The book: *The Dictionary of Physicians* (*Qamus Al-Atibb'a*) includes a glossary of the most famous terms used in medicine since the dawn of the Arab and Islamic medical culture, until the author's era. It included the terms of individual medicines, their definitions, types, strengths, benefits, disadvantages, repairs, replacements and quantities. Human organs and natural diseases.

Dr. Hashem Mukhtar said that: [22] "the book was written by Kawsuni to a voice that emanates from the depths of his soul. He invites him to perform such a great work. The dictionaries are many in language, literature, classes, country names, science and other terms, but we rarely find an Arab medical book that meets the need of souls without return to the long Arabic books.

The book was a linguistic dictionary in which he transmitted Azhari, and Ibn Al-Mukarram. But he does not fulfill the whole material of terms, but chooses from them what is related to medicine, even if for the lowest reason. It was also a medical dictionary that conveys **Dioscorides**, **Galen**, **Avicenna**, and **Al-Qurashi al-Dimashqi known as Ibn al-Nafis**, **Ibn al-Bitar** and others.

He said that his book is the only of its kind because of the way it included the mention of types of vocabu-

lary and the names of compounds and the descriptions of the most common organs and the mention of diseases, each of them with the definition and cause and its symptoms and treatment and the mention of natural things and the mention of important things and many great benefits.

Results

1. The movement of the creation of specialized medical lexicons was accompanied by the movement of the translation of medical books from non-Arabic languages until it became a specialized book explaining the medical term used among physicians in the Arab and Islamic countries.
2. The authors of the medical dictionaries were doctors in addition to their knowledge of linguistic and lexicography.

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The Medical Utilization of Corundum as Depicted by Ibn Alshamma Al Halaby

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Summary

Introduction: Using Jewelry and gem stones in medicine is one of the oldest sciences, which physicians and pharmacists referred to in their different issues beside their interest in describing the colorful changes, deformity and shapes of these stones.

Objectives: Shedding some light on the diseases which described by Ibn Al Shamma Al Halaby's book "Sirr Al-Asrar Fi Ma'arifat Al-Jawahir Wa Al-Ahjar" that is treated by Corundum and how far it greatly influenced by physicians and pharmacists' opinions about treatment with this stone.

Methods: In the first stage, it was depended on the comparative, recalling, historical and descriptive scientific course that by studying the way of explanation the character of scientific epiphenomenon which representing the goal of the research. It explains proportion, set of changes and its relation with other issues. All that can be done by gathering facts and information then comparing them to obtain appropriate results.

Results: Human beings figured out from the early days, the utilization of gem stones and its medical usage. Arab scientists realized the importance of the gem stones utilization and they paid great attention to progress and usage of them. These utilization mentioned briefly by Arabian scientists, but Ibn Al Shamma Al Halaby particularized them in a magnificent part of his chapter which described Corundum.

Conclusion: Jewells and gem stones knew from a long time ago. The Arabian and Muslims scientists studied them carefully. The efforts of the chemists rashly connected with that of physicians and pharmacists whom are concerned with quality influences of the stones, which transferred into autonomous science and divaricate its searches branches to comprise its medical usage and other qualities.

Key words: Minerals, Gem Stones, History of Medicine, Ibn Al Shamma Al Halaby, Arab Islamic Medicine, Corundum.

Introduction

The Arabian civilization passed with a period, which is considered the real beginning of the Arabs and Muslims working on many fields of experimental sciences. They established libraries, the Caliphates and governors awarded the people engaged in scientific research. They put the re-enforce basement of culture, which Arabic civilization (1) leant on.

In their early knowledge of minerals and gem stones, they considered them from the world of inanimate (2). They extracted them and took interest of getting profit of them as much as studying of them. Stones used for making jewelry, bracelets, head covers and necklaces. They believed that it has magic powers so that they used it in inscription and sealing (3).

On the other hand, many of these stones used as curative substances. In addition to its shapeliness and splendor, it considered of great medical utilities that gem stones obliterated, physicians and pharmacists agreed upon and referred to it in their issues (4).

We have chosen Corundum stone because the scientists took care of its medical utilities, described its colors changes, deformity and shapes.

In this essay, we'll study Corundum according to Ibn Al Shamma Al Halaby's book "Sirr Al-Asrar Fi Ma'arifat Al-Jawahir Wa Al-Ahjar" and trying to shed some light on its medical utilities especially.

Ibn Al Shamma al Halaby's book "Sirr Al-Asrar Fi Ma'arifat Al-Jawahir Wa Al-Ahjar":

He is Zain Aldeen Abu Hafs Omar Ibn Ahmad Ibn Mahmoud Ibn al Shamma al Halaby al Shafai AL imam Al alamah(learned) Al mousnad (predicable) Al mohadeth (chatty).

The ancient and modern historians, the Trajem books such as ibn Al hanbaly (971H) (5), Al ghazi (1061H) (6), Al zarkly and others agreed his birthday dated at (880H).

Zain Aldeen Al Shamma was talented in many fields of sciences and arts. When he elaborated his homeland sciences, he wanted to travel and met the religious men and scientists to get benefit of them. In order to achieve this task, he travelled to Hama, Homs, Damascus, Jerusalem, Safad, Cairo, Blip's and the two holy mosques.

Rady Aldeen Ibn Alhanbly said about him:" He was religious man and generous. I attended his assembly in hearing and holy days".

Ibn Al Shamma left behind a useful and important literary collection, which indicated his knowledge abundance and good classification. His translation sources described them as a polite literature and a good useful one. Some of these books are *(Pearls and Jewells of the biography of the best man and his ten followers), (News eyes of what happened to the author during travel), (The coral pick out from Abu Hanefa Al Nouman attribute)* and much more books. He was died in the middle of Safar 936H, buried 936H in the Joshan Mountain, Antaleh. People of Aleppo got great sorrow on him (8).

In the beginning of his book *"Sirr Al-Asrar Fi Ma'arifat Al-Jawahir Wa Al-Ahjar"*, Ibn Shamma said: "Following, I have collected in this book the ideas of the wise men in advance and belated which concerned with jewels and stones, and what secrets may God kept in them. In addition, I mentioned its metals, quality and beautiful colors. I have labelled in the secret of secrets in cognizance of jewels and stones, holy God is giving success and help"(9)

In the epilog, he said: "Thanks for Allah only, the most gracious, no power but for great Allah. Allah is our cast and procurator, may Allah pray for our illiterate prophet Mohamed and for all his kin and friends, very much salutation until the Day of Judgment, Amen"(9).

Objectivity

Shedding light on Ibn Shamma Al Halaby's biography and his scientific thoughts. Also on the diseases, which mentioned in his book *"Sirr Al-Asrar Fi Ma'arifat Al-Jawahir Wa Al-Ahjar"* by taking into consideration the accurate definition of the disease as ancient physicians did. We have chosen ruby stone due to its widely mentioned in the jewelers' works and their greatly imprisoned by the ideas of physicians and pharmacists regarding the treatment with this stone.

Finally, the aim of this research is to project on the great role of the Arabs and Muslims scientists in using this stone as a medical substance for curing many diseases.

Methods

In this research, we shall depend on the comparative, recalling, historical and descriptive scientific course that by studying the way of explanation the character of scientific epiphenomenon which representing the goal of the research. It explains proportion, set of changes and its relation with other issues. All that can be done by gathering facts and information then comparing them to obtain appropriate results. By returning to some works, which interested with these epiphenomena then to go to some modern books.

Scientific and lingual significance of Corundum

The lingual significance: "Al Yakut", it is not Arabic word and was varied of its origin. Ibn Hamzeh Al Al Asfahany believed that it was translated from Persian word "Yaknd"(10). Other believed that it is translated from Indian word (Karund)(12). Father Instance Mary Al Karmaly said that it was translated from Greek word "Hyakinthos"(12)(13). Others said that it was translated without returning to its origin.

The scientific significance: Corundum is a form of 1st Aluminum dioxide (Al_2O_3)non-aqueos, very hard and used for burnishing(16).

Corundum medical utilization as mentioned in the Ibn Al Shamma Al halaby's book

Ibn Al Shamma Al Halaby used many different sources in his speech concerning the medical utilization of Corundum(9), and be affected with notions of many physicians, pharmacists and philosophers who concerned with Corundum stone as a medicament. They are Aristotle(17) [1], Avicenna(18) [2], Ibn Wahsheyah(19) [3], Al Khafgy(20) [4], Ibn Zaher(20).

[1] Aristotle: He was student of Plato, and considered the last Wiseman of the Greek. He worked on philosophy and nature sciences (1)

[2] Avicenna: He is Alhusein son of Abd Allah son of AlHasan son of Ali (428H), he is encyclopedic man. Skilled in medicine, math's, astronomy and many other sciences(2)

[3] Ibn Wahsheya Al Nabaty: He is Abu baker Ahmed son of Ali. Live in the 3rd H century, he is chemist, physician and lingual scientist (3)

[4] Al Khafgy: He is Abu Jaffer Ahmed Al Saed Al Khafgy. He was the very best man in his time in medicine cabinet, from Andalusia. Lived in the 6th H century (4)

We searched for each disease of which Corundum used to cure them taking into consideration the accurate definition of the disease, as mentioned by some ancient physicians in particular dictionaries of the ancient medical idioms and diseases such as:

1. Plaque (Black Death): It is a deadly disease, because it turned to a poison that destroy the organs and changing its color. Sometimes it leaked blood and iron, it appeared in the weak organs such as armpit, groins and rare part of the ear(21).
2. Hemoptysis: It can be happened from 5 parts of the body. From mouth, gum and round them or from the head. From swallowed leech, or from esophagus, stomach and liver. Mediastinum, lungs and all round. The reason behind the last one is ulcer or open vein. (22)
3. Leprosy: It is a black disease over the body, its first signs is sound crack, nose/fingers eroding and malicious dandruff(1). (22)
4. Epilepsy: Losing one mind, bend round, scum and urinate. Then wake up and be normal again. (22)
5. Pimple: It is a small abscess indicated inside body sickness. (21)
6. Diphtheria (croup – angina): It is warm tumor in the deep inside the mouth. It is a dangerous, frightened disease. Mostly dangerous at fourth or fifth day, and deadly before the fifth day. (21)
7. Hiccup: It is the air go out from the stomach. The tension in the stomach gate and consist of contraction tense and stretch extrovert. (21)
8. Palpitation: Disturbance, the physicians mean heart-disturbance. (22)
9. Tuberculosis: Expectoration of pus with hectic fever and losing weight. (22)
10. Hectic fever: It is high blood-heat, inside body heat as result of high fever. The heated swallowed mouth. (21)
11. Emanation: Eye whitening. (22)
12. Awakening: staying alert and do not sleep in the nighttime. (21)
13. Jaundice: Spreading up the yellowish mixing on the whole body (Bilirubin accumulation)(24)
14. Vomit: Going out of the stomach via the mouth as result of the bowels tension. (21)

Corundum colors

Ibn Al shamma Al Halaby arranged Corundum colors in five groups according to their values, from the higher value" red" down into cheaper one "white".

