Aegyptus et Pannonia VIII.

Acta Symposii anno 2021

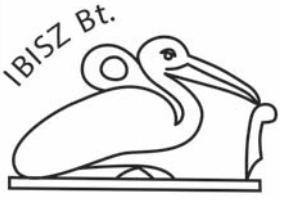
BUDAPEST

Aegyptus et Pannonia VIII.

Acta Symposii anno 2021

Editor: Hedvig Győry

Sponsored by



On the cover: Painted pavement in Amarna
(Petrie 1894, pl. IV.5)
Cover design: András Barkó
Realisation: Aquila Design
Print in Pauker Nyomda
ISBN 978-615-6571-02-1
Serie number: ISBN 978-615-6571-00-7

Aegyptus et Pannonia VIII.

Acta Symposii anno 2021

volume 2

Budapest – 2022

Contents

“Plants for Health from Ancient Egypt to Present Day” Conference and the HEFS AEC

Dr. Hedvig Győry PhD
HEFT AEC president

After the realization of the 2019 mummy conference, the need arose to discuss the new trends, methodologies and achievements in ancient materia medica from a phytotherapeutic point of view and to disseminate the results achieved by our in-depth research. With this conference, we also wanted to explore how many different ways there are to approach ancient plants and medicine, also from historical, cultural, religious, ethnographic and pharmacological points of view, and to compare it with other related fields. We also wanted to draw attention to other areas of research into plants that maintain and improve health. In this way, contemporary and historical treatments were juxtaposed, Egyptian, Hittite, Greek, Roman and later European herbal medicine, to mention only the most important regions studied in these proceedings. The conference was held in two languages, English and Hungarian, but all the articles in the proceedings are English. We hope that this way we can bring these issues to the attention of as many people as possible.

This time we have chosen to discuss the plants used for health problems. A significant proportion of the substances in ancient Egyptian prescriptions are of plant origin. Reviewing and studying their effects and data can also provide new opportunities for the current pharmacopoeia. Our group of doctors thought that there was a lot of new knowledge to be gained in this area worldwide, and that the knowledge of plants is becoming increasingly important, if we only think of the research into pathogens, many of which have adapted to synthetic drugs. We need thus new materials to use to eliminate them, and earlier medical practices may lead to the discovery of new active substances that are important for people today. Knowledge of these active ingredients makes it possible to apply these drugs as new medicines in a consistent quantity and quality. On the other hand, there are also many places where conditions do not allow the use of drugs produced by modern technology, but nature can help patients with its often hidden treasures. In addition to pharmacological research, folk remedies studied by ethnomedicine

and historical medical research play an essential role in getting to know them.

The HEFS AEC partly organizes its activities in cooperation with other organizations – the above-mentioned international workshop of the Nephthys project in 2022 was co-organized by the Hungarian Natural History Museum, while this very conference took place in partnership with the HNM Semmelweis Museum of Medical History, whose members gave several lectures on historical medicine and modern ethnomedicine, and where a special chamber exhibition would have welcomed the participants in honour of the conference, if the COVID had not prevented the organization of a face-to-face meeting. Nevertheless, we were able to offer the possibility of discussions and consultations in special virtual chambers, allowing the exchange of professional experiences.

The HEFS AEC has published these new proceedings, this time in two volumes (Aegyptus et Pannonia VII-VIII), containing more than half of the papers presented at the conference: “Plants for Health from Ancient Egypt to Present Day”. As we focused on our main research topic in the Medical Research Group of the HEFC Ancient Egyptian Committee, we wondered what the scientific community thought about the ancient Egyptian use of plants in various fields of human and natural sciences, the continuity of related knowledge, and the implications and possibilities of these ancient practices for people today. We also wanted to present the ideas we had developed and the results we had achieved in the professional field, and to provide an opportunity for specialists to discuss different topics. In terms of the structure of the proceedings, we have returned to the previous method of the series, so that the articles are once again listed in alphabetical order of authors, rather than by subjects

The HEFS Ancient Egyptian Committee and the medical history

The HEFS, which has been operating since 1995, carries out several activities in the tradition of its earlier activities: the general programs focus on the last five thousand years, selecting interesting and important topics, while the work of the AEC is mainly directed in three directions. An important objective is (1) the cultural transmission and dissemination of knowledge about ancient Egyptian culture through lectures and public meetings for interested adults, also in the framework of the Hungexpo. We also organise (2) artistic and handicraft activities, workshops accompanied by discussions on various topics with children, launching every year a fine arts competition (drawing/painting), the results of which will be exhibited for the third time in January 2023 in the Deák 17 Children’s and Youth Art Gallery of the Budapest History Museum; and (3) following scientific and scholarly research into the use of ancient objects, human and animal remains – including an international event of the Nephthys Project in 2022 – and medical history, concentrated on phytotherapy and surgery.

