

# **An Early Glimpse at Western Medicine in Jerusalem 1700-1840: The Case of the Jews and the Franciscans<sup>9</sup> Medical Activity**

Zohar Amar and Efrain Lev

## **Summary**

During the Mamluk and Ottoman periods, the monks of the Franciscan Order were the only representatives of the Catholic Church in Jerusalem and they provided medical treatment for Christians.

This article looks at the activities of the Franciscans, in particular in their pharmacy, which was associated with the production of Jerusalem balsam, famous both in the East and in Europe.

It compares these activities with those of Jewish physicians in Jerusalem and looks at the relationships between the two groups and their effects on medical development in the Levant.

## **Résumé**

Pendant l'époques Mameluk et ottomane, les moines de l'ordre franciscain étaient les seuls représentants de l'Eglise catholique à Jérusalem et ils délivraient les traitements médicaux aux chrétiens.

Cet article examine l'activité des Franciscains, en particulier dans le domaine de la pharmacie, laquelle était associée à la production du balsamique de Jérusalem, célèbre en Orient et en Europe.

L'activité médicale des Franciscains est comparée à celles des médecins juifs de Jérusalem et l'article s'intéresse aux relations réciproques entre ces deux groupes ainsi qu'aux effets produits sur le développement médical dans tout le Levant.

## **The Standard of Medicine in Jerusalem**

The Ottomans seized the Holy Land from the Mamluks in 1516 and ruled it until the British conquest in 1917, during the First World War. At the beginning of the Ottoman period, the population in the Holy Land began to show signs of recovery. For nearly half a century, the country demonstrated appreciable demographic and economic growth, the product of the vigorous rule of a new, efficient administration. During the reign of Sultan Suleiman the Magnificent (1520-1566), Jerusalem enjoyed a surge in building and in expansion of construction for both secular and sacred purposes.<sup>1</sup>

But by the end of the sixteenth century, the Ottoman Empire had begun to decline, a process that also affected the standard of medicine in the Holy Land. Medical techniques practiced in the country were, in fact, the continuation of the ancient Hippocratic-Galenic system, adopted and refined by Muslim medical science in the Middle Ages. Under the Ottomans, it was hard to find in this region important centres that boasted scholars of stature.

The French traveller M.C.F. Volney visited the Holy Land around 1785. He painted a bleak portrait of the status of medicine in Syria and Egypt at that time. Although his statements seem somewhat extreme, he was apparently not far from the truth:

*"Scarcely can we meet with one of the latter who knows how to bleed with a fleam; when they have ordered a cautery, applied fire, or prescribed some common recipe, their knowledge is exhausted; and consequently the valet de chambre of an European is consulted as an Esculapius; where indeed should physicians be formed, since there are no establishments of the kind?"<sup>2</sup>*

## **Medical Activity of the Franciscans in Ottoman Jerusalem**

### **The Franciscan Medical Institution**

An important factor that contributed to the introduction of European medicine in the Holy Land was the Franciscan activity, conducted in Acre, Nazareth, Bethlehem and especially Jerusalem. In this article, we concentrate on the Franciscans' pharmacy in Jerusalem, believed to be the largest in the Near East.

The medical activity of the Franciscans in the Holy Land lasted until the twentieth century. Here, we focus on the seventeenth and eighteenth centuries, the height of the operation of the Franciscan medical centre in Jerusalem, which was in decline in the 19<sup>th</sup> century, as may be learnt from Dr. Titus Tobler's accounts.<sup>3</sup> Evidence for the flourishing of this institution is the variety of medications from all over the world that were available there, a staff of certified pharmacists trained in Europe, and modern medical equipment. Since there was no other pharmacy in Jerusalem, this one served people of all Christian denominations and distributed medicines free of charge.<sup>4</sup> The monastery also had at its disposal a library containing a wealth of professional medical literature of the European school.<sup>5</sup> They applied new techniques in medicine in general, and military medicine in particular, but this had no effect on the state of medicine in Jerusalem.<sup>6</sup>

The first evidence of a special hospital for the Christian community dates from the beginning of the sixteenth century. It seems that most of the Christian population used the services of either the public hospital or private medicine. Apparently some of the monasteries and Christian institutions around Jerusalem offered their services as well, but we have no information about a Christian institution of healing with a clearly functional apparatus. True, at the end of the Mamluk period the

Franciscans on Mount Zion did have a hospital, but this was largely designed to serve pilgrims<sup>7</sup> and it functioned primarily for welfare and charity. The lack of a proper Christian medical institution, coupled with the Christian doctrine that one must avoid seeking assistance from Jews and Muslims, seems to have contributed to the development of the Franciscan healing institution in Jerusalem during the Ottoman period.