1. **Sapphire Rouge- Rubis** (9): He categorized it in 7 grades as following:
    1. Grenadian: It is like dark red pomegranate grains that contain much water.
    2. Rubi Celle: Just like rubella color. It is dyestuff that produced from safflower, and the price of 1 whit (methkal) = 800 Dinar.
    3. Oriental Corundum (claret): It is also dark red, and called carbuncle because it is similar to glowing carbuncle. Some people called it carbuncular and knew as violet (purple). The price of 1 whit (methkal)= 500 Dinar.
    4. Flesh color: It is less reddish than claret. Its color like the water of soft flesh without salt. The price of 1 whit (methkal) = 100 Dinar.
    5. Violet: It is originally gloomy, turns into red color in the night. But in fact still gloomy, that is clear when we see it in the morning during exposing to sun. Its price near the rosy one and estimated less than other colors.
    6. Pomegranate flowers color: It is red with imperfection yellowish. Its price 1 whit (methkal)= 200 Dinar.
    7. Rosy: It is red with imperfection white. It is the lesser one.

    With regarding to the previously mentioned, we find that the purity of the color and free of imperfection is the standard that Ibn Shamma and his antecedence relied on. He also adopted their knowledge in fixing Corundum quality and determined its value. But others differed in their laying and they did not put Grenadian or pomegranate flowers color on the top of chart. We believe that the difference came out of using many sources by Ibn Al Shamma that did not agree in laying.

2. **Topaz**(9): Ibn Al Shamma arranged it in 5 graduation. He started with pomegranate flowers color, which is the best quality of the yellow color and estimated 1 whit (methkal) = 100 Dinar. The apricot color come next, citron color, straw color down till approaching white color. The value of the yellow Corundum become less and less until reaching 1 whit (methkal) = 1 Dinar.
3. **Sapphire** oriental(9): Some people called it gloomy, he arranged it as following: Cobalt blue, blue pale, peacockish, indigo blue, sapphire, azure. Sapphire oriental estimated price is 10 Dinar/Mathkal.
4. **Green Corundum**(9): It started from oily color, blue-green and gradually less color density until reaching the white color.
5. **Corindon Blane**(9): It is the cheapest kind of Corundum. Ibn Al Shamma arranged it according to Naser Al Jawahery to 2 kinds:

   1. Glassy, it is similar to glass white and pure.

   2. It is different from 1st kind but more hardness.

Scientific discussion

The ancient scientist point of view, Al Tifashy (651H) explained in his book (Roses of thoughts in the knowledge of jewels stones) (25) and Al Kebkaji's (676H) book (Marchants treasure in the knowledge of stones). The reason of the red color appearance is the excessive heat of the sun, and yellow color is the reduction of heat. May he meant that it less exposed to sunray, as for white color it appeared due to heat modesty. It means less heat exposure to sunray than the last one. The blue one did not expose to sunray so that it became cool and black then redness come out from inside it. The blue color appeared during this transformation.

During this argument, they did not confirm whether it is accurate or not so that they used the word "may be". This meant that they talked in theory without evidence.

Conclusion, we found that our scientists studied the colors changing of Corundum according to atmospheric changing such as temperature, humidity, …etc.

However, according to modern science point of view, it explained the red color as result of small amount of chrome dioxide and mixed with little quantity of Iron dioxide in the kind with brownish color. As for yellow color, it contains unknown impurities. The blue color, it usually impurities with slight amount of Iron dioxide and Titanium (27). If the glasses is pure, it will be without color.

Corundum deformity

Ibn Shamma mentioned 3 deformities of Corundum such as:

1. The presence of cracks within partitions.
2. There is freckle on its surface that is a white cloud and if it located on the surface, it can be vanished by rubbing. But if it is deep, it can't be vanished.
3. The extra wide of Corundum, non-coordination of outer surface and its fineness of thickness.

Scientific discussion

In the past days, cracks phenomenon interpreted due to atmospheric factors and formation circumstances. Freckle interpreted that there is live worms inside. (25)

From the outrun, we found out the ancient scientists tried to interpret different invisible phenomena with different methods. They put their ideas on basis that it may be modified. Consequently, they kept the door open to prove it.

Due to modern scientific point of view, it can be noticed that there is a separation with it in according with the lines on the glassy surfaces. As a result of the presence of repeated twins, which is textured and regular growing of more than one metallic crystal whereas it complete each other upon rotation per angle 180 degree around the axes called twin or through its reflection on mirror in a given plane called twin plane. (29)

Corundum shapes

Ibn Al Shamma did not mention any scientific interpretation of Corundum glassy formation. He mentioned enumeration only, and we adopted the system of which all these crystals are linking in explanation and definition.

The round and entrails: Some metals are distinguished with shuttle shape or small barrel in Coruindon and called physiognomy, which as close as to the 2 shapes "round and entrails". (30)

Theirs crystals found as filling in the rock and it took clear sixfold prismatic column. (29)

Its crystalize structure consist of a primary prismatic cell with centralized volumetric and consist of oxygen stupendous O^{2-}. As for Aluminum stupendous Al^{3+}, it takes third spaces octet faces remaining in this structure. (29)

Results and discussion

1. Human beings knew gem stones from the old ages, and used it for ornamenting. Other people used it for inscription and stamping, also used as medicine drug for treatment of patients.

2. The medical utilization of gem stone took great interest from Arab scientists, which is clearly appeared by their studies concerning this field during Islamic period.

   Their writings in this field of the magnificent art were the best, for example: Avicenna and Al Ghafghy

3. Through our search in medical utilization of Corundum which is done by many jewelers and physicians of Islamic Arabic medical heritage. We found that these utilizations were mentioned briefly. But Ibn Al Shamma Al Halaby devoted a big part in the chapter, which spoke about Corundum.

4. Like other of scientists, Ibn Al Shamma mentioned the different colors of Corundum. But he differed from the other in their arrangement. He categorized them from the top to down due to their values. The colors are differs in the same stone according to the nature of the metal impurities within the stone or other factors that influenced it.

Conclusion

Jewels and gem stones knew from long time ago, Arabs and Muslims scientists of different specializations concerned with them and studied it. The efforts of the Chemists, physicians and pharmacists who care about stones' nature quality met together. This keen interest turned into identical science, and it has different branches that related to it to inclusive of its medical utilizations and other properties. That led to remarkable development of the medicine in the shadows of Arab and Muslims physicians.

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Environmental Knowledge of Arab and Muslim Physicians in the 5th AH / 11th Century AD

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Summary

Introduction: Scientists concerned with the environment because of its impact on human health and they concerned with the study of the elements of environment; air, water and soil because all these elements affect the health of the human being, where when the physicians were treating patients they asked them about their places of living and homes, because of its impact on human health and its role in the occurrence of diseases.

Aim of the paper: The purpose of this research is to shed light on some of environmental knowledge that adduced by the most important Arab and Muslim physicians through their major writings, which appeared in the 5th century AH / 11th AD, which is really, the age of maturity of science.

Environment in Arabic Language: Al bea'a البيئة: An Arabic word derived from verb "boa'". It came back and settled in the linguistic dictionaries at the beginning of the 8th century AH / 14th century AD.

Material and Methods: The historical method was followed in this research, by going back to some important old Arabic medical books, of 5th century AH / 11th AD, the mainly al-ma'a fi-l-sana'a al-tabi'iyyah book of al-Masīhī, al-qanun fi al-tibb book of Avicenna, On the Prevention of Bodily Ills in Egypt book of Ali ibn Radwan, Kitab Al-Ma'a book of al-Azdi, Taqwim al-Sihhah book of ibn Butlan, Taqwim al-Abdan fi Dadbir al-Insan book of ibn Jazla.

Results: Arab and Muslim physicians knew the effect of the environmental factors on human body, they worked to describe and discuss it, with a vision and a clear scientific methodology, so this subject has become a common constant line between them.

Conclusion: The 5th century AH / 11th AD from the history of the Arab Islamic civilization, has distinguished by emergence of number of Arab and Muslims physicians who dealt in their works with the most important different sides of what's known in our time as ***Ecology***.

Key words: Environment, the 5th century AH / 11th AD, al-Masīhī, Avicenna, ibn Riḍwān, al-Azdi, ibn Buṭlān, ibn Jazlā.

Introduction

"Environment" is the issue of the age, it is not the daughter of our world in which we live now. When we choose "environment" we are responding to a need that has become urgent to understand the framework in which people live and derive all the elements of their lives. This issue has been of interest to scientists since ancient times. In ancient and medieval times, the study of the links between environment, climate and the state of health has long been the subject of special attention to our ancient ancestors, physicians and medical historians. This is what we find in Hippocrates' (460-375 BC) book "*Airs Waters and Places*" Which he dealt with the relationship between the patient and the disease with climate and environment, water, housing sites on the ground and the relationship of these factors to the health of human, and its impact on the different body organs.

Arab and Muslim scientists have turned to the concept "**environment**" and the issue of preserving it, more than a thousand years because it is directly related to the preservation of human life.

Importance and purpose of research

This research aims to shed light on some of the topics of the Arab scientific heritage in the Arab Islamic civilization, concerning the environmental and natural knowledge, among the Arab and Muslim physicians who appeared in the 5th century AH / 11th AD, which is truly the era of creativity and scientific production in various fields. Hence, the importance of this research at the assortment and descriptive levels has been revealed, which it shows the importance and correlation of the relationship between "ecology" and its subjects, and human life

in the cases of health and disease. This relationship has its presence in the interest and care of scientists and physicians across the ages including the scientists of Arab scientific heritage.

Environment in Arabic Language

Al bea'a البيئة: An Arabic word derived from verb "boa'". It came back and settled in the linguistic dictionaries at the beginning of the 8th century AH / 14th century AD: "**Al bea'a,** البيئة" from verb "boa'": to lodge; furnish with a dwelling; put up. To settle in a place. Noun is environment.

Environment: home, place, situation(7).

It is stated in The Nobel Quran: (Provide dwellings for your people in Egypt)(1); take houses.

Physicians who dealt with the subject of environment in their writings

The fifth century AH / eleventh century AD has distinguished by emergence of Arab and Muslim scientists in medicine and wisdom where they developed the appropriate brick to expand the basis of this science and development.

The physicians put a lot on the subject of health care and they reached it by different means, there is no room to talk about it here, but we are interested in physicians' interest in environment, housing, climate and other geographical features. In this article we will discuss environmental knowledge contained in Arabic books by Arab and Muslim physicians in 5th AH/ 11th AD century.