As far as our material at the conference is concerned, we present here as a starting point our research focused primarily on the use of plants in surgery, if only because several members of the group are doctors from the Department of Surgical Research and Techniques at the Faculty of Medicine in Semmelweis University, Budapest. The first scientific results of this new direction are published of today's surgical tools and materials. Thus our conference papers focus on the ancient Egyptian surgery from the point of view of the application of plants in these volumes, but research is alsobeing carried out in other areas. Firstly we present research in the direction that is mainly focused on comparative analysis, directed towards the ancestors surgical kit, the plant materials used for wound care and the general knowledge of ancient Egyptian surgeons, with a view to the surgical culture of other peoples and periods or the use of pharmacognostic knowledge. We have also considered it essential to investigate into possible reasons for the use of plants, which may allow us to consider modern phytotherapeutic applications.

Two other areas of our phytotherapy research are also represented in these volumes. The origin and treatment of various diseases throughout the world, and especially in ancient Egypt, is also an interesting topic. In this direction, we have chosen to focus one disease in particular. Diabetes is one of the most widespread diseases of our time, and we have chosen to study its ancient treatment methods. In this case, as in the case of surgery, we have compared several cultures to find out the ancient knowledge and problem-solving methods, and have pointed out herbs that are officially used in the world, or in Hungary.

Another problem of our time, seemingly far removed from the history of medicine, is the conservation and preservation of biodiversity, which is affected not only by climate change and other natural factors, but also by human activity. This phenomenon can be traced back even to ancient Egypt, although the process has accelerated in the last hundred years. One of our topics in this respect is presented here, showing how an ancient curiosity herb has become a plant of large-scale production in the 21st century, and saving this way the species from extinction.

A new direction of the group is the study of the history of Hungarian phytotherapy in partnership with the Semmelweis Museum for Medical History. We have just taken the first steps in this direction, but we can already say that the classical Roman authors, and the ancient Egyptian knowledge they transmitted also played an important role in official medical practice and influenced folk medicine in our country. It seems that the herbaria published in Hungarian language played a key role in this process.

The interweaving of contemporary and historical issues characterizes many of the articles in the volumes. At the same time, mutual influences, shifts of emphasis and reinterpretations within the ancient world, or elements of later historical periods that reach into the past or present, play a prominent role. In this field, it is essential to collect and examine the sources from a new perspective in order to obtain a clearer picture of certain details of the past. Historical, artistic, literary, religious, economic, museological, pharmaceutical, phytotherapeutic, ethnobotanical or even chemical points of view appear in individual articles. It has been proven that the ingredients listed in many of the ancient Egyptian recipes studied so far can still be used as effective medicines today.

This volume contains 16 contributions on the role of drug use in different periods. There are chapters on the reconstruction of some ancient Egyptian remedies, on the ancient method prescribed for the preparation of antjw ointment, or on the preparation and action of kyphi, and pelargonium, traced through biochemical and experimental research; Others are devoted to the materia medica used in Hungary over the centuries, or to the comparison of contemporary Egyptian folk medicine and pharaonic materia medica in the field of gynaecology; another is devoted to studies on the possible identification of magical Egyptian plant names with a dominant connection to the moon, or to the ritual and non-ritual use of some plant substances with religious names in Egypt. Others relate to the popular treatment of diseases such as tuberculosis and cholera in Hungary, or which edible plants have been identified in Coptic medical therapies. Sedative plants are also featured in the current volume, and a plant closely associated with a butterfly is discussed. Another article focuses on the pomegranate, with its many meanings as a symbol of fertility and female power. Yet another focuses on the worldwide surgical use of plants, while others discuss the balance between practical and religious beliefs in the use of medicinal plants. The pop-up exhibition for the conference is briefly introduced, hinting at the museological aspect of medical history.