The Franciscan researcher Bagatti asserts that the pharmacy is first mentioned in 1620.<sup>8</sup> It continued to develop during the seventeenth century. One of its famous staff members, the monk Antonio Menzani di Cuna, deserves mention: he served as physician and pharmacist in Jerusalem for 43 years (1686-1729).<sup>9</sup>

The Franciscans, who did not engage in medicine in Europe, had no alternative, while stationed in Jerusalem, but to provide medical care for Catholic pilgrims to the Holy Land. At first, monks who were qualified as physicians, pharmacists, surgeons, and nurses were sent to Jerusalem. Most were from Italy, but a few arrived from other European countries such as France, Spain, and even Czechoslovakia.<sup>10</sup>

The patients were treated and hospitalized at the boarding house for the poor, located in the Christian quarter of the Old City, separate from the monastery. This location was called Dar Isthak Bek, in Arabic and Casa dei Principi, in Italian. According to Tobler, it contained about twenty rooms by the mid-nineteenth century, and accommodated an indefinite number, never exceeding one hundred, of poor and sick Catholic pilgrims. Only a few patients were housed in the monastery."

The dispensary, which served the members of all communities and religious faiths in Jerusalem, developed rapidly into one of the largest of its kind in the East. It contained a wide variety of medications and was run by a staff trained in modern European institutions.<sup>12</sup> The dispensary became famous for its innovative medicines, especially for the "*Jerusalem Balsam*", mixed by secret formula and containing forty different medicinal ingredients. An impressive medical library and a spacious, modern European-style pharmacy were at the disposal of the medical staff.

#### **The Medical Staff at the St. Saviour Franciscan Monastery in Jerusalem**

A large number of medical practitioners served in the Franciscan medical institutions in Jerusalem until the 19<sup>th</sup> century, most of them having been sent from Italy, whither they returned at the end of their period of service. They had access to a richly stocked medical library and a dispensary.<sup>13</sup>

The number of physicians who worked within the framework of the Franciscan monastery was never fixed and was contingent on the professional workforce that had been sent to Jerusalem. In the first third of the eighteenth century, there were four physicians in service,<sup>14</sup> but there were also times when there was no physician at all at the monastery. In such a situation, the medicines at the Franciscan pharmacy were supplied without a doctor's prescription or by prescriptions written by physicians belonging to another ethnic community, including Jews.<sup>15</sup>

No complete and systematic documentation is available about the medical staff that served in the Franciscan Order in general, and in Jerusalem in particular. The information set forth here is fragmentary and in the main relates to figures who died in Jerusalem. In other words, only those documented in the Jerusalem Franciscan death certificates are referred to here, and it is certain that, in the seventeenth and eighteenth centuries, a larger medical staff was employed there.<sup>16</sup> In effect, apart from these data, we have hardly any other information about the medical staff's mode of work. The list consists of seven physicians, eight nursing brothers, and nine staff members trained in a profession akin to pharmacy (some of these individuals worked as both physicians and pharmacists).<sup>17</sup>

#### **The Franciscan Pharmacy**

Elzear Horn, a Franciscan monk of German origin who resided in the Holy Land from 1724 to 1744, describes at length the Franciscans' pharmacy, which he avers was one of the finest in the entire Christian world:

In the stores of this pharmacy one could find a wide variety of drugs: spices, flowers, peels, roots, seeds in glass jars or wooden containers, oils, perfumes and precious stones...The medical materials were purchased with the help of contributions from philanthropists from all over the Christian world, particularly Venice... The pharmacy included labs with medical and apothecary devices such as distilling equipment and surgical instruments... The pharmacy was administered by two friars, at least one of whom had professional training... The drugs were given with a doctor's prescription if a doctor was available... The pharmacists were called upon to demonstrate a high level of proficiency in their work, which included recognizing the medical drugs according to characteristics such as hardness, colour, and weight, as well as correctly defining the precise dosage required.