We will talk about physicians whose works included chapters about environment and we will only mention to one book for each:

Abū Sahl al-Masīhī al-Djurdjānī (D 401 AH / 1010 AD)

al-Masīhī talked about the subject of environment in his book "*al-mā'a fi-l-sanā'a al-ṭibi'iyyā*" he spoke about environment and he devoted chapters to the impact of the natural environment on human life, its composition and the difference of its nature and creation. Where he spoke about air, water, and dwelling, he described the state of bodies in the seasons. Where the 10th book was devoted to the cases of air, he said: the most influential things in body, committed to it and the closest to it, and the need for air is the most important needs(2).

He then described and enumerated air types and their respective effects on humans. He mentioned pure abstract air, moderate air, heavy air and hot air.

He talked about types of wind and its characteristics, the **North** is cool and dry, the **South** is warm and wet, the **East** and the **West** are moderate, but the **East** "al Saba" tends to heat, and the **West** "al Dabor" is tends to wetness. He said that the winds vary either because of the directions such as the North, South, the East and the West, or because of the places that pass in and the places that arise from them.

al-Masīhī continued to talk about environment and its impact, he enumerated housing characteristics according to its location and these affect people. He said: It is indicative the health of the air, water and drink from the physiognomy of people, health of their bodies, ages, habits, their diseases, the number of diseases its littleness, speed of cold and hardness if the disease occurred.

Not only did **al-Masīhī** describe environment but rather gives solutions and measures to make the house better. He also talked about the house "place" environment. He gave the specifications of the inhabitants of these houses, he mentioned that the people of hot places quickly grow, the people of cold places longer ages and the people of excessive heat and cold places are worse morals and stronger(2).

He also devoted a chapter to talk about water, he enumerated its types according to its sources, he enumerated types of water: fresh, hot, lukewarm, cold and rough, and affected each of the human body(2).

He gave good water qualities, and he gave solutions and measured to treat poor corrupt water, thus **al-Masīhī** described environmental factors and their respective impact on human health.

Avicenna (Ibn sinā) (D 428 AH/ 1037 AD)

Avicenna also gives importance to environment and geographical factors their effect on human health and the need to know by the physician about it, in his book "*al-Kānūn fi 'l-ṭibb*" *(The Canon of Medicine)*, he devoted to

this chapters referring to the means that taken by the physician in treatment taking into account the relationship between the treatment and environment to keep health.

What Avicenna presented in "*The Canon*" is no difference from that of **al-Masīhī** in his book "*al-mā'a fi-l-sanā'a al-ṭibi'iyyā*" and gave the same views, which indicates that this subject has become a common constant line between the physicians.

Among the subjects mentioned by **Avicenna**(4):

- The impact of surrounding air in the bodies.
- In the natures of four seasons.
- In the provisions of four seasons.
- In good air.
- In The effect of aerobic changes that are not anti-natural.
- In the effect of bad aerobic changes against the natural course.
- Housing obligations and provisions and divided into:
  - Hot housing.
  - Cold housing.
  - Wet houses.
  - Land housing.
  - Underground dwellings.
  - Open stone houses.
  - Snowy mountain dwellings.
  - Marine housing.
  - Northern housing.
  - Southern housing.
  - Eastern housing.

He also mentioned the specifications of the best housing, its characteristics and its planning, he emphasized on the factors of environment and the need to know by the physician to help him take measures to maintain health.

Avicenna also spoke about the subject of travel medicine and the management of travelers in different environments.

Ali ibn Riḍwān (D 453 AH/ 1061 AD)

From physicians who dealt with environment subject but he specified it with a separate book for one country, is the physician Ali ibn Radwan in his treatise "*Risalā fī daf ' maḍārr al-abdān bi-arḍ Miṣr" (On the Prevention of Bodily Illnesses in Egypt)*. The book was divided into 15 chapters, his book was a summary. **Ibn Riḍwān** mentioned Egypt's geography and its borders. He also pointed to airs changes in Egypt and what is generated from there. He pointed to the nature of its climate at night and day, in summer and fall, air, water nature and what it generates wetness and rottenness.

He devoted the 7th chapter "in causes of epidemic" and shows that the reasons are due to environment, climate and seasons changes.

The 10th chapter is devoted to what the physician should do in Egypt he stated that the physician should give in both medicines and foods that exist in the environment inhabited by man as well as what convenient the mood of seasons and what is generated in the bodies(8).

Chapter XII; he made it to repair bad air, water and food in the land Egypt as well as housing; thus he described the environment of Egypt and tried to give some measures to reform environment.

What was mentioned by **ibn Riḍwān** is no different from what was said before. He gave importance to the environment and geographical factors that must be learned by the physician to choose the appropriate treatment taking into consideration the times, the seasons, the country's environment and the nature of the country in the choice of food, drink and clothing.

Al-Azdi Al- Suharị (D 456 AH / 1064 AD)

From the environmental knowledge that we find evidences in the medical terminology books in 5th century AH is what is mentioned in the book "*Kitab al-Ma'â*" *(The Book of Water)* for **Al-Azdi** where we find many words related to ecology, the most important is the title of the book itself "water", which is one of the first comprehensive Arabic medical lexicons. The book is divided into three parts and it is arranged alphabetically. Each section bears the name of the letter in which the words are mentioned, and the words of its contents are related to the various medical fields where he defined the names of diseases and treatment, names of single and compound medicines, anatomy and colliget in medicine, etc.

The following are some of these Arabic words that are relevant to environmental knowledge

Verb Boa' أوب: "Al Ba'a ةءابلا": the house is brought down by people(3).

At the beginning of the book a linguistic definition of

water, the water is cold by agreement, water is one of the elements, antiseptic and cleaner for dirt, which is the first to be perfumed. He said about the role of water in health care: "It is used in maintenance of health and treatment of illnesses from inside and outside the body either hot, cold, fresh and salty. The cold fresh water modify and tight the temperature of the stomach, the hot water relax it (3).

Words related to water

Al Thar: Abundant water(3).

Snow: Who falls from the sky(3).

Streamlet: Small river(3).

Frozen: Ice. and frozen water(3).

Al Jaod: Heavy abundant rain(3).

Al Rahma: Permanent light rain "fine rain"(3).

Frost: What falls from the sky at night like snow(3).

Drizzle: Lighter rain or dew(3).

Ghaith: Rain(3).

As for the words related to the airs and the wind

Al Thaeb: The strong wind(3).

Al Dabor: Wind its side is the sunset. Some physicians said: it is troubled and tended to cold and dry(3).

Wind: The breeze of everything, it is feminine, the plural is winds. Mothers of wind are four: Al Saba, Al Dabor, the North and the South. Every wind deviated from these four winds directions, fell between two winds of them; It's "Nakbaa". Some physicians said: Hippocrates thought that wind was moving air, and others thought it was vapor rising from the ground(3).

The North: The wind blowing from the Ka ʿaba, or what is received on your right. **In medicin**: It is the wind its destination from the north of the received to the sun. It is dry cold that strengthens the bodies, hardens them, eliminates the spirits, mixes and other senses, and strengthens the brain, desire and digestion(3).

Al Saba: Wind receives the house, which is the West wind, because it is blowing out of the sunset(3).

Al Arf "perfume": Wind, good or bad, and more used in good(3).

Zephyr: Beginning of wind, good wind(3).

Al Nashr: Gentle breeze(3).

Air: Atmosphere, which is between sky and earth. Air is simple body, hot and wet. As for its temperature, because if it was not hot it was not light because cold requires weight and density. As for its wetness, it accepts shapes and leaves them easily(3).

Words related to seasons

Cold: Against heat(3).

Atmosphere: Between sky and earth(3).

Heat: Against cold(3).

The four seasons: The four seasons at astrologers are times of the sun's transitions in the zodiac, starting from the spring point. With regard to physicians, Spring is the time when, in temperate countries, it is not necessary to make a habit of cold or a significant recreation of the heat. Summer is all hot time. Winter is all cold time.

Then the time of spring and Autumn each one of them at the physicians shorter than each one of summer and winter, time of winter compared to summer or less or more of it, according to the country, is likes spring is flower time, and the beginning of fruiting. Autumn time of changed the color of the leaves and began its fall, either both is winter and summer(3).

Zamharir "Bitter": Sever cold(3).

Al Sarr: Extreme cold(3).

Al Qaith: Midsummer(3).

Ibn Buṭlān (D 458 AH/ 1066 AD)

The physician **Ibn Buṭlān** talked about environment in his book "*Taḳwim al-ṣiḥḥa*" *(The Maintenance of Health)* where he talked about winds, airs, times, countries, moderate houses, and the need to care of them because it is the place of moderate living. He talked about the conditions of the health home and he went on to mention how to manage summer heat and winter cold and how to manage the epidemic air and treatment of toxins.

He defined air and wind by saying: "air is one of the elements, and wind is vapor dissolved from wet land by the sun's path in that azimuth, and the nature of this vapor as the nature of the land dissolved from it(5).

Ibn Buṭlān also divided countries according to the four winds directions, according to the situation of the

country, if it was adjacent to mountains or seas and according to the nature of the soil of the earth he said: It may be compatible to the country two editions and three, changing their images, their creations, their airs, and their times(5).

He talked about air changes by wind, he also talked about wind types and its characteristics, and it is no different from what **al-Masīhī** gave in his book "*al-mā'a fi-l-sanā'a al-ṭibi'iyyā*". He also talked about the natures of four seasons and airs changed by times, country's destinations and this has affected the temper and nature state of the population, he talked about preservation health bodies according to airs, regions and waters, where he noticed to the importance of the environmental conditions surrounding the patient, which related to water, air and food.

Ibn Jazlā (D 493 AH/ 1100 AD)

The physician **Ibn Jazlā** talked about the importance of environment and the need to know by the physician about it in his book "*Taqwīm al-Abdān fī Tadbīr al-Insān*", he put detailed tables when he was dealing with a disease that took into account matters related to environment such as, knowledge of the country, seasons and age, then he described the measure to treat that disease(6), he categorized the diseases in terms of climate, where he mentioned the places of the disease (geography of the region) that is, he gave clear importance to countries and climate with the existence of diseases either specific or multiplied in other countries without others from countries, and changed climate; desert diseases are different from mountainous diseases and both are different from wetland countries diseases.

Results

1. The Arab and Muslim physicians knew Hippocrates' book "*Airs waters and places*", as well as Galen's commentary of this book, and they adopted them in presenting their environmental knowledge in their writings.
2. Arab and Muslim physicians knew the effect of the environmental factors on human body, they worked to describe and discuss it, with a vision and a clear scientific methodology, so this subject has become a common constant line between them, they gave attention to the importance of the environment and its main elements (air and water), including the climate in its different manifestations and other geographical factors that must be learned by the physician to choose the appropriate treatment taking into consideration the times, the seasons, the country's environment and the nature of the country

Conclusion

The 5th century AH/ 11th AD from the history of the Arab Islamic civilization throughout its territory and from the country of Persian to Syria and Egypt, has distinguished by emergence of number of Arab and Muslim physicians who dealt in their works with the most important different sides of what's known in our time as ***Ecology***, especially the topics of geospatial climate, they gave to the environment, geographical factors, and their impact on human health and the need to know by the physician about it, the status and importance that is appropriate. This issue has become a constant public line for physicians.