MAGYAR–EGYIPTOMI
BARÁTI TÁRSASÁG
Ókori Egyiptomi Bizottság

HUNGARIAN–EGYPTIAN
FRIENDSHIP SOCIETY
Ancient Egyptian Committee

MNM · S · O · M
MAGYAR NEMZETI MÚZEUM
SEMMELWEIS ORVOSTÖRTÉNETI MÚZEUM I KÖNYVTÁR I LEVÉLTÁR

Acknowledgment

The editors of these volumes would like to thank again all the organizations and individuals who made the conference and the publication of these volumes possible, as well as the speakers, the members of the Organizing and Scientific Committees, the secretary of the conference, and the technical assistance, i.e. all those who contributed to the realization of the conference and who have contributed with their knowledge to the these volumes. Special thanks are also due to the authors of the papers for their work and cooperation.

We would also like to express our gratitude to all those colleagues and volunteers who have shared their expertise and offered their generosity by providing scientific or linguistic proofreading for these volumes.

Thanks are also due to the active participation of Aquila Design, who coordinated and realized the editing and printing and to our financial supporters, the Hungarian Natural History Museum, the Ibisz Bt. and the Kiss Ferenc a Növényi Biodiverzitásért Alapitvány [Kiss Ferenc Plant Biodiversity Foundation], whose aim is to raise awareness of the natural treasures we have and to try to teach people to use them, rather than abuse them.

https://doi.org/10.71067/AePVIII-2022-247-254

The Making of ʿntjw-myrrh Ointment in Ancient Egyptian Temples
A (Not So) Practical Guide

Réka Vadas
ELTE Eötvös Loránd University, Budapest

Abstract

ʿ*ntjw*-myrrh was one of the most common aromatic substances used in ancient Egypt. In temple rituals, it was used in different consistencies, as an incense for purification and as an oil or ointment for anointing the statue of the deity. Before and after rituals, the substances were stored in the temple laboratories which were one of the several types of sacristies characteristic of the Graeco-Roman Period. The inscriptions on the walls of these chambers include several recipes, and the most complex of them all concerns the making of ʿ*ntjw*-ointment.

Was this recipe a practical guide? Is there a clear structure hiding underneath the lengthy and complicated text? Could one make this ointment following the prescribed steps and methods? This article tries to answer some of these basic questions that must arise from the difficulties of understanding the hieroglyphic inscriptions, which were intended for only a small group of priests to ever see.

Keywords: Egypt, ʿ*ntjw*-myrrh, cooking, recipes, substances, Edfu, temple, laboratories

Introduction

ʿ*ntjw*-myrrh was one of the most common of the aromatic substances used in ancient Egypt.[1] In temple rituals, it was used in different consistencies, not only as an incense for purification but also as an oil or ointment for anointing the statue of the deity. Before and after rituals, these extracts were stored in

1 My research is supported by the ÚNKP-21-4 New National Excellence Program of the Ministry for Innovation and Technology from the sources of the National Research, Development and Innovation Fund.

the temple laboratories, which were one of the types of sacristies characteristic of the Graeco-Roman Period. The inscriptions in these chambers include several recipes, and the most complex and lengthy of these deals with making first-class dry *ꜥntjw* ointment of *nnjb*.[2] The recipe is displayed at Edfu, inscribed on the western wall of the laboratory[3] adjoining the scene of offering *ꜥntjw* (*ḫrp ꜥntjw*) which shows the king carrying the sphinx-shaped *smswn*-vessel[4] which was frequently used for storing *ꜥntjw*.[5]

2. The Complexity of the Recipe

As mentioned above, this recipe is the most complex of all those found in the laboratories and includes more than 100 cooking instructions and almost 50 calculations.

The main reason for the great number of cooking instructions is the meticulous detail given throughout the recipe. Not only are the key activities explained but also the steps of preparing various ingredients (before they are added to the concoction). For example, when *nḏm*-juice is needed, the process of obtaining this juice is also mentioned: this includes taking the pulp out of the fruit, then squeezing it to get the juice; moreover, every stage is followed by measuring[6] since the correct weight is also prescribed at every stage of the process. The same happens when *nnjb*-flour is needed: first, the *nnjb* needs to be pulverized and then sieved three times.[7] The concoction is also measured after every step, and generally after every activity (e.g., boiling/cooking) that causes weight reduction.

