

Plant introduction in Graeco-Roman Egypt: the case of the rose of heaven (*Silene coeli-rosa* (L.) Godr.)

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ABSTRACT

The political conditions that arose in Egypt after the conquest by Alexander the Great and later by Augustus certainly led to profound changes in the social and cultural structure of the country in a multicultural way. Under these foreign dominations, the use of the plant world also changed. New plant species were imported, and new crops were established. The rose of heaven (*Silene coeli-rosa* (L.) Godr.) can be well considered among these newly introduced species since not native to Egypt, nor attested in Egypt before the Ptolemaic time. The contribution examines all the accessible data on *Silene coeli-rosa* (L.) Godr. It includes the results of the analyses on the archaeobotanical material of the rose of heaven preserved in European museums, as well as the mention of other archaeobotanical attestations that could not be seen in person. Textual data from papyri are also included, after a discussion of the possible ancient names of the plant. The data are then considered together to investigate: the way of introduction and diffusion of the species in the territory and all the possible fields in which it may have come into use (food, medical, and ornamental). The study shows a limited diffusion in the Egyptian land, but specific importance of the use of the plant in Fayum garlands, particularly in their innovative manufacture of the Graeco-Roman period. Its involvement in this type of innovation shows the complexity in which newly introduced plant species can be involved in phenomena of cultural contact and change.

KEYWORDS

Garlands - archaeobotany - plant culture - cultural changes

مقدمة عن النبات خلال العصر اليوناني-الروماني بمصر: حالة زهرة السماء (*Silene coeli-rosa* (L.) Godr.)
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الملخص

من المؤكد أن الظروف السياسية التي نشأت في مصر بعد غزو الإسكندر الأكبر، ولاحقاً خلال فترة حكم أغسطس، أدت إلى تغييرات عميقة في البنية الاجتماعية والثقافية للبلاد بطريقة متعددة. ففي ظل تلك الهيمنة الأجنبية، طرأت أيضاً تغييرات عديدة على عالم النباتات. حيث تم استيراد أنواع نباتية جديدة وإدخال محاصيل لم تكن معروفة من قبل. يمكننا اعتبار زهرة السماء (*Silene coeli-rosa* (L.) Godr.) واحدة من هذه الأنواع التي أُدخلت حديثاً إلى البيئة النباتية المصرية، إذ إن موطنها الأصلي ليس في مصر، ولم تظهر قبل العصر البطلمي. يستعرض هذا المقال جميع البيانات المتاحة حول (*Silene coeli-rosa* (L.) Godr.)، ويتضمن نتائج التحليلات التي أجريت على المواد النباتية الأثرية الخاصة بالزهرة والمحافظة في المتاحف الأوروبية، بالإضافة إلى الإشارة إلى شواهد أثرية نباتية أخرى لم يتسن لنا رؤيتها بشكل مباشر. كما تم تضمين البيانات النصية المستخرجة من البرديات، بعد مناقشة الأسماء القديمة المحتملة لهذه الزهرة. نُظر في جميع البيانات بشكل متكامل من أجل التحقيق في: طريقة إدخال وانتشار هذا النوع من الزهور في مصر والمجالات المحتملة لاستخدامها، سواء الغذائية أو الطبية أو للزينة. تُظهر الدراسة أن انتشار زهرة السماء كان محدوداً في الأراضي المصرية، لكنها حافظت على أهمية خاصة حين استُخدمت في أكاليل الفيوم، خاصة في صناعتها المبتكرة خلال العصر اليوناني-الروماني. ويُظهر

وجود هذه الزهرة في هذا النوع من الابتكارات مدى التعقيد الذي يمكن أن تلعبه الأنواع النباتية المدخلة حديثاً في ظواهر الاتصال الثقافي والتغيير الاجتماعي.

الكلمات المفتاحية

أكاليل – علم النبات الأثرى – الثقافة النباتية – التغييرات الثقافية

This article is an extension of my doctoral research (“*Transformations in Plant Culture during Graeco-Roman and Late Antique Egypt*”). It uses data from museum research visits at the Economic Botany Collection of Kew Gardens (February 2020), the Ägyptisches Museum Berlin (June 2021), the Botanic Garden Berlin-Dahlem (September 2021), and the Petrie Museum (August 2022) in London.¹

The paper aims to examine the material and textual data on *Silene coeli-rosa* (L.) Godr., a species not native to Egypt, but to the Western Mediterranean region, and not attested in Egypt before the 3rd century Bc. The textual data also include species of the same family, as the ancient name is difficult to superimpose on the modern botanical name. Based on these elements, an attempt is made to reconstruct, as far as possible, the history of the introduction and spread of the *use*² of the species in Graeco-Roman Egypt, and to understand their relationship with the socio-political changes of the time, arising after the conquest by Alexander the Great and later by Augustus.