The data presented in this paper stills as an introduction to a wider study on this subject, taking into account the work on analysis some of the details bring in the context of this research.

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Cancer Therapies in Unani System of Medicine: A Ray of Hope to Millions of Sufferers

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Summary

Background and Objectives: Cancer is a current global health problem which has a major impact on society across the world. In 2012, an estimated 14. 1 million new cases of cancer occurred worldwide and it has been predicted that there will be 23. 6 million new cases of cancer each year by 2030. The world's oldest documented case of cancer hails from ancient Egypt in 1500 BC; Hippocrates was the first to used the Greek words, 'Carcinos' and carcinoma to describe tumors, from which the name "Karkinos" is assigned to cancers. Since, etiopathogenesis of cancer is a varied phenomenon; its treatment has remained a big challenge in the present era. The Unani System of Medicine has a long history regarding causes of cancers and its successful treatment. Therefore, the present study has been attempted to put forward the cancer treatment mentioned in Unani literature to provide holistic approach in order to cure this dreadful disease.

Methodology: From the literature survey, the key elements that were documented in Unani System of Medicine were evaluated for validating the use of Unani drugs in the treatment of cancer along with the specific dietary regimens.

Result: According to Unani literature cancer is an end stage of degeneration of metabolic efficiency of body which results in extinguishing of the innate heat. It occurs primarily by incorrect diet and imbalances of four humours particularly the black bile. Ibn Sina (Avicenna), Al Razi (Rhazes), Galen and Al-Zahrawi described most of the cancers in their books and suggested several principles of treatment and prevention for cancers. The renowned Unani (Greco Arab) scholars believed that the cancer occurs as a result of burned black bile in the affected tissues. Therefore, they recommended evacuation of black bile from the organ by melanogogue or cathartic drugs along with some dietary regimes.

Conclusion: The focus of this paper is to explain the anticancer therapies used by Unani (Greco Arab) system of medicine. Furthermore, herbal remedies and dietary modifications are to be high lightened. Many advances in cancer treatment came from the Unani System of Medicine. To prevent side effects and complications, Unani medicine can be used as an adjuvant along with conventional chemotherapy so that it will become the real hope to millions of cancer sufferers.

Key words: Cancer, Black bile, Herbal Medicine, *Sartan*, Unani medicine.

Introduction

The general term "Cancer" is applied to a series of malignant diseases which may affect various parts of the body. These diseases are characterized by a rapid and uncontrolled growth of abnormal cells which may mass together to form a tumour [1]. Cancer (*sartan*) is an Arabic word which means "crab". This name is given to Cancer because of its resembles with the crab [2, 3, 4]. According to Unani System of Medicine cancer is not actually one disease but a several hundred symptoms affecting virtually one organ. Hippocrates (460-375BC) presumed that cancer results from a humoral imbalances and excessive black bile. *Sartan* (cancer) is essentially a disease of black bile humour [5]. According to Rabban Tabri (838-870 AD) and Ali Ibn Abbas Majoosi; "Cancer is a hard and solid swelling which is rarely treatable by medications and should be removed by surgical knife". Cancer is the leading cause of death worldwide. Greco-Arab medicine might be promising candidate for new cancer therapeutics in future with low toxicity and minimal side effects [6, 7, 8, 9].

Cancer history

The origin of Greco Arab medicine can be traced back to the times of Prophet Mohammad Peace be Upon Him, by his medical advices many diseases were treated suc-

cessfully, he said that "the one who sent down the disease sent down the remedy; "For every disease, Allah has given a cure". In Unani (Greco- Arab) System of Medicine a number of scholars viz., Galen (131-210), Al-Razi (865-925 AD), Al –Zahrawi (939-1030), Ibn Sena (980-1037AD) and Al-Karaki (1233-1286) has paid their attention towards the treatment and prevention of cancer. It is believed that Galen (Jalinoos) was the first to deal with tumors including cancers in a systematic way [9]. Al-Razi recommended 131 plants and Ibn Sena 55 for the cure of cancer [10]. According to Ibn- Sena cancer is a tumour arising from burning of black bile humour. By burning it means that the increase of innate heat has become pathological [11]. Podaphyllum was used over 2000 years ago by the ancient Chinese as an anti tumour drug [1].

Etiology of cancer

The exact etiology of cancer is unknown till date. According to Unani concept, there are various causes for formation of cancer, excessive production of black bile humour (*sauda*), burning of normal *sauda* into abnormal *sauda*, formation of *sauda* due to burning of blood, formation of *sauda* due to burning of *safra* (bile), formation of *sauda* due to burning of phelagm [12, 13, 14]

Herbal medicines as an adjuvant in chemotherapy or radio-cancer therapy

It is known fact that chemo or radiotherapy is full of side effects and complications. To prevent these side effects China has started herbal medicine as an adjuvant therapy. It has been seen clinically that the portion of patients that use herbal medicines as an adjuvant along with conventional (e. g. chemotherapy) treatment for lung cancer is as high as 77% [15]. Herbs are mainly used in lung cancer to reduce therapy associated toxicity and cancer related symptoms and sometimes to directly increase anticancer effects [16]. Several herbal medicines like *Astragalus* (*Anzaroot*), Turmeric (curcumin), Ginsung, are commonly used by cancer patients to either treat cancer or to reduce the toxicity induced by chemotherapy and radiotherapy [17]. Many of the herbal medicines and its active ingredients have been identified as potential modifiers of cancer [18].

Prevention and treatment of cancer in Unani (Greco-Arab) System of Medicine

Unani System of Medicine has been used worldwide for hundreds of years to treat various diseases including cancer. Unani medicine is still the main source of various agents that are used for cancer treatment and prevention. Herbal medicine is considered as the second method to fight cancer as documented by many research studies [19, 20]. The *Usoole ilaj* (principles of treatment) of cancer in Unani medicine is determined on the basis of etiology in the following ways:

In general *Izale Sabab* (elimination of cause), *Tadeele akhlat* (normalization of humour), and *Tadeele* Aza (normalization of tissues /organs) are three main strategies for the management of any diseases in Unani system of medicine.

In particular the following treatment regime is given to treat cancer:

1. Venesection of medial cubital vein and avoidance of those drugs and foods which promote formation of Black bile humour like Beef of cow, Brinjal, Meat of wild animal, Pulses like *Masoor daal* etc [21, 22].
2. Evacuation of morbid matter from the body (*tanqiya mawad*) with the help of *munzijate Sauda* (concoction of black bile) and *mushil Sauda* (purgation of black bile) drugs [2].
3. If the occult (hidden) cancers become evident after having existed for some time, both Avicenna and Hippocrates believed that the best course is to leave the tumor alone.
4. Dietary regimen: Those types of dietary items are used which reduces the excess production of *Sauda* or prevent its accumulation like *kaddu* (*Cucurbita maxica*), Bathua (*Chenopodium album*), *Maul jubn* (cows churned milk), *Maus shaeer* (water of Hordeum vulgaris), *Nabeez* (*Arisht*) [11, 12]
5. Avicenna in his book "The Canon of medicine" recommended cauterization for treating cancer if necessary. Avicenna has also attempted the earliest known treatments for cancers like "*Hindiba*"(Chichorium intybus), a herbal compound drug, which was later identified by *Ibn al Baitar* as anticancerous and which may also treat other tumours and neoplastic disorders [23, 24, 25].
6. Treatment of cancer sometimes needs surgical removal or cauterization [12].
7. The commonly used plant derived cancer agents like Vincristine, Vinblastine (*Catharanthus roseus*) are the part of chemotherapy in present era. Vinblastin is mainly used for the treatment of Hodgkin's disease. Vincristine has superior antitumour activity than vinblastine and is clinically used for the treatment of childhood

leukemia's. Podaphyllum (podophyllum rhizome) is used topically for Veneral warts [1, 26, 27].

Conclusion

The number of cancer patients is increasing day by day. Therefore, factors which are responsible for cancer should be controlled by creating awareness among public and one should be careful about the diet and lifestyle changes. There is no doubt that Unani medicine has contributed a lot to cancer patients since decades but the current emphasis should be given towards the herbal regimen described by the renowned Unani Physicians, and the Unani concept of cancer prevention should be followed, as it states that prevalence of cancer will be minimized only when the humans return to their natural lifestyle and keep the body, mind and spirit free from impurities. For the benefit of patient it is the need of hour to generate an interest in implementing the herbal medicine as an adjuvant to the standard conventional cancer therapy. In nutshell it can be said that herbal treatment is safe and effective for cancer patients as various studies has been documented the anti carcinogenic efficacy of many herbal drugs *in vivo* and *in vitro* models. In future to give a substantial gift to millions of cancer sufferers research should be done for some anti-tumour compounds from herbal drugs which possess targeted action on specific organ without damaging any normal tissue.

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Author's contribution

All authors have made a real contribution towards this study and everyone has read and approved the final manuscript.

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Contributions of Avicenna to Sports Medicine

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Summary

Sports medicine is particularly a new booming sector in healthcare. Also branded as sport and exercise medicine (SEM), it is a branch of medicine that deals with physical fitness and the treatment and prevention of injuries related to sports and exercise. Although, sports teams always had one team physicians to their rescue on the grounds but it is only since the late 20th century that sports medicine has emerged as a distinct field of health care. The present paper intends to explore, in the above context, the possible contributions of **Avicenna (**930-1037 A. D.) to this field of sports medicine. However, there is no direct reference in Unani classical literature to this effect, though measures like riyazat (Exercise), dalak (Massage) and such others are prescribed for healthy living and have been described in details. Al- Qanun Fil-Tibb (The Canon of Medicine) is world acclaimed medical text book compiled by Ibn-e Sina (Avicenna, 930-1037 A. D.), which has remarkable amount of medical understanding of disease, health and other related states of body. This paper aims at revisiting the references of Al-Qanun Fil-Tibb in relation to sports medicine and at last, the author attempts to find out the ways and means of utilizing the potential of Unani system of Medicine in the field of sports medicine.

Keywords: Sports Medicine, Unani, Riyazat, Dalak, Al-Qanun Fil-Tib, Avicenna

Introduction

Sports medicine focuses on health of sportspersons keeping in mind their specific physical and mental conditions and thus helping them to improve their athletic performance, recover from injury and prevent future injuries. Sports medicine professionals treat athletes, those who want better results from their exercise program, people who have suffered injuries and are trying to regain full function and those with disabilities who are trying to increase mobility and capability. The enormous amount of stress, both physical and mental, under which the sportsman has to work, is a factor which makes the approach of sport medicine exceptional.