Calculations do not invariably appear in recipes;[8] however, here they are not only included but also have a significant role for a number of reasons. First, the above-mentioned quantities are prescribed not only in terms of debens, kites, or hins but also in terms of ratios between the weights before and after boiling,

2 Edfou II, 220,16-224,9; the translations used in this paper are by the author; the recipe was also translated by Dümichen (1879, 97ff) and Aufrère (2005, 225ff).

3 Although the recipe has a parallel version at Dendara featured on the external doorframe of the laboratory (Dendara IX, 124,18 ff), it includes only the first half of the Edfu recipe due to the lack of space; for a further parallel recipe outside the laboratory at Edfu, see Edfou VI, 162,11 ff translated by Kurth (2014, 280 ff).

4 For the term, see Edfou II, 198,2.

5 For parallel examples, see Edfou II, 192,18, 197,4, 198,1-2, 219,13; Esna II, 123,1.

6 Even if the term "*measuring*" does not occur every time, the quantities are noted; thus, measuring is required; see Edfou II, 221,3-4.

7 Edfou II, 223,1-2.

8 See e.g., the recipes for the three types of *ṯ̱w*-pellets (Edfou II, 226,5-10), or *mḏ* of the First Festival (Edfou II, 227,3-16); for translations, see Aufrère 2005, 213-262.

squeezing, or sieving,[9] which leads to even more calculations. Secondly, the quantities are usually given as a sum of multiple fractions. Besides whole numbers, the recipe contains 96 fractions, which make the recipe even more complex and also increase the chance of errors.

In the case of whole numbers, there are a few scribal errors confusing the hieroglyphic sign  , 10 with  , 2[10] and the number 1 is sometimes omitted. However, the most remarkable reason for complications (and errors) is the abundant use of fractions since most quantities would have been improper fractions here given as sums of mixed numbers[11] and distinct unit fractions where the nominator is 1. As an exception, the fraction 2/3 is also used despite the nominator being 2.[12] In the case of unit fractions, the denominator is either 2 or is divisible by 3 or 5. Hence, for instance, instead of 3/4, the 2/3 + 1/12 appears.[13] The most complex quantity description is attested in the last part of the recipe where 3 2/3 + 1/6 + 1/30 + 1/45 (i.e., 35/9) kites of wine are added to the concoction; thus here a simple quantity is denoted by the adding together four terms. Throughout the text, twelve different fractions occur: 1/2, 1/3, 2/3, 1/5, 1/6, 1/10, 1/12, 1/15, 1/60, 1/120, 1/180, and 1/360.

It is also worth noting that in this recipe, the calculations are mostly wrong, and the correct versions of quantities and ratios cannot be restored. Thus, the ointment could not be made using the recipe and therefore it could not have been intended as a practical guide for priestly use. Nevertheless, by eliminating the complicating factors, disregarding some rather obscure instructions,[14] and using other recipes for comparison, a clear structure can be revealed.

3. The Structure of the Recipe

The recipe can be divided into a number of separate sections which include the title, the list of the ingredients, and the instructions for (1) making the *ḥknw*-oil, (2) the eleven moist masses, (3) the three dry masses, and (4) the three masses of *nnjb*.

9 See for example Edfou II, 223,1-2.

10 Edfou II, 222,7 (c.f. Dendara IX, 125,13); *Edfou* II, 222,1 (c.f. Edfou II, 222,2); Edfou II, 221,13 (c.f. Edfou VI, 163,2).

11 Consisting of a whole number and a unit fraction.

12 Edfou II, 224,1.

13 Edfou II, 223,4.

14 See e.g., Edfou II, 222,12 where the meaning of *ḫḳ* is still uncertain; on the terms *ḫḳ* and *šḫḳ*, see Kurth 2008, 526 note 4, see also Kurth 2014, 284, note 1 and Edfou VI, 163,12 where Kurth translates it as '*Pulver(?)*'; Aufrère (2005, 230) transcribes it as *ḥknw* instead of *ḫḳ*.

Before the list of the ingredients[15] and after the cooking instructions,[16] the text also refers to the ritual use of the ointment with which the statue of the deity was anointed as part of the daily ritual.