THE ROSE OF HEAVEN: A MODERN PROFILE

PLANT DESCRIPTION

Silene coeli-rosa (L.) Godr.³ is an annual herbaceous plant, 20–60 cm tall. The stems are glabrous, erect, and branched-dichotomous (Pignatti 1982: 255; Chater – Walters 1964: 177).

- 1 For this, I must thank the curators Mark Nesbitt (Economic Botany Collection of Kew Gardens), Dr. Jana Helmbold-Doyé and Kathleene Kerth (Ägyptisches Museum und Papyrussammlung Berlin), Robert Vogt, Paule Juraj, Peter Hein (Botanisches Museum Berlin-Dahlem), Anna Garnett (Petrie Museum).
- 2 It is necessary to emphasize, that even if the rose of heaven is considered here because not native to Egypt, but attested in the archaeobotanical assemblage, the focus of the article is on the introduction to *cultural use* rather than (just) the *ecological environment*. One may follow the other, but it is not always necessary.
- 3 The scientific name used in the contribution has been only recently changed in *Eudianthe coeli-rosa* (L.) Fenzl ex Endl. (Bartolucci – Peruzzi – Galasso *et al.* 2018: 239; Peruzzi – Galasso – Domina *et al.* 2019: 66) following numerous molecular analyzes (Oxelman – Lidén 1995: fig. 4; 534; Oxelman – Lidén – Rabeler – Popp 1997; Oxelman – Lidén – Berglund 2001) and it is therefore a synonym of the latter. I preferred to maintain it because it will be clearer as in ancient common names this flower could be categorized together with others of the same genus. Other names (synonyms) under which it is possible to find the same species in literature (including the Egyptological one) are also *Lychnis coeli-rosa* Desr. and *Agrostemma coeli-rosa* L.

The leaves are opposite and decussate. They are linear or lanceolate, 2–3 × 40–60 mm, and progressively reducing towards the tip (Pignatti 1982: 255; Chater – Walters 1964: 177), with toothed margins and pedicels that are 6.5 cm long (Talavera 1990: 341).

The flowers are 2.5 cm in diameter. The calyx has a subclavate shape (6 × 15–28 mm), 2–3 times longer than the teeth, with very prominent and bifid veins at the level of the capsule. The teeth are linear-lanceolate, glossy, and acute (3–6 mm). The corolla is formed by five petals of rosy-violet color and a cuneate hedge (10 × 25 mm) with a shallow incision or irregularly eroded (Pignatti 1982: 255; Chater – Walters 1964: 177; Talavera 1990: 341).

The fruit is a pyriform capsule (9 × 12 mm), dehiscent with (5–) 10 teeth with a carpophore (5–) 7–12 mm long and glabrous (Pignatti 1982: 255; Chater – Walters 1964: 177; Talavera 1990: 341). The seeds (0.5–0.6 × 0.7–0.9 mm) have a reniform shape and are strongly tuberculated; the upper and the back parts are flat or slightly convex, and the back has 3–4 rows of tubercles (Talavera 1990: 341).

DISTRIBUTION AND HABITAT

S. coeli-rosa (L.) Godr. is distributed in the southwest of the Mediterranean. It grows in thickets, uncultivated fields, and dry pastures, usually on clay soils (Pignatti 1982: 255; Talavera 1990: 341).

In Europe, it is considered native to Corsica, Spain, Portugal, and Italy, and introduced in Albania, Austria, and Yugoslavia (Chater – Walters 1964: 177); while in North Africa it is native to Morocco, Algeria, Tunisia, and Libya.⁴ It is absent in the flora of Egypt (Muschler 1912; Täckholm 1974; Boulos 2009).

ARCHAEOBOTANICAL EVIDENCE OF THE ROSE OF HEAVEN IN EGYPT

The documentation of the plant material in the museums has been conducted with the following equipment: Canon EOS 2000 camera with 18–55 mm and 70–300 mm lenses, black and white ruler for photography, strings, ruler for measurements, magnifying glass ×20 and portable USB microscope Celestron for further magnification for detailed observation.

The analysis of the material aimed to document the garlands and small bouquets as precisely as possible. For each floral composition, the state of conservation, the length, and width of each fragment were noted, and photos of the entire frame, of the individual fragments, and smaller details were taken with the camera and with the USB microscope. The information obtained is reported in the descriptions. Particular attention was paid to their manufacture, trying to understand how the individual plant elements were arranged and intertwined.