The pharmacists had to know how to store the medicines for prolonged periods against any possible damage and to seal the jars against evaporation. They

had to replace them after the expiry date every few months or years, depending on the nature of the medicine. The work of the pharmacist required knowledge of many crafts: distilling, separating, macerating, mixing ingredients, pouring liquids, etc.<sup>18</sup>

The medicinal substances were kept in glazed earthenware jars (most made by the majolica technique) and elaborately adorned with identifying marks of the *materia medica*. These jars were donated from Italy to the monastery during the period that the pharmacy was in operation. They can be dated by a comparative typological analysis and according to the date stamped on the bottom of some of them. At present, the Monastery of the Flagellation in Jerusalem possesses some 200 of the 449 pharmacist's jars that were catalogued.<sup>19</sup>

In fact, the Franciscan pharmacy of Jerusalem, in its arrangement, decoration, medicines, books and instruments, was absolutely identical to other pharmacies operating in the same period in the main Italian cities and in several cities in Spain.<sup>20</sup> The Franciscans actually copied the European model of a pharmacy in every detail and moved it to Jerusalem. In this manner the monastery and the pharmacy became a Western pharmacological "island" in the Eastern Galenic "ocean".

The Franciscan pharmacy of Jerusalem was well known mainly due to its unique innovation —Jerusalem balsam — which was considered one of the most desirable and famous medicines ever prepared. From the historical sources we learn that it was a fluid smearing substance, which was invented, compounded and marketed in Eastern countries and even in Europe, by Franciscan monks from their Jerusalem pharmacy.

The inventor of this prestigious potion was Anthony Menzani of Cuna (1650-1729), the physician and pharmacist already mentioned above as in the service of the monastery for 43 years (1686-1729).<sup>21</sup> Many of those who used Jerusalem balsam attested to its efficacy in curing disease and preventing epidemics. The use of Jerusalem balsam was also known in Acre, Beirut, and more distant places such as Constantinople and Palermo. Its formula was a closely guarded secret, and it was compounded from plants that grew in the Jerusalem region or that could be obtained in Jerusalem. Among its dozens of ingredients were spices used in the Temple incense, such as myrrh and frankincense, and medicinal drugs imported from Europe.<sup>22</sup>

Jerusalem Balsam has been the subject of many articles,<sup>23</sup> recent investigation including collection of different formulas, choosing the most original one, the laboratory manufacture of this formula, and clinical tests for its medical effects.<sup>24</sup>

The Swedish botanist, Frederick Hasselquist, who visited the institution in 1750, also describes with some emotion the pharmacopoeia of the Franciscans in Jerusalem, which contained a rich storehouse of potions and medicines:

*"It was amazing to see what quantities of the dearest drugs their magazine contained. All sorts of balsams were to be found here, to the value of some thousand piasters. Here were several pounds of valuable Mumia materials from Persia, which is sold at three ducats. The Indian and American drugs come all from Spain and are chiefly given as presents... The whole pharmacopoeia is valued at 100,000 piasters".*<sup>15</sup>

In 1806, the German traveler Jasper Ulrich Seetzen was impressed by the monks' garden where these medicinal substances were produced, and noted that he received *"two bottles of real Balsam with written indications of its qualities"*.<sup>26</sup>

#### *Materia Medica* in the "Biggest Pharmacy in the Levant"

New documents, which were found and loaned for research by the Franciscan monks in Jerusalem, shed fresh light on the Franciscan pharmacy. The documents include inventories of the stock of the pharmacy. Two of them, the inventories of 1755 and of 1798, are complete, are now undergoing research, and will be published soon.<sup>27</sup> The materials listed are at present undergoing intensive transcription and identification, but this work will take a long time, due to its complexity. It is being performed by an interdisciplinary team, headed by the authors.

A first deciphering of the 1755 list shows that the pharmacy had 679 medical materials in stock. This list is apparently special since it contains materials used in eighteenth-century Europe, some of which were brought from Asia and Africa, and from the New World —America.