The history of sports medicine dates back to 5th century B. C., where Herodicus, one of the teachers of Hippocrates (460-370 B. C) used therapeutic exercises. Hippocrates known as the father of medicine, recommended exercise as one of the means of treatment in most of his writings [1]. Sports medicine has two main objectives. Primarily, fitness of the sportsman and enhancement of physical endurance and second goal is treating the sporting injuries of the sportsman and prevention of future injuries. The injuries of any other kind do not distinctly vary from those of sports, although the etiology and line of treatment may have to be considered with different view. Sports injuries are mainly of two kinds, acute injuries that occur suddenly when playing or exercising like concussions, sprained ankles, strained backs, broken bones, muscle cramps, etc and chronic injuries that happen after a sport or exercise has been done for a long time [2].

Unani medicine is the traditional art of healing recognized worldwide. Unani medicine has got answers to every disease and ailment which makes it parallel to modern medicine in providing healthcare services to mankind. Ibn Sina was born c. 980 in Afshana, a village near Bukhara (in present-day Uzbekistan) and died in 1037 and was buried in Hamadan, Iran [3]. He is regarded as one of the most significant physicians, astronomers, thinkers and writers of the Islamic Golden Age. He has been described as the father of early modern medicine [4].

Al- Qanun Fil-Tibb (The Canon of Medicine) may be considered as the bible of the early medicine, which attempted to coordinate systematically all medical doctrines of Hippocrates and Galen with the biological concepts of Aristotle [5]. The Canon is both epitome and the summation of Greco–Arabian medicine. What Galen did for Romans, Ibn Sina accomplished for the Moslems [6]. The Canon of Ibn Sina is divided into five large books. Each book is divided into treatises (fen), each of which in its turn is subdivided into chapters and sections systematically [5]. The Canon of Ibn Sina consists of approximately a million words and is the most influential

textbook ever written; for six centuries, it dominated the medical schools of Asia and Europe. It is regarded as a law in its field, and the enquiry into Canon is regarded as sacrilege [6]. The medical approach of Ibn Sina is based on the humoral doctrine of Hippocrates, which remained as a medical paradigm dominating Eastern and Western worlds for more than 2,000 years.

Materials & Methods

It is a review study, wherein the famous manuscript of Shaik ur Raess Bu Ali Ibn e Sina (Avicenna), Al-Qanun Fil Tibb (The canon of Medicine) is searched for possible literature related to sports, injuries of sports, regimens including exercise, massage, etc for health living or maintenance of fit body or sport persons. Al-Qanun Fil Tibb is originally written in Arabic language, for the present review study different translations of the book were studied.

Chapter in reference to Fatigue following Exercises [7]

The great philosopher of Unani Medicine, Ibn-e Sina (Avicenna 980-1037 AD) has described the causes and types of fatigue that develops following exercise in his famous treatise al-Qanun fil-Tib (The Canon of Medicine). The concept of fatigue has been simulated by philosophers coming after Avicenna such as ibn-e Nafis and others. It has been mentioned that there are usually three types of fatigues but a fourth types may also be seen. Ulcerous fatigue, tension fatigue, inflammatory fatigue and a fourth type known as desiccatory or dry or asthenic fatigue.

Ulcerous fatigue results from violent movements. Person feels as if ulcers have formed in inner and outer surface of skin. The more severe type of fatigue is that in which the feeling of ulcers come up from the inner part of the skin. Sometimes, this is felt by touch and sometimes the afflicted person feels it while he makes movement. Occasionally there arises a sensation of pricking of thorns and thus the afflicted persons shun all movements and avoid even stretching the body or do so very slowly. When this fatigue is intense the afflicted person feels horripilation and if it increases further, they have rigors and fever. The cause of ulcerous fatigue is the excess of thin and acute superfluities or “liquefaction” of flesh and fat due to violent movements. In short, if the morbid humours diffuse in to the blood vessels, their injury is counteracted by good blood. But, when they get into the skin, they reach there with their original harmfulness. The least of the afflictions caused by such humours is the occurrence of this type of fatigue. If these humours move a little, they cause horripilation and if they make a substantial movement they cause rigors.

Tension fatigue usually develops due to excessive exertion or efforts or from unsound sleep. Person feels as if his body is contused and he also feels heat and tension in the body. Moreover, he dislikes movement even by stretching (of limbs), especially when this fatigue results from (excessive) toil. Tension fatigue is caused by the superfluities which are confined in the muscles. But these superfluities are of good substance and have no irritative effect. Sometimes, this fatigue is caused by gases. These two types are differentiated on the basis of lightness and heaviness. Often, this fatigue results from unsound sleep. If however, it appears after sound sleep, there is likely to be some other cause. It is the worst of all types of fatigues and still worse is the one which stretches the tissues of the muscles very much.

Inflammatory fatigue, the body becomes warm and appears to be swollen, voluminous and discolored. There is aching in both touch and movements with a feeling of tension with it.

Asthenic fatigue develops when strenuous exercise is followed by a restorative and rough massage. Person feels excessive dryness and desiccation in his body. Sometimes it is caused by dry air, malnutrition and fasting.

Chapter in reference to treatment of fatigue caused by exercise [8]

Avicenna emphasized that prompt care is required for the treatment of fatigue for preventing development of several diseases and even fevers. If exercise is the sole reason behind development of ulcerous fatigue, then it must be reduced as soon as the fatigue appears. If, however, excess of humors is an associated cause, the humours should be eliminated. The matter, which reached towards the skin, should be dispersed by excessive gentle massage with oil having no counteracting effect. And restorative exercise should be done on the next day. On first day the food provided should be in usual quality but the quantity should be reduced. The next day some moistening food may be given. If the blood vessels are clear and the im-

mature matter is in the muscular tissues of the fatigued person, massage maturates it, especially if the efficacy of the hot medicines finds an access to it. Oil of white poplar is very useful for this purpose. Similarly oil of dill, chamomile and the like of decoction of beet root prepared with oil and oils of the roots of marsh mallow, squirting cucumber, bryonia alba and rockmoss are all useful.

The aim in treating tension fatigue is to relax what has become rigid. This is to achieved by gentle massage with oil warmed in the sun and by sitz bath with tepid water and the bath is to prolonged so much that even if it is taken twice or thrice a day, it is permissible. Oil should be rubbed after each bath. If because of wiping off the sweat, oil is also wiped off and the application of the oil is again needed, it should be done again. Then a small quantity of moistening food should be given because in this type of fatigue reduction of food is more needed than it is in ulcerous fatigue. This type of fatigue is relieved by exercise and sometimes even by itself.

The aim of treating inflammatory fatigue is three fold: (1) relaxation of the distended tissues; (2) regimen of heat and (3) depletion of superfluity. These aims are achieved by the following methods: (a) excessive application of the warm oil; (b) very gentle massage; (c) prolonged stay in water inclined to warmth and (d) rest.

The treatment of dry or asthenic fatigue is the same as that in the case of healthy persons. But the water with which the patient of dry fatigue should be warmer. It is because the warm water has "thickening (vasoconstriction)" effect on the skin and has no such harm effect of cold water. For, though the cold water also has thickening (vasoconstriction) property, there is always the danger that its coldness might penetrate into the debilitated p[arts of the body. Next day restorative exercise should be performed slowly and gently; the bath should be taken in the way in which it was taken on the first day. Then the patient should be asked to enter cold water suddenly so that his skin might be preserved. A small amount of moistening food should be given at midday so that massage may be carried out once again towards the night. In such cases the evening meal should be delayed and attempt should be made to remove superfluities from the body. Massage should be done with sweet oils. But abdomen is not to be rubbed unless there is a feeling of fatigue in abdominal muscles. If needed, massage is done slowly and gently. Food may be given more (than usual) but care should be taken that it is not very hot.

Ibn-e Sina (Avicenna, 930-1037 A. D.) has clearly mentioned that the fatigue which is caused by exercise does not appear if the exercise is stopped and hence, one should proceed to restorative exercises so that the moderate movements might push the morbid matter towards the skin and the massage at intervals during the course of exercise might disperse it.

Ibn-e Sina has written in Al- Qanun fil-Tibb (The Canon of Medicine) that the condition of the fatigued person is known from the effect of bath on the body. If the bath induces shivering, it indicates that the fatigue has crossed the moderate limit, especially when the bath causes fevers also. In such a case bathing should be stopped and depletion and rectification of the temperament must be tried instead. If the bathing, does not produce any of these symptoms, it is beneficvial provided it is given with lukewarm water. If there are immature humours in the blood vessels of the fatigued person, necessary measures for curing the fatigue should be taken first. Then measures for maturation, attenuation and then elimination of immature humours should be adopted. If these are plentiful, then the person should be advised to take rest and give up exercise because rest itself assists maturation of immature humours. Diet of such patients should include pepper, caper, ginger, vinegar of caper, vinegar of garlic, and vinegar of camel thorn. After maturation of matters and appearance of sediments in the urine, wine should be given to complete the process of maturation and dieresis. Wine must be light and thin.

Chapter in reference to measures against the side-effects of exercises

The after effects of exercises include condensation, expansion, excessive moistening and excessive dryness. These states of body have been described in details. Expansion of the body: very often this results from insufficient massage and from bath. It is treated with a dry massage tending slightly to roughness, the massage is given with an astringent oil. Thickening of the body: this results from cold or any astringent thing or excess or thickness or viscidity of superfluous matters which remain in the skin-pores and were not expelled after exercise. When thickening arises from cold and astringency, the colour of the skin becomes white-bodily warmth returns only slowly-sweating is delayed. Such persons should use hot baths and roll over the moderately hot iron plates or on the floor

of the hot room till the perspiration sets in. they should anoint the body with some light, hot and dissolving oils.

Chapter in reference to diet

On the first day, the diet of the patient must be barley water or the soup of wheat without any oil provided that there is no fever and in case there is fever, only barely water ids to be served. On the next day, the same food with some cooling oil like almond oil should be given. On the third day the diet be such as prepared with lettuce, white pumpkin, country mallow, sour dock and white soup made with sand fish is to be given.

During these days patients should be forbidden to drink cold water as long as it is possible. But if on the third day, thirst becomes unbearable and food is not properly digested, hydromel or some light wine diluted with water should be given. After these depletions, take care not to give them their full diet, for undigested food will be drawn from the vessels. There are three reasons for this:

1. If the food is in small quantity, the stomach greedily holds it and its retentive power resists the attractive power of the liver. But, when food is in plenty, the stomach is not greedy of it and often it helps the attractive power of the liver with its expulsive power. The same holds good with each vessel in relation to that which comes next.
2. If the food is in plenty, it is not digested in the stomach.
3. If there is excess of food, the nutrient matter reaching the vessels will also be in excess. Hence, the vessels will be incapable of digesting it.

Ibn-e Sina (Avicenna, 930-1037 A. D.) has mentioned measures which may be adopted for toning the body and making the debilitated persons strengthened.