3. 1. The List of Ingredients

The actual recipe starts with a list of the ingredients.[17] Here all the substances, quantities, and units are noted. In all, nine ingredients are prescribed. In the largest quantity *ꜥntjw* (21 debens), water (15[18] debens), *nnjb* (6 debens) and the fruit of *nḏm*-tree (9 hins) are used.

ꜥntjw can be identified as myrrh, the yellow-red lumps of resin of various species of *Commiphora myrrha*; however, it was also suggested that it probably referred to the resin of various species of *Boswellia,* too. What can be established is that *ꜥntjw* was used to denote species of the torchwood (*Burseraceae*) family.

As for *nnjb*, its exact identification is debated. It was identified by Loret as the resin of styrax, also called oriental sweetgum (*Liquidambar orientalis* Mill.); however, storax (*Styrax officinalis* L.) is also mentioned in the literature.[19]

Nḏm was identified as carob/St. John's bread-tree (*Ceratonia siliqua* L.) by Loret,[20] which is now widely accepted.[21]

Besides these three ingredients, wine (*jrp*), *ḏdꜣ n ḳdt, tj-šps, ḏbꜥ,* and *šbn* were used. Wine was one of the most important ingredients of aromatic substances used to soften dry substances. All the ingredients are prescribed in debens, except *prt nḏm* which appears only in hins throughout the recipe, and also, water and wine which are specified in hins and debens as well.

The phrase *ḏdꜣ n ḳdt* refers to the resin of *ḳdt*-tree denoting a coniferous tree, likely Aleppo pine (*Pinus halepensis*).[22]

Tj-šps denoted a species belonging to the laurel family (*Lauraceae*), but

15 The recipe of making 1 hin of first-quality dry *ꜥntjw*-myrrh of *nnjb* for anointing the divine body with (it), *tp-rd n jrt ꜥntjw šw tpj n nnjb hnw 1 r wrḥ ḥꜥw nṯr jm*(*.f*) (Edfou II, 220,16).

16 Anoint the divine body of Horus, the Behdetite, *wrḥ ḥꜥw-nṯr n Ḥr bḥdtj* (Edfou II, 224,4-9).

17 Edfou II, 221,1-2.

18 Even though 15 debens of water is prescribed in the list of the ingredients, in all 16 debens of water is used.

19 Loret 1894, 148-52; Wilson 1997, 524; Charpentier 1981, 394-95, no. 624; Germer 2008, 85 who also notes that the identification of *nnjb* is uncertain; on the confusion of *Liquidambar orientalis* and *Styrax officinalis,* see Serpico 2000, 437; Lucas/Harris 1962, 95.

20 Loret 1893, 111-119.

21 Baum 1988, 162-9; Germer 1979, 47, 2008, 91; Wilson 1997, 566; see also Charpentier 1981, 424-25, no. 667.

22 Chassinat 1968, 381-87; Wilson 1997, 1072; Lüchtrath 1999, 120.

its exact identification is uncertain.[23] Camphor tree (*Cinnamomum camphora* or *Ocotea usambarensis*),[24] and cinnamon (*Cinnamomum zeylanicum* or *Cinnamomum cassia*)[25] have both been suggested.

Šbn was related to a *Cyperus* species, i.e., an umbrella plant. In a detailed analysis, Lüchtrath identified *šbn* as the '*mash*' of the rhizome of either purple nut-sedge (*Cyperus rotundus* L.),[26] galingale (*Cyperus longus* L.)[27] or priprioca (*Cyperus articulatus* L.);[28] however, *Cyperus esculentus* L. was also suggested by Loret,[29] Chassinat,[30] and Manniche.[31]

Finally, the substance called *ḏbʿ* has not yet been positively identified.[32]

3. 2. Cooking Instructions

The cooking instructions given in the recipe can be divided into four sections. The first one concerns the making of a *ḥknw*-oil,[33] then 11 moist masses,[34] then three dry masses[35] and lastly three masses of *nnjb*.[36]

For the *ḥknw*-oil, the juice of the fruit of *nḏm*-tree is mixed with water and cooked until dusk. Then it is cooked for a further three days, more water is added and the concoction is shaken. After that, crushed *ḏdꜣ n ḳdt, tj-šps, ḏbʿ,* and *šbn* are mixed with wine and *ʿntjw*-myrrh so that they can be added to the concoction, which is then put aside in a sealed vessel until the dawn of the fifth day. Lastly, it is cooked three more times.