The fortunate patients who were admitted to the Franciscan medical facilities in the seventeenth and eighteenth centuries received good treatment from European-trained physicians and were provided with the latest medications, all of European standard. One example of a medication originating in the New World that was introduced into use by the Franciscans is quinine (*Cinchona sp.*). Horn, in the first half of the eighteenth century, notes that quinine (which he refers to as 'China-China') was used for cases of malaria and had proven its efficacy.<sup>28</sup> R. David de Silva also attests that he used it: *"China-China ...I tried it because it is good for all types of fever and catarrh and for all kinds of the cold*

diseases".<sup>21\*</sup> Other medicinal substances originating in the New World were used on account of the influence of the western-oriented physicians. Among the most interesting facts appearing in contemporary sources are references to new edible and medicinal plants that spread through Europe and the East following the discovery of America. Some of these plants were introduced to the world of traditional medicine and even reached Jerusalem. Thus, we are made aware of the first signs of a pharmacological impact on the city from the west. In this category, we include Ipecac (*Cephaelis ipecacuanha*), Guaiac (*Guaiacum sanctum*), Tobacco (*Nicotiana tabacum*), Soapwort (*Sassafras officinale*), Sarsaparilla (*Smilax sp.*), Cacao (*Theobroma cacao*), and Quinine (*Cinchona sp.*).<sup>30</sup> There are more examples of the use of new medicinal substances in Jerusalem but the overwhelming majority of medications sold in early Ottoman Jerusalem were still defined as traditional medical substances and were used according to the Galenic-Arabic doctrine.<sup>31</sup>

#### **An early glimpse of western medicine in Jerusalem**

The influence of western medicine on Muslim medicine began to show results in the seventeenth century. This was expressed, for example, in the Muslim medical literature, in references to new western medications and in the translation of western medical treatises.<sup>32</sup> In any event, the "new scientific" medicine was unknown anywhere in the Ottoman empire in the eighteenth century, and began to be a real force only in the last quarter of the nineteenth.<sup>33</sup> Non-Muslim physicians who had received their training in Europe and visited the east, also contributed to the introduction of western medicine into the Orient, some of them living for extended periods in this area.<sup>34</sup> These foreigners were warmly welcomed by the government, owing to the shortage of skilled Ottoman physicians.<sup>35</sup>

#### **Western Jewish physicians**

Especially noteworthy is the immigration of many Jewish physicians from Spain, Portugal, and Italy, particularly to Constantinople. Many of them had studied at the Christian universities of Europe, such as Padua and Pisa, and later, the University of Leiden. They brought extensive knowledge of eastern as well as western medical science. These Jewish physicians were incorporated into the imperial service and some earned the privilege of an appointment as personal physicians to the various sultans. Official Ottoman records show that the medical profession was dominated by Jews. Jewish physicians exceeded Muslim and Christian physicians,

relative to their proportion in the population.<sup>36</sup> Great importance must be attributed to this factor, in respect of how to date the introduction of modern western medicine into Jerusalem, in particular and the Holy Land in general, during the Ottoman period.

The advent of European medicine to the Holy Land was expressed in medical literature written or used by Jewish physicians from Europe, during their stay in the country. For example, in the medical treatises of R. Hayyim Vital, Tobias Cohen, R. Refael Malki and R. David de Silva, we find that a considerable number of the names of medicines and diseases appear in foreign languages, Spanish, Portuguese, Italian and Latin, occasionally with some Arabic or Turkish.<sup>37</sup> These physicians used terminology in European languages during their practical work as well. Nonetheless, most of the *materia medica* that they mention is still part of the inventory of traditional medicine<sup>38</sup> and only a small share represents medicines from the western world.

The "distinguished physicians" who came from central and Western Europe had received their training at different universities, particularly at Padua. They were witness to a significant transformation in the study of medicine at the prominent universities in Europe, a shift to the principles of scientific empiricism, which represented the precursors of modern medicine as we know it today.<sup>39</sup>

#### **Franciscans and Jews in Jerusalem: Western Medicine as a Bridging Factor**

It appears from many late mediaeval sources that a continual state of hatred and tension existed between the Franciscans and the Jews in Jerusalem, on theological grounds.<sup>40</sup> Nevertheless, life in the quarters of Jerusalem, and contact between Jews and the "custodians" and Christian pilgrims residing in the city led to business interactions and sometimes even to ties of personal friendship.<sup>41</sup>

One of the mediating factors that served as a bridge between Franciscans and Jews was the medical profession. As noted above, during the Ottoman epoch, many doctors were present in Jerusalem who had received their training at European universities such as Padua and Leiden, although only some of these Jewish doctors actually engaged in this profession in Jerusalem.<sup>42</sup> The Franciscan doctors had also trained at those same universities in Europe, and the institution to which they belonged provided regular medical services. In any event, Jews and Christians of European origin found a common language on the basis of their cultural and intellectual identity, which gained expression in their choice of medical treatment. These people preferred the

more advanced European methods rather than relying on the traditional medical services of the Arab-Galenic kind that still predominated in Jerusalem and in the entire Middle East in Ottoman times.