The instrumentation used was usually enough to document and identify the great part of the species of the garlands. For this purpose, both bibliographic materials, such as floras and modern taxonomic keys (Pignatti 1982; Muschler 1912; Täckholm 1974; the volumes of *Flora Europaea*), other publications on similar materials (Hamdy 2015; Newberry 1889; Newberry 1890), and comparison with modern dried material preserved in herbaria have been used. Regarding the identification of the flowers of *Silene coeli-rosa* (L.) Godr., the identification

⁴ <http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:941552-1>.

criteria used are the shape and size of the calyx (subclavate shape, 6 × 15–28 mm), the characteristic shape of its ribs (prominent and reticulated), and its relationship in length with the teeth when preserved (2–3 times longer than the teeth). These characteristics are intended to be observed in each description below and they are not repeated for every instance.

More difficulties were encountered instead in identifying the sedge species (Cyperaceae) used to bind the single leaves and flowers. The culms of *Scirpus* sp. were generally recognizable for the characteristic spongy structure of its interior (as the ones of *Scirpus inclinatus* Asch. & Schweinf. ex Boiss.); while the identification at the level species of *Cyperus* sp. cannot be determined with the stereoscope alone, for which the generic determination of *Cyperus* sp. or of “sedge plant” has been given.

All published archaeobotanical evidence of *Silene coeli-rosa* (L.) Godr. that we are aware of come from excavations before the mid-twentieth century. At least part of the remains found are today preserved in museum institutions and therefore directly analyzable. Except for a floral arrangement preserved in Chicago and some flowers and capsules preserved in Cairo and reported by Hamdy (2015: 87; Cappers – Hamdy 2007: No. 0407), all other arrangements described here have been personally examined by the author.

Overall, the attestations of the rose of heaven appear to be limited to the Fayum area and in a period approximately ranging from the 3rd century BC⁵ to the 2nd–3rd AD (see table 1). Both the provenances and the known dates are those reported in the notes of Newberry and Schweinfurth, who studied the materials shortly after they were excavated and had a direct relationship with the excavators or at least with those who directed them. Therefore, the information has a good degree of reliability.

Site	Context	Type of context	Dating	Remains	Preservation	Reference
Hawara	Several tombs	Funerary	1st century BC-3rd century AD	Garlands/flowers	Exsiccated	Newberry 1889: 51; Brugsch 1892
Abusir el Meleq	Tomb	Funerary	2nd AD	Garlands/flowers	Exsiccated	Möllers – Scharff 1926: 104-5
Fag el Gamous	Tomb/coffin	Funerary	Ptolemaic period (220 BC)	Fruits	Exsiccated	Hamdy 2015: 87

Table 1 Synthesis of the *Silene coeli-rosa* (L.) Godr. remains in Egypt during the Graeco-Roman time.

HAWARA

PETRIE'S EXCAVATION

Flowers of *Silene coeli-rosa* (L.) Godr. were found as part of the garlands at Hawara (Graeco-Roman period) during the excavations of Petrie (Newberry 1890: 51). Petrie excavated at Hawara for three seasons: first, at the beginning of 1888 (24th January–end of April), then again at the end of the same year (from 12th December 1888) until mid-June 1889, and finally, he returned to this site after twenty-two years for a third season during winter 1910–1911

5 If we trust that the capsules preserved in Cairo and reported by Hamdy (2015: 87a) and found in the coffin of the woman are not a later contamination.

(Petrie 1911). In each season plant remains associated with graves of the Graeco-Roman period have been found. For the first season, an account about them was written by Newberry and published in Petrie's publication (Newberry 1889: 46–53). For the second season, Newberry gave information just about the new species identified compared to the precedent year (Newberry 1890: 46–9), while for the last season, Petrie just added that “there was but little to be added to his [Newberry] previous study in Hawara” (Petrie 1911: 16). Although Petrie's excavations are quite well documented, it seems not possible to attribute these plant remains to any particular excavated burial, so there is little information about the very exact archaeological context of their finding. It is known anyway that they were found in the (Roman, but likely also Ptolemaic) cemetery of Hawara, lying directly in the coffins or the sand of the tombs (Newberry 1889: 47–8).

Part of the plant remains found during Petrie's excavations is today preserved at Kew Gardens and the Petrie Museum. They come from the first season of Petrie and correspond to the ones studied by Newberry, who also arranged portions of them on cardboard.

Kew Gardens Nr. 26647⁶

The garland (fig. 1) was gifted to Kew Gardens by the British Museum in 1978. Data on the label in the box informs us that it comes from the excavations carried out by Petrie in July 1888.