Since the *ḥknw*-oil already contains all ingredients except *nnjb*, for the eleven moist and three dry masses only more water and *ʿntjw* are added to the previously prepared concoction. Finally, the three masses of *nnjb* are made with the addition of *nnjb, ʿntjw*, and wine.

For the eleven moist masses (*ḫt mw*), *ʿntjw* and water are mixed and added to the already made *ḥknw*-oil, cooked in a cauldron, and then put aside for 11

23 Germer 1979, 346-47; 1985, 14.

24 Lüchtrath 1999, 121-122; Manniche 1993, 88-89; see also Wilson 1997, 1124-25; Charpentier 1981, 790-91, no. 1339.

25 Manniche 1993, 88-89.

26 See also Loret 1892, no. 25-26.

27 See also Charpentier 1981, 666-67, no. 1089; Chassinat 1968, 390-94.

28 Lüchtrath 1999, 134.

29 Loret 1892, no. 25-26.

30 Chassinat 1968, 390-94.

31 Manniche 1993, 98.

32 Wilson 1997, 1233; Lüchtrath 1999, 124-26.

33 Edfou II, 221,2-13.

34 Edfou II, 221,13-222,8.

35 Edfou II, 222,8-14.

36 Edfou II, 222,14-223,13.

days in a silver vessel. For the second to eleventh moist masses, the process is the same, adding more *ꜥntjw* and water each time to the already made mass. The total procedure takes 121 days.

For the first dry mass (*ḫt šwt*), pulverized *ꜥntjw* is added to the previously prepared mass, and after that, it is put aside in a sealed *ḫbb*-vessel for 20 days. Then, water is added and cooked over a slow fire. For the second and third masses, the process is the same; thus, the making of the three dry masses takes 60 days.

Finally, for the first mass of *nnjb*, first-class *nnjb*-flour, *ꜥntjw* and wine are mixed into the previously made mass, and then put aside in a *ḫbb*-vessel for 60 days, and after that cooked in a cauldron with the addition of even more wine. The second and third masses are made likewise, thus taking 180 days in total.

Hence, the entire procedure lasted for 373 days, because 12 days had to be devoted to cooking the *ḥknw*-oil, 121 days to making the 11 moist masses,[37] 60 days to making the three dry masses, and 180 days to cooking the three masses of *nnjb*.

4. A (Not so) Practical Guide

The analysis has shown that the complicated and lengthy recipe of the first-class *ꜥntjw* ointment of *nnjb* has a clear structure, although several factors make it challenging to read and understand, and the calculations are mostly wrong. Nevertheless, it gives authentic information about the whole procedure; moreover, the complexity and degree of obscurity of the text are among its most important elements, which prove that making this ointment was a long and meticulous process and the recipe was only available for the use of a small group of highly qualified priests.

One should also not forget the fact that this recipe is featured in a temple laboratory, which was considered to be a sacred image of the large mudbrick workshops,[38] where the aromatic substances were actually made. In practice, temple laboratories were not actual workshops but sacristies where these substances were stored and prepared before the rituals. The recipes, however, were sacred texts composed by a deity, i.e., Thoth himself,[39] and thus they had to be featured additionally inside the temple as well. Moreover, although the substances were cooked by the so-called *nwd*-priests, they were actually made by a deity, i.e., Shesemu himself,[40] apparently working at his residence, i.e., in the sacred space of the temple.

37 The text also notes that some say that the making of a single moist mass took 14 days instead of 11 (Edfou II. 221,14); thus, the entire procedure would have taken 406 days instead of 373.

38 Which were built outside the temple; see also Wilson 1997, 109.

39 Edfou II, 195,14-15, 196,6; Dendara IX, 137,18, 144,13.

40 Edfou II, 220,4-5, 228,8-9; Dendara IX, 137,5.

Thus, although this recipe was apparently not a practical guide for priestly use, from a different perspective, it is still a practical guide, but in the divine rather than the human sphere.