Even Christian legislation, which restricted cooperation with the Jews, did not withstand the test of real-life experience. For instance, the Franciscan monk Francisco Quaresmio, who served in the Holy Land from 1616 to 1626, noted that Franciscans in the country were forbidden to receive medications from Jewish hands, except in unusual circumstances.<sup>43</sup> However, this was apparently merely a church guideline that was occasionally reiterated but never actually enforced. In the annals of the Franciscans for 1625, it is told that a Jerusalem judge once offered the monks a Syrian physician, but they claimed that they had no need for him because they had already employed a Jewish doctor. Nevertheless, they were charged with payment for the salary of the Syrian physician in the amount of 60 grush per month, even though he did not serve them.<sup>44</sup> Besides showing the repressive policy of the local rulers in Jerusalem, we learn from this incident that a Jewish physician could be employed by Christians without hindrance, and that the guiding principle was his professional expertise. The treatment of local Christian patients by Jewish doctors seems to have been a matter of routine practice,<sup>45</sup> and it is evident that members of the Franciscan monastery even preferred the services of the European Jewish physicians. Below are some typical examples of this.

Elazar Horn, the aforementioned Franciscan monk, testifies, as noted earlier, that when he became ill with dysentery he employed the services of an old Ashkenazi Jewish physician. The latter had the command of many languages, was a graduate of the medical school at the University of Padua, Italy, and was then living in Jerusalem. On 8 August 1729, this physician was called to the Franciscan hospital, and by means of his medical instructions, the monk was out of danger within a day. In his book, Horn even mentions the exact prescription that the physician had written down in Latin interspersed with Italian and Spanish. According to Horn, this physician died a few months afterwards from an incurable disease.<sup>46</sup> Horn does not note the physician's name but, in view of all the details transmitted, it seems quite certain that the reference is to Doctor Tuvia. He was an elderly and important doctor, a graduate of Padua University and a central figure in the Jewish community of Jerusalem. His death in 1729 is known from other sources.<sup>47</sup> Rabbi Tuvia ha-Cohen ha-Rofe (1652-1729) was considered one of the greatest Jewish doctors of that period. He was the

physician of one of the ministers of the Ottoman Sultan. In 1701, he completed his medical treatise *Ma'asei Tuvia* (published in Venice only in 1708), regarded as one of the most important scientific works written in his time. In his old age he went to Jerusalem, where he resided until he died.<sup>48</sup>

At times, warm and friendly relations developed between the members of the Franciscan order and Jews of European origin. Rabbi Moshe Hayim Capsuto, who visited Jerusalem in 1734, relates how he used to visit the Franciscans very often at their famous pharmacy and enjoyed their warm hospitality.<sup>49</sup>

From later sources, it seems that even Jews sometimes applied for medical assistance from the Franciscan order in Jerusalem. In a letter, Rabbi Hayim David Hazan (1790-1869), the *Hacham Bashi* (head of the Sephardi rabbis in Jerusalem), asked the head of the Franciscan Custodia in Jerusalem that the physician Fray Giovanni be allowed to treat a Jewish girl. This physician was from Trieste and had served as a doctor in Jerusalem and Bethlehem for ten years.<sup>50</sup>

The letter was written on 16 September 1866 and, next to the seal of Rabbi Hazan, there appears the official seal written in Hebrew, Arabic, and Spanish, which indicates his position as *Hacham Bashi* of Jerusalem, Hebron and surroundings.

## Conclusion

The Franciscan Order, which had originated among the European poor, did not engage in the healing arts in Europe. But in the Levant, especially in Jerusalem, the monks of this order were the only representatives of the Catholic Church during the Mamluk and Ottoman periods, and therefore they were obliged to include medical treatment as part of the general services they offered Catholic pilgrims visiting the Holy Land.<sup>51</sup>

The Franciscan pharmacy, which reached its zenith in the eighteenth century, was built according to the accepted European style. In effect, a typical Italian pharmacy was wholly copied and transferred to Jerusalem.