Chapter in reference to toning up of body

Ibn-e Sina (Avicenna, 930-1037 A. D.) has mentioned measures which may be adopted for toning the body and making the debilitated persons strengthened.

Persons which are weak and under-developed may be strengthened. The members of the persons who are still in the stage of development and growth may be strengthened by taking nutritious diet and in those persons who have just reached final stage of growth, it can be achieved by moderate massage and exercise which is persistent and suits to the temperament such persons. Holding of breath is also such measures, especially if toning or strengthening of the chest or lung regions is required. For instance, if a man has weak legs, he will be advised to take a short running exercise and given a moderate massage and local applications of pitch. Next day he should have the same amount of massage but increase the duration of running exercise. On the third day massage is given in the same amount as before but the exercise is still increased further in duration.

Chapter in reference to relief of pain

Avicenna has written under this chapter that when pain becomes intense, it may cause death. All the available medicines that relieve pain have the property of changing the temperament or dispersing the matter or causing the insensibility. And they destroy the sensation because of either of the two things;

Discussion

Based on the review of Al- Qanun Fil-'Tibb (The Canon of Medicine), the contributions of Unani system to sports medicine can be described under following heads, namely:

- Unani Drugs
- Unani Regimens
- Diets

Unani drugs can contribute in the following way:

- Unani drugs for enhancement of physical endurance
- Unani drugs for pain/sprain/strain/fractures and other injuries
- Unani drugs for stress alleviation

Unani Regimens which are beneficial to sport persons

- Regimens for enhancement of activity and strength building
- Regimens for cure of injuries
- Regimen for mood relaxing and stress busting

Diets

- Diets for body building and Muscle strength
- Diets for healthy body

Conclusion

Based on the review, it is evident that Unani physician Ibn-e Sina (Avicenna, 930-1037 A. D.) had an expertise in the field of Sports Medicine, he was well aware about the regimens of athletes and Sports Medicine had its presence in the past. All the Unani physicians coming after Avicenna followed him and practiced medicine in the same lines.

An increase in number of sports injury indicates a deliberate need for a better selective, effective, and economic mode of treatment. Unani medicine holds great potential to provide alternatives for the treatment of sports injury. The complete scientific and clinical evaluation of potentials of Unani Medicine is essential to advance the therapies mentioned in the text to mainstream sport medicine.

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Scientific Interpretation of "*Harkat Wa Sukoone Nafsani*" (Mental Activity and Relaxation) - A Review Article

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Summary

Harkat wa Sukoone Nafsani (mental activity and relaxation), the fourth component of *Asbabe Sitta Zarooriya* (six essential prerequisites of health), is described in the texts of Unani Medical Science. Mental homeostasis is essential for mental health as well as physical health. Mental stress and negative emotions are usually the cause of *Kasrate Harkate Nafsani* (excessive mental activity) that release stress hormones, leading to the development of psychiatric as well as psychosomatic disorders especially depression, diabetes mellitus, hypertension, ischemic heart disease, gastro esophageal reflux disease and psoriasis. Some regimens of *Ilaj bit Tadbeer* (regimental therapy) such as aerobic exercises, *nutoo*l (gentle pouring of stream of a liquid over the body), *hammam* (therapeutic bath), *yoga*, meditation, mental catharsis, spirituality etc. may be effective in modulating *Kasrate Harkate Nafsani*. Lack of intellectually challenging task is usually the cause of *Kasrate Sukoone Nafsani* (too less mental activity), resulted in inadequate synaptic plasticity in the specific brain regions, leading to impaired cognitive and intellectual functions. The regimens such as aerobic exercises, solving crosswords, learning of other than mother language and use of left hand in the right handed person modulate *Kasrate Sukoone Nafsani* by stimulating some brain regions. So these regimens may be effective in such case. This component of *Asbabe Sitta Zarooriya* is more relevant in today's stressful lifestyle conditions. This review discusses abnormal *Harkat wa Sukoone Nafsani* and its detrimental effects as well as its management through various regimens.

Keywords: *Harkat wa Sukoone Nafsani*, *Asbabe Sitta Zarooriya*, Psychosomatic disorders, Mental catharsis, Synaptic plasticity

Introduction

Harkat wa Sukoone Nafsani (mental activity and relaxation) is an important component of *Asbabe Sitta Zarooriya* (six essential prerequisites of health) and is more relevant in today's world. Equilibrium in the *Harkat wa Sukoone Nafsani* maintains mental homeostasis. Mental homeostasis is essential for mental health. The disrupted mental homeostasis influences brain functions as well as other system of the body that produces a number of neuropsychiatric as well as other psychosomatic disorders by releasing stress hormones such as dopamine, adrenaline, noradrenaline and cortisol. In which, depression and cognitive decline are very common. To regulate mental homeostasis, a number of modalities are described in Greco-Arab Medicine (Unani Medical Science) as well as other traditional system of medicine. *Kasrate Harkate Nafsani* that is excessive mental activity is usually associated with mental stress and negative emotions. Some regimens of *Ilaj bit Tadbeer* (regimental therapy) such as aerobic exercises, *nutool* (gentle pouring of stream of a liquid over the body), *hammam* (therapeutic bath), aromatherapy, *yoga*, meditation, mental catharsis, spiritual processes etc. may be effective in modulating *Kasrate Harkate Nafsani*. Lack of intellectually challenging task and to stay mentally less active are usually the cause of *Kasrate Sukoone Nafsani* (too less mental activity), resulted in inadequate synaptic plasticity in the specific brain regions. It also produces atrophy in the dentate gyrus of hippocampus, leading to impaired cognitive functions. Synaptic plasticity provides the basis for most models of learning and memory. The regimens such as aerobic exercises, solving crosswords, learning of other than mother language and use of left hand in the right handed person modulate *Kasrate Sukoone Nafsani* by stimulating some brain regions. So these regimens may be effective in regulating *Harkat wa Sukoone Nafsani* as well as mental homeostasis. In this paper review, the scientific basis of *Harkat wa Sukoone Nafsani* and the mechanism to regulate mental homeostasis associated with abnormal *Harkat wa Sukoone Nafsani* in health and disease will be explained with current knowledge.

Materials And Methods

It is a literary study. All the information regarding scientific interpretation of *harkat wa sukoone nafsani* are collected from online journals, research papers and modern medical text books. All the literary materials mentioned were reviewed thoroughly.

Discussion

Both components of *Harkat wa Sukoone Nafsani* are discussed separately.

Effects of *Kasrate Harkate Nafsani*

Harkate Nafsani refers to the activities of brain structures associated with mind, emotions and cognition. *Kasrate Harkate Nafsani* (excessive mental activity) associated with mental stress and negative emotions have profound effects on the structure and function of the brain at the cellular and sub cellular levels. The major areas of the brain most affected by mental stress are the hippocampus, prefrontal cortex, and amygdala, probably because these areas contain abundant glucocorticoid receptors. Additionally, neurons in these regions are known to be highly plastic, both functionally and structurally, in response to repetitive activation. Hence, neurons in the hippocampus, prefrontal cortex, and amygdala are highly sensitive to stressful stimuli, resulting in significant changes in their structure and function.

Depression

The common manifestation of *Kasrate Harkate Nafsani* (excessive mental activity) is depression. Serotonin synthesis may be low in depressed patients can be explained in multiple ways. A reduction in serotonin synthesis may result in depression, depression may result in a reduction in serotonin synthesis, or a third factor may be responsible for both lowering serotonin synthesis rates and triggering depression.

Certain variations in genes, called polymorphisms, may increase risk for depression. Genes can predispose individuals to major depressive disorder in many ways. Genes help control the metabolism of neurotransmitters and their receptors, the numbers of particular types of neurons and their synaptic connections, the intracellular transduction of neuronal signals, and the speed with which all of these can change in response to mental stress. The serotonin transporter gene is the most studied in major depressive disorder. This gene is of interest because it contains a polymorphism that gives rise to two different alleles (long and short). People usually have two copies of each gene in their DNA; therefore, a person can be homozygous for the long allele, homozygous for the short allele or heterozygous (1 long and 1 short allele). The short allele slows down the synthesis of the serotonin transporter. The polymorphism may influence a person's sensitivity to stress.

Serum levels of brain-derived neurotrophic factors (BDNF) in patients with major depressive disorder are abnormally low as well as it is also found low in the hippocampus and prefrontal cortex. Brain-derived growth factor is important for cell growth and for allowing changes in the synapses between neurons (synaptic plasticity) throughout life. Brain-derived neurotrophic factors contribute to these processes primarily by activating DNA-binding factors that stimulate gene transcription.

Corticotropin- releasing hormone is also responsible for depression in mental stress. Mental stress may activates the hypothalamus and the hypothalamic–pituitary–adrenal axis directly, by stimulating local synthesis and release of corticotrophin-releasing factor. Mental stress may also activate this axis indirectly by releasing corticotrophin-releasing factor from neurons in other regions of the brain, including the amygdala.

Dopamine is increasingly thought to play an important role in the pathogenesis of major depressive disorder associated with mental stress. Mental stress perceived by the amygdala increases the levels of dopamine in the prefrontal cortex.

Cognitive decline

Structural changes in the hippocampus, amygdala and prefrontal cortex occur in the person associated with mental stress, leading to impairment in cognitive functions.

Immunosuppressive effects

The immune system may be heavily influenced by mental stress. The sympathetic nervous system innervates various immunological structures, such as bone marrow and the spleen, allowing for it to regulate immune function. The adrenergic substances released by the sympathetic nervous system can also bind to and influence var-

ious immunological cells, further providing a connection between the systems. The HPA axis stimulation ultimately resulted in the release of cortisol hormone, which generally has immunosuppressive effects.

Effects of *Kasrate Sukoone Nafsani*

Kasrate Sukoone Nafsani refers to too less activities in the brain regions associated with mind, emotions and cognition. Like excessive mental activities, excessive mental relaxation also has profound effect on structure and function of brain. Impairment in the cognitive functions and other neurodegenerative disorders such as Alzheimer's disease and Parkinson's disease in elderly persons are the result of *Kasrate Sukoone Nafsani*.

Management

A number of regimens are described in Unani Medical Science to treat illness, resulting from *Kasrate Harkate Nafsani* and *Kasrate Sukoone Nafsani.*

Management of Kasrate Harkate Nafsani

Some regimens of *Ilaj bit Tadbeer* (regimental therapy) such as physical exercise, massage therapy, dietotherapy, aromatherapy, *nutoo*l (gentle pouring of stream of a medicated liquid over the body), *hammam* (therapeutic bath), *yog*a, meditation, mental catharsis, spiritual processes etc. may be effective in modulating *Kasrate Harkate Nafsani*.

Regular physical exercise is the most effective method of relieving stress. Studies indicate that physical exercises can be effective in reducing general anxiety and depression. Physical exercise has been shown to increase levels of serotonin and endorphins.