Bibliography

Aufrère 2005 = Aufrère, Sydney H., *Nature et emploi des parfums et onguents liturgiques en Égypte ancienne*. In Aufrère, Sydney H. (ed.), *Encyclopédie religieuse* de l'*univers végétal croyances phytoreligieuses de l'Égypte ancienne*. Montpellier: Université Paul Valéry-Montpellier III 2005, 213-261.

Baum 1988 = Baum, Nathalie, *Arbres et arbustes de l'Egypte ancienne. La liste de la tombe thébaine d'Ineni* (*no 81).* Orientalia Lovaniensia Analecta 31. Leuven: Peeters 1988.

Charpentier 1981 = Charpentier, Gérard, *Recueil de matériaux épigraphiques relatifs à la botanique de l'Egypte antique.* Paris: Trismégiste 1981.

Chassinat 1968 = Chassinat, Émile, *Le mystère d'Osiris au mois de Khoiak* II. Le Caire: IFAO 1968.

Dendara = Chassinat, Émile – Daumas, François – Castel, Georges – Cauville, Sylvie, *Le temple de Dendara* I-XV. Le Caire: Institut Français d'Archéologie Orientale 1934-2007.

Dümichen1879 = Dümichen, Johannes, *Ein Salbölrecept aus dem Laboratorium des Edfu tempels: mit Ergänzung und Berichtigung des Originals übersetzt und erläutert*. Zeitschrift für Ägyptische Sprache und Altertumskunde 17/3-4, 1879, 97-128.

Edfou = Chassinat, Émile – Rochemonteix, Maxence, *Le temple d'Edfou* I-XIV. *MMAF* 10-11 and 20-31. Le Caire: Institut Français d'Archéologie Orientale 1897-1985.

Esna II = Saneron, Serge, *Le Temple d'Esna* (*Esna* I-VIII). Le Caire: Institut Français d'Archéologie Orientale1963-1982.

Germer 1979 = Germer, Renate, *Untersuchung* über *Arzneimittelpflanzen im alten Ägypten* (PhD diss.). Hamburg: Universität Hamburg 1979.

Germer 2008 = Germer, Renate, *Handbuch der altägyptischen Heilpflanzen*. Philippika 21. Wiesbaden: Harrassowitz 2008.

Kurth 2008 = Kurth, Dieter, *Einführung ins Ptolemäische: Eine Grammatik mit Zeichenliste und Übungsstücken I.* Hützel: Backe-Verlag 2008.

Kurth 2014 = Kurth, Dieter, *Die Inschriften des Tempels von Edfu. Abteilung I: Übersetzungen III. (Edfou VI).* Gladbeck: PeWe-Verlag 2014.

Loret 1892 = Loret, M. Victor, *La flore pharaonique d'après les documents hiéroglyphiques et les spécimens découverts dans les tombes*. Paris: Ernest Leroux 1892.

Loret 1893 = Loret, M. Victor, *Recherches sur plusieurs plantes connues des anciens égyptiens II*. Recueil de travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes 15, 1893, 105-30.

Loret 1894 = Loret, M. Victor, *Étude de droguerie égyptienne*. Recueil de travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes 16, 1894, 134-162.

Lucas – Harris 1962 = Lucas, Alfred – Harris, John Richard, *Ancient Egyptian Materials and Industries*. Mineola, NY: Dover Publications 1962.

Lüchtrath 1999 = Lüchtrath, Agnes, *Das Kyphirezept*. In Kurth, Dieter (ed.), *Die Inschriften des Tempels von Edfu, Begleitheft* 5*: Edfu: Bericht über drei Surveys; Materialien und Studien*. Wiesbaden: Harrassowitz 1999, 97-145.

Manniche 1993 = Manniche, Lise, *An Ancient Egyptian Herbal*. Austin: University of Texas Press 1993.

Serpico 2000 = Serpico, Margaret, *Resins, Amber and Bitumen*. In Nicholson, Paul T. – Shaw, Ian (eds.), *Ancient Egyptian Materials and Technology*, Cambridge: Cambridge University Press 2000, 430-474.

Wilson 1997 = Wilson, Penelope, *A Ptolemaic Lexikon: A Lexicographical Study of the Texts in the Temple of Edfu*. Orientalia Lovaniensia Analecta 78. Leuven: Peeters 1997.