In time, the Franciscan monks became expert in mixing medications, especially Jerusalem balsam, which became famous in the east, and also in Europe, for its unique effectiveness as a medicine. Apparently, specialization in the production of compound medications was a tradition in Jerusalem among the different religious groups. The sanctity of Jerusalem was perhaps no less important in this instance than the quality of the substance and the medical knowledge that resulted in the composition of such medications.

The Jewish and Franciscan physicians symbolized the early flowering of advanced western medicine in the

Holy Land in general, and in Jérusalem in particular. This came to fruition through the supply of practical medical treatment by physicians who had studied at western universities and the preparation of medicines according to the advanced medical doctrines then in use in Europe. One of the typical characteristics was the use of medicinal substances from the New World.

These medicines were prepared by means of special equipment brought from Europe for example in refineries, where medicinal potions were made.

However, the Jewish and Franciscan physicians did not succeed in causing any significant change in the condition of medicine in the Holy Land (or anywhere else in the Ottoman Empire). Their influence was marginal and limited to the larger cities, where traditional medicine still had dominance, and in this sense they were ahead of their time. It seems that only from the mid-nineteenth century onward was it possible to sense any noticeable influence of modern medicine in the Holy Land.<sup>52</sup>

Only from this period do we find hospitals that focused on medical treatment rather than a complex of social welfare activities, as was accepted practice in earlier times. The revised purpose and functioning of the hospital began in Europe in the sixteenth and seventeenth centuries<sup>53</sup> but in Jérusalem, it did not begin until the nineteenth century.<sup>54</sup>

A unique and noteworthy difference between the Jewish and the Franciscan medical activity in Ottoman Jérusalem was that the Franciscans operated as an institution supplying medical services from the outside mainly to the Christian community in the city; by contrast, the large and important Jewish community in the city had its own physicians and medical institutions which had sprung up from within to serve the members of the community.

#### Références

<sup>1</sup> U. Heyd, *Ottoman Documents on Palestine 1552-1615*, (Oxford: Clarendon press, 1960), pp. 146-150; A. Cohen, *The Jewish Community of Jérusalem in the 18th Century*, (Jerusalem: Yad Izhak Ben-Zvi press, 1982), p. 220 [Hebrew]; O. Salama & Y. Zilberman/ 'Jerusalem's Water Supply in the 16th and 17th Centuries,' *Cathedra*, 1986, 41, 91-106 [Hebrew]; A. Singer, "Ottoman Palestine (1516-1800): Health, Disease, and Historical Source", in: M. Waserman and S.S. Kottke (eds.), *Health and Disease in the Holy Land*, (Lewiston, N.Y. : Edwin Mellen Press, 1996), pp. 190-197.

<sup>2</sup> M.C.F. Volney, *Travels through Syria and Egypt in the Years 1783, 1784 and 1785*, (London: Westmead-Gregg, 1972), II, p. 443.

<sup>3</sup> Tobler, *Beitrag*, pp. 12-15; T. Tobler, *Denkblätter aus*

*Jérusalem*, (Konstanz, 1853), pp. 403-404.

<sup>4</sup> E. Horn, *Ichnographiae Monumentorum Terme Sanctae*, E. Hoade & B. Bagatti (eds.), *Studium Biblicum Franciscanum*, No. 15. (Jérusalem: Franciscan press, 1962), pp. 176-178.

<sup>5</sup> See in introduction to Horn, *Ichnographiae*, pp. 6-7.

<sup>6</sup> Levy, *The History*, pp. 12-18.

<sup>7</sup> S. Schein, "Latin Aid Institutions in Ayyubid and Mamluk Jérusalem", in: J. Drory, éd., *Palestine in the Mamluk Period*, (Jérusalem: Yad Izhak Ben-Zvi press, 1992), p. 144 [Hebrew].

<sup>8</sup> B. Bagatti, "Father Anthony Manzazi of Cuna (1650—1729), Inventor of 'The Balm of Jérusalem'", *Franciscan Studies*, 6 (1946), pp. 138, 353.

<sup>9</sup> A. Arce, *Miscelanea de Tierra Santa*, (Jérusalem: Franciscan press, 1950), I, pp. 118.