Massage, especially foot massage decreases mental stress and anxiety because feet contain most of the body nerve endings. Massage increases the levels of serotonin and endorphins.

In dietotherapy, flax seed and nuts (almond and cashew nut) containing omega-3-fatty acids help in the management of mental stress as well as depression.

In Aromatherapy, Essential oils of lavender and rose are anxiolytic and stress buster. It can be used in massage, *hammam* (therapeutic bath). The volatile chemicals of essential oils enter in the body through inhalation by olfactory tract, and through lungs and topically in to the systemic circulation. Essence of essential oils produces mental relaxation by modulating the function of limbic system.

Spirituality is the amalgam of positive emotions. Spiritual practices such as faith in God, Prayer, Forgiveness, Compassion, Hope and Gratitude etc. reduce the feelings of depression and anxiety, and encourage a sense of mental relaxation. By alleviating stressful feelings, spirituality can positively influence immune system, cardiovascular system, endocrine system and nervous system.

Management of Kasrate Sukoone Nafsani

Specific regions of brain grow continuously from the time you are born to the time you die. But you need to know how to exercise the brain. Intellectually challenging task that is reading, learning, solving crosswords, learning of other than mother language, reading the paper upside down, sleeping on the other side of the bed and use of left hand in the right handed person challenge the brain continuously, thus stimulating the existing brain cells, which in turn boosts the cognitive functions by building new brain cells and by strengthening neuronal connections in a brain region linked with this functions. Researcher shows regular complex stimulation keeps the mind healthy and can help ward off dementia and related neurodegenerative diseases such as Alzheimer's disease and parkinson's disease.

Physical exercise may prove as important as intellectually challenging task to stimulate brain cells. It helps to produce new brain cells in the specific brain regions related to cognitive functions. Scientist of a Malaysian university has discovered that postures used during the islamic prayer has significant role in promoting cognitive abilities by stimulating specific brain regions.

Conclusion

This paper reviews the current state of knowledge regarding the impact of abnormal *Harkat wa Sukoone Nafsani* that is excessive as well as too less mental activity on the brain structures and functions as well as associated illness and its management.

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ALSI (*Linum usitatissimum)* Linn.: A Comprehensive Greeco-Modern Review

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Summary

Alsi (*Linum usitatissimum*) are the dried ripe seeds of Linseeds. It is an annual herb about 0. 7 m high with blue flowers and a globular capsules. The seeds are ovate, flattened and obliquely pointed at one end, about 4-6 mm long and 2-2. 5 mm broad. It is a native of Egypt, but it is cultivated in India, Russia, Holland, Great Britain, South Europe and Central Asia. It is described as Demulcent (*Mulattif*)Anti-bacterial (*Daf-e-Jaraseem*), Expectorant (*Mukhrij-e-Balgham*), Emollient (*Mulattif*), Diuretic (*Mudir-e-Bol*), Laxative (*Mulayyan*), Galactagogue (*Mudir-e-Laban*), Emmenagogue (*Mudir-e-Haiz*). And some other important aspect also discussed in this paper.

Keywords: Katan, Tisi, Alsi

Introduction

It is a native of Egypt, but it is cultivated in India, Russia, Holland, Great Britain, South Europe and Central Asia. It is found intemperate and sub tropical parts of the world particularly countries bordering the Mediterranean. It is cultivated throughout India upto 6000 ft high. It is widely cultivated in UP, Bengal in India.[1]

Mutaradifaat (Vernaculars):

Arabic: Bazerul Kattan, Bazarul katan, Bazen, **Brazil**:Linho, **Bengali**:Masina, Tisi **Chinese**:Hou-ta-Tse, Hu-ma-tsze, **English**:Linseed, Blae bows, Common flax, Lyne**Greek**:Linon, **Hindi:**Tisi, Alsi, Sufulsi, **Punjabi**:Alish, Tisi, **Prersian**:Zaghu, Tukhm-e -Zaghira, Tukhm-e-Katan, **Sanskrit:**Uma, Atasi, Chanaka, **Urdu**:Alsi.[2, 3, 4, 5]

Mahiyat (Morphology)

(a) Unani literature:

It is a small cultivated plant; stem is very thin and about 1-2 ft in length. Leaves are thin and flowers are bluish in colour. Calyces (noduler) are gram sized containing numerous seeds. These seeds are smooth and colours may vary from which some are reddish and some are blackish and whitish. Those seeds which are fresh, heavy and thick are better for the extraction of oil. Outer covering of seeds contains a mucilaginous matter.[6]

(b) Ethnobotanical literature:

Linseeds (flax seed) are the dried ripe seeds of *Linum usitatissimum* (linaceae). It is an annual herb about 0.7 m high with blue flowers and a globular capsules. The seeds are ovate, flattened and obliquely pointed at one end, about 4-6 mm long and 2-2.5 mm broad. The testa is brown, glossy and finely pitted. Odourless, taste mucilaginous and oily. If cruciferous seeds are present, a pungent odour and taste may develop on crushing and moistening. Seeds are sown at the end of March and plants flower in June. Stem solitary or few, corymbose type branched, branches ascending towards the apex. Flowers about 2.5 cm across in Corymbose, panicles, sepals 5, the two outer elliptic, acuminate with entire membranous margins while the three inner broader acuminate with ciliate margins, all strongly three nerved, the middle nerve alone reaches the apex.[7]

This plant is propagated from seeds, requires good, ordinary soil and sunny situation for its cultivation. A mixture of sandy loam soil, cow-dung manure, leaf mould and sand is preferable. It is suited to low rainfall area and low elevation in India. Nearly 12 kg of seeds are required for one hectare. Seeds sprout within one week. Crop ripens and harvested in February to March.[8]

The seed coat contains mucilage; the surface is studded with fine pits or depressions with a ridge just below the apex, having the hilum in the hollow. Seed nuclei or cotyledons are two, large and oily and contained within the external covering, within which is a thin mucous envelope.[9]

Linseeds oil is a fixed oil expressed from linseed. It is a clear yellowish brown oil, odour, characteristic, taste, bland. Gradually thickens on exposure to air spread in thin film, a hard transparent varnish.[10]

Distribution

Flax plant is a native of Egypt, extensively cultivated in India, chiefly in Bengal, Bihar and the United provinces.[11]

Cultivated throughout plains of India and upto attitudes of 2000 meters above sea level.

Large quantities of oil are expressed in England, particularly at Hill and on the continent.[12]

It is a native of Europe, Russia, Eastern and Northern Africa, Western Australia, North-Central United States, Argentina, India and Iraq.

Common in most temperate countries, Central Asia and South of Europe.

Hisas-e-Mustamala (Parts used):

Seed, oil and flowers are used.

Mizaj (Temperament):

Garam khushk (Hot and Dry) (Seeds).[13]

Hot at 1^0 and moderate in Wet or Dry.[14]

Miqdar-e-Khuraak (Dose):

10 ½ - 14 masha (Ghani, 2011), 5-20 gms (Anonymous, 1992), ½ -2 ozs.

Taaseer-e-janibi (Adverse effects):

Improper digestion, visual disturbances, decreases blood formation.[15]

It is considered as hurtful to the stomach.[16]

Muslih (Corrective):

Kishneez (*Coriandrum sativum* Linn.)

Corrrectives used for improper digestion, visual disturbances, decreased blood formation are *Punica granatum* (Anar) and Honey. For refractory error *Coriandrum sativum* is used as corrective. For improper digestion Sikanjibeen is used.

Badal (Substitute):

Hulba (*Trigonella foenum graecum*)

Afa'al (Pharmacological Actions):

Demulcent (*Mulattif*) Anti-bacterial (*Daf-e-Jaraseem*) Expectorant (*Mukhrij-e-Balgham*) Emollient (*Mulattif*), Diuretic (*Mudir-e-Bol*)Laxative (*Mulayyan*), Galactagogue (*Mudir-e-Laban*), Emmenagogue (*Mudir-e-Haiz*), Astringent (*Qabiz*), Aphrodisiac: (*Muqavvi-e-Baah*), Anti-Inflammatory (*Muhallil-e-Waram*), Analgesic (*Daaf-e-Dard*), Lithotriptic (*Mufattit-e-Hisat*), Anti-Diarrhoeal (*Daf-e-Isha'l*), Anti-haemorrhoid (*Manae bawaseer*), Sedative (*Musakkin*).

Mahall-e-Istimaal (Medicinal Uses)*:*

Following are the medicinal uses of Alsi.

Renal Colic (*Dard-e-Kulliya*), Cystitis (*Warm-e-Masana*), Vesical Irritation (*Hikka-e-Masana*) Renal Calculi (*Hisaat-e-Kulliya*), Boils (*Busoor*), Rheumatic Swelling (Warm-e-Hudar), Piles (*Bawaseer*), Cough (*Sua'l*), Asthma (*Damah*), Pneumonia (*Zatur-riya*), Pleurisy (*Zatul Janab*), Baldness (*Saafa*), Joint pain (*Wajaul Mufasil*), Gonorrhoea (*Suza'ak*), Gout (*Niqras),* Strangury (*Taqteerul Bole*), Diarrhoea (*Isha'al*), Dysentry (*Zaheer*), Ulcers (*Qarha*), Abscess (*Khuraj*), Burns (*Harqa*), Carbuncles (*Shab-e-Chiragh*), Bronchitis (*Warm-e-Shob*), Leprosy (*Juzam*), Loss of Appetite (*Zof-e-Ishtiha*), Constipation (*Qabz*) and Urinary Disease (*Amraz-e-Baul*).

Phytochemical studies:

Linseed contains about 30-40% of fixed oil, 6% of mucilage, 25% of protein and small quantity of cyanogenetic glucosides, Linamarin and Lotaustralin. Other constituents are phenylpropanoid glycosides, flavonoides, the lignin, pinoresinol diglucoside and the cancer chemoprotective mammalian lignin precursor secoisolarici-resinol diglucoside. The oil contains unsaturated fatty acids chiefly linolenic acid also linoleic. The seeds hold a mucous containing acetic acid and salts, extractive starch, resin, wax, a colouring matter, gum, albumin and principally fine oil.

Organic: Glucoside, Oil, mucilage, Protein, Tannin

Inorganic: Sodium, Potassium, Calcium, Magnesium.

The seed nucleolus contains a fixed oil 30-35%. The epithelium contains mucilage 15%, protein 25%, Amygdalin, resin, wax, sugar and ash 3-5%. The ash contains phosphates, sulphates, chlorides of potassium, Calcium and Magnesium.