<sup>10</sup> See, e.g.: Arce, *Miscelanea*, I, pp. 117-120, 324-325; N. Schur, "Franciscan Physicians and Pharmacists in Jérusalem", in: Z. Amar, E. Lev and J. Schwartz (eds.), *Medicine in Jérusalem throughout the Ages*, (Tel Aviv: Eretz, 1999), pp. 99-101.

<sup>11</sup> Tobler, *Denkblätter*, pp. 403-404.

<sup>12</sup> Bagatti, *Father Anthony*, pp. 250-361; A. Cirelli, *Gli Annali di Terra Santé*, (Karachi, 1918), p. 219.

<sup>13</sup> H.R. Schittny, "Die Historische Apotheke der Franziskaner in Jérusalem", *Geschichte der Pharmazie*, 1993, 45, 41-45; Schur, *Franciscan Physicians*, pp. 99-105.

<sup>14</sup> Arce, *Miscelanea*, I, pp. 118-119.

<sup>15</sup> Horn, *Ichnographiae*, pp. 177-179.

<sup>16</sup> According to Arce, *Miscelanea*, I, pp. 117-120, 324-325.

<sup>17</sup> Z. Amar, *The History of Medicine in Jérusalem*, BAR International Series 1032. Oxford, 2002.

<sup>18</sup> Horn, *Ichnographiae*, pp. 176-179.

<sup>19</sup> See, e.g.: *Custodia di Terra Santa 1342-1942*, (Jérusalem: Franciscan press, 1951), p. 194, and the exhaustive research of G. Farris and A. Storme, *Ceramica e Farmacia di San Salvatore a Gerusalemme*, (Genova : Sagep, 1982).

<sup>20</sup> See, e.g.: C. Pedrazzini, *La Farmacia Storica ed Artistica Italiana*, (Milano : Edizioni Vittoria, 1934); A. Corvi and E. Riva, *La Farmacia Monastica e Conventuale*, (Ospedaletto [Pis]): Pacini, 1996); R. Romano and A. Schwartz, *Per Una Storia della Farmacia e del Farmacista in Italy. Venezia e Veneto*, (Bologna: Edizioni Skema, 1981); G.F. Jou and L. Agromayer, *Farmacias de Espana*, (Barcelona ; Madrid : Lunwerg Editores, 1986).

Schittny, *Die Historische*, p. 44; Horn, *Ichnographiae*, p. 180.

Bagatti, *Father Anthony*, pp. 250-361.

<sup>23</sup> See: *ibid.*, p. 355; Schittny, *Die Historische*, pp. 43-44; Cirelli, *Gli Annali*, p. 219; Schur, *Franciscan Physicians*, pp. 100-101.

<sup>24</sup> A. Moussaieff, E. Frede, Z. Amar, E. Lev, D. Steinberg, R.

Galily and R. Mechuolam, "The Jerusalem Balsam: From the Franciscan Monastery in the old city of Jerusalem to Martindale 33", *Journal of Ethnopharmacology* 2005 (forthcoming).

<sup>25</sup> Hasselquist, *Voyages*, p. 135.

<sup>26</sup> U.J. Seetzen, *Reisen durch Syrien, Palestina etc.*, Fr. Kruse (ed.), (Berlin, 1854), II, pp. 205-206.

"INVENTARIO DI QUANTO si ritrova nella Spezieria di S.SALVATORE, in GERUSALEMME Anno 1755, die 22. Aprilis" and "INVENTARIO DE LA SPECIARIA DE SAN SALVADOR, Anno 1798". The authors would like to express their gratitude to St. Salvador convent for these sources.

<sup>28</sup> Horn, *Ichnographiae*, p. 181.

De-Silva, *Pri Hadass*, p. 44b.

<sup>30</sup> Amar, *The History*, p. 89.

Tobler, *Beitrag*, pp. 15-16.

H. Isaacs, "The Impact of Western Medicine on Muslim Physicians and Their Writing in the 17<sup>th</sup> Century", *Bulletin of the British Association of Orientalists*, 1979-1980, 11, 52-57.

<sup>33</sup> Murphey, *Ottoman Medicine*, pp. 379, 397-398.

<sup>34</sup> Isaacs, *The Impact*, p. 56.

<sup>35</sup> Murphey, *Ottoman Medicine*, p. 384.

<sup>36</sup> U. Heyd, "Moses Hamon, Chief Jewish Physician to Sultan Suleyman the Magnificent", *Oriens*, 1963, 16, 152-170; B. Lewis, *On History (Collected Studies)*, (Jerusalem, Yad Izhak Ben-Zvi press, 1988), pp. 223-234 [Hebrew].

<sup>37</sup> See comment by Rivlin in A.B. Rivlin, *Anthology of Commentary on the Pentateuch by Rephael Mordekhai Malki*, (Jerusalem: Salomon, 1928), II, pp. 7-8, fn. 6 [Hebrew].

<sup>38</sup> E. Lev, *Medicinal Substances in Jerusalem from Early Times to Present Day*, (Oxford: Archaeopress, 2003), pp. 119-128.

<sup>39</sup> R. Palmer, "Pharmacy in the Republic of Venice in Sixteenth Century", In: A. Wear, R.K. French and I.M. Lonie (eds.), *The Medical Renaissance of the Sixteenth Century*, (Cambridge, New York: Cambridge University Press, 1985), pp. 100-117; and especially A.G.R. Smith, *Science and Society in the Sixteenth and Seventeenth Centuries*, (London: Thames and Hudson, 1972).

<sup>40</sup> S. Schein, "La Custodia Terrae Sanctae Franciscaine et les Juifs de Jerusalem a la fin du Moyen-Age", *Revue des Etudes*, 1982, CXXI, 369-377.

<sup>41</sup> *Ibid.*, pp. 375-376.

<sup>42</sup> See above, note I.

<sup>43</sup> Schur, *The Jewish*, p. 376.

<sup>44</sup> M. Rozen, *The Ruins of Jerusalem*, (Tel Aviv: Tel Aviv University, 1981), p. 158 [Hebrew].

<sup>45</sup> See, e.g.: Cohen, *The Jewish*, p. 285, No. 328.

<sup>46</sup> Horn, *Ichnographiae*, pp. 179-180.

<sup>47</sup> See: Rabbi Hayim Yosef David Azulai, *Shem ha-Gedolim* (The Names of Great People), (Jerusalem: Ream press, 1994), Part I, Ma'arechet ha-Gedolim, 9, 5, p. 71 [Hebrew].

<sup>48</sup> On Doctor Tuvia see: A.L. Frunkin and A. Rivlin, *Toldot Hachmei Yerushalayim* (History of the Rabbinic Sages of Jerusalem), (Jerusalem: Salomon press, 1928-1933), II, pp. 128-131 [Hebrew]; D Margalit, *Derech Yisrael bi-Refuah* (The Way of Israel in Medicine), (Jerusalem: The Medicine Academic press, 1970), p. 113 [Hebrew]; A. Nigel, "Illustrations from the Wellcome Institute Library", *Medical History*, 1984, 28, 324-328.

<sup>49</sup> Moshe Hayim Capsuto, *Yoman Masa' le-Eretz ha-Kodesh 5494* (Journal of a Journey to the Holy Land 1734), (Jerusalem: Kedem press, 1983), p. 36 [Hebrew].

<sup>50</sup> A. Arce, *Miscelanea de Tierra Santa*, (Jerusalem: Franciscan press, 1951) III, pp. 423-425.

<sup>51</sup> Schur, *Franciscan Physicians*.

<sup>52</sup> N. Reiss, *The Health Care of the Arabs in Israel*, (Boulder: Westview Press, 1991), p. 3.

<sup>53</sup> E. Seidler, "Medieval Western Hospital: Social or Health Care Facilities?" In: Y. Kawakita et al. (eds.), *History of Hospitals - The Evolution of Health Care Facilities*, (Osaka: Susono-shi Division of Medical History, Taniguchi Foundation, 1986), pp. 19-21.

<sup>54</sup> Y. Perry and E. Lev, "Nineteenth Century Medical Activities of the London Society for Promoting Christianity Among the Jews, in the Holy Land",

#### Authors.

Zohar Amar PhD, Department of Land of Israel Studies and Archeology, Bar-Ilan University, Ramat Gan, 52900, Israel

Efraim Lev PhD, Department of Eretz Israel Studies and School of Public Health, Haifa University, Haifa, Mt. Carmel 31900, Israel