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Sapistan (Cordia latifolia Roxb.): A Panacea for Respiratory Disorders

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Summary

Sapistan is chief component of well known traditional Unani formulation 'Joshandsa' used widely for nazla, zukam and other seasonal respiratory disorders. It is small deciduous tree growing nearly all over India and especially in Bengal. It has 13-14 meter high branchlets glabrous, leaves ovate or oblong sub-three nerved. Depending upon the size of fruit, it is of two types i. e Rai Gond and Kath Gond. Present paper bears Some important aspects like basic introduction, Mutaradifat, Mahiyat, Afa'al, Mahall-e-Istimaal, Taseer-e-Janibi, Musleh, Badal, Miqdar-e-Khuraak, phytochemical and modern Pharmacological studies of Cordia latifolia Roxb.

Key words: Sapistan, sag pistan, Lasora

Introduction

It is a small deciduous tree growing nearly all over India and cultivated in Bengal. Sebestan or Sapistan is an abbreviation of sag pistan, derived from sag, a dog and pistan, dugs. The fruit resembles bitches dugs in shape. Dibk and mukhitah means mucilaginous, in allusion to the glutinous character of the pulp.

Mutaradifaat (Vernaculars)

Arabic Dibk, Mukhitah, Dibka, Mokhitah, Dabk, English Sebestan plum, Hindi Lasora, Bara Lasora, Bhairala, Bhokar, Lessora, Rasalla, Bahera**,** Sanskrit Selu, bahu vara, Urdu Lasora, Persion Sapistan, Sag pistan, Sabistan, Slesha mtaka, Sapistan.[1]

Maahiyat (Morphology)

(a) Unani literature:

It is a medium sized tree; colour of the bark is whitish while the branches are green in colour. Leaves are large and round shaped.[2]

Sapistan is a fruit of the tree. The tree is of two types, one type of tree have a large fruit known as Rai Gond. And the other tree having small fruit called Kath Gond. This tree consist of many branches which are pale red (surkhi maa'il bhura) in colour. Flowers are found in clusters form. Fruit get ripened in the month of Baisakh to Asarh.[3]

(b) Ethnobotanical literature:

A moderate sized, deciduous tree, 13-14 meter high branchlets glabrous, leaves ovate or oblong sub-three nerved, glabrous above, corymbs lax many fid, calyx glabrous or minutely pubescent without lobes hairy withen berry 3/4 in ovoid, sub acute, one seeded. It is a green cylindrical about 2.5-5 cm long and 2-3 mm in diameter. The surface is smooth without any hairs. It is simple stalked hard stiff varying in shape from elliptic-lanceolate to broad ovate, base rounded, margin slightly dentate, lamina 4-10 cm in diameter.

Dry fruit a drupe, irregular, oblong, darkish, brown, surface rugous and highly wrinkled. In size, resembling Jaiphal, rind tough and sticky, pulp not easily separable from the seed, odour like that of cassia pulp, or decayed date, taste mucilaginous rather acidous and disagreeable.[4]

Distribution

It is found throughout India, Egypt, Cochin, China, Australia, Punjab, Ceylon. It is found in sub-Himalyan

tract from the Chenab to Assam, assendng to 1800 meters Bengal, Burma, Sindh, Western, Central and South India.

Hisas-e-Mustamala (Parts used): Fruit, its mucilage, kernal and Bark.[5]

Mizaj (Temperament): Moderate.[6]

Miqdaar-e-Khuraak (Dose): Decoction of the fruit or bark (1 in 10), 1-2 oz OR 30 Pieces.

Taaseer-e-Janibi (Adverse effects): For Stomach & liver.[7]

Musleh (Correctives): Gul-e-Surkh For cold temperament & For Liver Unnab or Sheer-e-Amla.

Badal (Substitutes): Khatmi is used as a substitute in various respiratory diseases.

Khatmi (*Althaea officinalis*) or Unnab (*Zizyphus jujube*) a substitute of Sapistan.

Afa'al (Pharmacological actions)

Qabiz (Astringent), *Mulattif* (Demulcent), *Mudir-e-Bol, (*Diuretic), *Musakkin* (Sedative) *Mulayyan (*Laxative), *Musakkin-e-Alam*(Analgesic), *Qatil Kirme-shikam* (Antihelmenthic), *Daaf-e-Fatar* (Anti-fungal), *Muqawwi*, *(*General Tonic), *Mudir-e-Safra* (Cholegogue), *Amraz-e Sadar* (Chest infection), *Daaf-e-Humma* (Anti-pyretic)[8, 9, 10, 11]

Mahall-e-Istimaal (Medicinal uses)

Sual (Cough), *Khushunat-e-Halaq* (Sore-throat), *Damah (*Asthma), (*Mukhrij Kirm-e-Shikam* (Vermifuge), Tadia Majra-e-Bole (UTI), *Zatul Ria (*Pneumonia), *Daul Hayya* (Baldness), *Warm-e-shob* (Bronchitis) *Amraz-e-Safravi (*Bilious affection) *Amraz-e-Sadar* (Chest affection), *Humma* (Fever)*Suda* (Headache) *Zakhm* (Ulcer), *Zatul Janab* (Pleurisy), *Qabz* (Constipation)[12, 13, 14, 15]

Phytochemical studies

The pulp of the fruit contains sugar, gum, extractive matter, ash; bark contains a principle allied to cathertin.

Organic: Carbohydrates, Phenolies, Tannins, Steroids.

Inorganic: Iron, Magnesium, Calcium, Potassium, Sodium.

Antimicrobial studies

In view of its attributed medicinal significance and availability as an indigenous resource, studies on the fruits of C. latifolia were undertaken as a result of which four new aromatic compounds including three esters and one acid have been isolated and their structures elucidated through spectral studies including extensive 2D-NMR (COSY, NOESY, J-resol, HMQC, HMBC) experiments. Their inter-relationship was also established through chemical transformations. The structures of these have been arrived at as O-n-butyl-2-hydroxy-3-(4-hydroxy) phenyl- propionate(1), O-ethyl-2-hydroxy-3-(4-hydroxy)-phenylpropionate (2), O-methyl-2-hydroxy-3-(4-hydroxy)-phenylpropionate (3) and 2-hydroxy-3-(4 methoxy)-phenylpropionic acid (4). Compounds 1–4 were screened for various biological properties, such as antibacterial, larvicidal and antioxidant activities. The bacteria tested included 15 Gram positive bacteria (Staphyl ococcus aureus, Staphylococcus aureus AB 188, Staphylococcus epidermidis, Staphylococcus saprophyticus, Streptococcus pyogenes, Streptococcus fecalis, Streptococcus pneumoniae, Bacillus cereus, Bacillus subtilis, Bacillus thuringiensis, Micrococcus lysodeiktieus, Micrococcus luteus, Listeria monocyto-genes, Corynebacterium xerosis, Corynebacterium hoffmanii) and 14 Gram negative bacteria (Pseudomonas aeruginosa PA0286, Salmonella typhi, Salmonella paratyphi A, Salmonella paratyphi B, Shigella flexneri, Proteus mirabilis, Proteus vulgaris, Escherichia coli, Klebsiella pneumoniae, Shigella boydii, Shigella dysenteriae, Enterobacter cloacae, Mycobacterium smegmatis and Mycobacterium fortuitum). Thesewere also tested against Mycobacterium tuberculosis. No significant activity noted against any of these. These compounds, however, showed larvicidal activity (1500 ppm) against 4thinstar larvae of the yellow-fever-transmitting mosquito Aedes aegypti. It may be noted that larvicidal activity of another phenylpropanoid derivative from Cordia alliodora has also been noted earlier. Compound 4 exhibited18. 38% antioxidan t activity at 100 mg/mL concentration.[16]

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CONGRESS NEWS

2nd International Congress on the Turkish History of medicine

It was held in Afyon during 25-29 October, 2018.
Contact: ayseguldemirhanerdemir@gmail.com

Dr. Ana Maria Rosso
(Afyon Congress)

Prof. Dr. Aysegul Erdemir
(Afyon Congress)

Prof. Dr. Nil Sarı
(Afyon Congress)

XI. Lokman Hekim Tıp Tarihi ve Folklorik Tıp Günleri

XI. Lokman Hekim Tıp Tarihi ve Folklorik Tıp Günleri will be held at Kırşehir in Turkey during 18-21 June 2019.

Contact:
Prof. Dr. Selim Kadıoğlu
selimkad@gmail.com

8 th International Congress of the International Society for the History of Islamic

8 th International Congress of the International Society for the History of Islamic Medicine will be held in Istanbul during 14-16 November 2019 in İstanbul. Istanbul is a historical City of Turkey.

The objective of the congress is the exchange of information and ideas on subjects including the historical development of Islamic medicine and its contribution to world medicine; interaction between Islamic and Western medicine; the development of medical education and the development of health institutions and medical associations in Islamic societies; the diagnosis and treatment of diseases in Islamic medicine; Islamic medical ethics; knowledge of historic figures who have contributed to practice and literature in the field of health in the Islamic countries; the place of the Turkic world in Islamic medicine; research and presentation of manuscripts, rare printed works and archive documents relevant to the history of Islamic medicine; preparing a union catalogue of manuscripts and early printed medical books in the world libraries; and the conservation of historic buildings that have played a part in the history of medicine. Congress languages are English and Turkish. The main goal of the congress is to study and discuss Islamic **Medical History, Turkish Islamic Medical History and Medical Ethics** considering several topics. We hope to get the desired results discussing the papers and studies of our colleagues analyzing these topics in depth. We will be proud of being with you three days in the congress in Istanbul, a famous Turkish city.

Congress Co-Presidents
Prof. Dr. Aysegül Demirhan Erdemir

Contact
ayseguldemirhanerdemir@gmail.com

8.ULUSLARARASI İSLAM TIP TARİHİ VE ETİĞİ KONGRESİ
THE 8 th INTERNATIONAL CONGRESS OF ISLAMIC MEDICAL HISTORY AND ETHICS

14-16 Kasım 2019 - 14-16 November 2019
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Maltepe University, Medical Faculty, Department of Medical History and Ethics Tıp Etiği, Tıp Hukuku ve Tıp Tarihi Derneği
Society for Medical Ethics, Law and History
Uluslararası İslam Tıp Tarihi Derneği,
International Socıety for The History of Islamic Medıcıne (ISHIM)

Kongre Eş-Başkanları - Congress Co-Presidents

Prof. Dr. Ayşegül Demirhan Erdemir (Maltepe Üniv, Tıp Fak, Tıp Tarihi ve Etik ABD)
Doç. Dr. Gülbiz Sezgin (Maltepe Üniv., Tıp Fakültesi İç Hastalıkları ABD)
Prof. Dr. Öztan Usmanbaş (İstanbul Üniv. Tıp Fakültesi, Tıp Tarihi ve Etik ABD Eski Başkanı)

Özet Son Gönderme Tarihi
Deadline for Abstracts:
10 Temmuz 2019-July 10, 2019

İSTANBUL-TÜRKİYE

İletişim/Contact:
Prof. Dr. Ayşegül Demirhan Erdemir
ayseguldemirhanerdemir@gmail.com

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