Fig. 1 Kew Gardens 26647. A particular of the “fake flowers” with mudballs (photo by F. Andreozzi)

6 https://ecbot.science.kew.org/read_ecbot.php?catno=26647&search_term=petrie&search_type=name&woodchecklist=Woods.

The portion is 29 cm long and about 1 cm wide. It is composed of a core made up of numerous sedge (Cyperaceae) strips (0.1 cm wide). Decorative elements have been joined to the core as follows: on the apex of several strips of papyrus (*Cyperus* sp.), about 5 cm long, 3–4 mud balls (1 cm in circumference) were circularly arranged. At the same time, *Silene coeli-rosa* (L.) Godr. flowers were placed parallel to the strips of papyrus. The elements are held together by thin strips (0.1–0.3 cm wide) of *Cyperus* sp. that wrap them. These single elements, which can be called “fake flowers”, since they seem to pretend real single flowers, are then joined to the garland core with further strips of papyrus. The use of mud balls probably imitates the *Withania somnifera* (L.) Dunal berries widely used in these compositions, but the composition remains unique to my knowledge. It is possible that the wreath-maker did not have the latter available or wanted to create an original composition.

Kew Garden Nr. 26565⁷

A piece of garland similar to the previous one is stored under the number 26565. It also comes from the excavations in July 1888 and is dated to the 1st BC according to the label. The portion was given by the British Museum to the Kew Gardens in 1978.

The garland measures 17 cm in length and around 1 cm in diameter. It is composed of numerous sedge strips (0.1–2 cm wide), the core, on which flowers of *Chrysanthemum coronarium* L. (three of these remain), flowers of *Silene coeli-rosa* (L.) Godr. (two are still attached), and some twigs of marjoram (*Origanum majorana* L.) have been arranged. The elements are tied to the core with thin (0.1–0.2 cm wide) strips of *Phoenix dactylifera* L. Very little remains of the twigs of marjoram, nowadays mostly detached leaves sparse in the box.

The remaining flowers of *Chrysanthemum coronarium* L. (the internal disk is what remains) are 1.5 cm ca. in diameter. The leaves of marjoram instead are elliptical, 0.5–0.6 cm × 0.2 cm, pubescent on both surfaces, with raised midrib on the low surface and green color (Munsell 2.5Y 7/2 or 6/3).

Kew Gardens Nr. 26816⁸

The portion of this garland (fig. 2) comes from the excavation in 1888. It is 23 cm long and around 2 cm wide. It is made up of a central core of *Scirpus* sp. (papyrus pith according to the label) culms, above which several densely closed marjoram twigs with leaves have been fixed with thin (0.2 cm wide) palm (*Phoenix dactylifera* L.) strips, together with the flower of *Silene coeli-rosa* (L.) Godr. and a copper coil. A coil of a peeled culm of *Scirpus* sp. has been added over these elements in three distinct points. Though the material is attached to the cardboard, and it cannot be seen in its three-dimensionality, it seems that a further piece of garland composed in the same manner has been added to the core in its lower part using the same palm strip. This piece is in its turn linked to a further long string, through which the garland may have been hung to the body of the deceased.

7 https://ecbot.science.kew.org/read_ecbot.php?catno=26565&search_term=26565&search_type=name.

8 https://ecbot.science.kew.org/read_ecbot.php?catno=26816&search_term=26816&search_type=name.



Fig. 2 Kew Gardens Nr. 26816 (photo by F. Andreozzi)

Next to the garland, Newberry separately attached and labeled three flowers of *Silene coeli-rosa* (L.) Godr. and three twigs of sweet marjoram (*Origanum majorana* L.). The latter (around 2.5–3 cm long) have elliptical leaves, 0.5 cm × 0.2 cm, pubescent on both surfaces, with raised midrib on the lower surface and green color (Munsell 2.5Y 7/2 or 6/3).

Kew Gardens Nr. 26883⁹

The two portions stored under the same number (fig. 3) arrived at Kew Gardens as a gift from the British Museum in 1978 and came from Petrie's excavation at Hawara in 1888. According to the old label, they would have been found in a tomb dated to the 1st century Bc.

The two portions are respectively 38 cm and 28 cm long, and approximately 3.5–5 cm wide. The garland shows a particularly complex composition. The central core is formed by several culms of *Scirpus* sp. and to a lesser extent by culms of a sedge plant (probably *Cyperus* sp.), but these are almost completely covered by the rich decoration. The latter consists of numerous "fake flowers" each formed by short strips (4–5 cm) of *Cyperus* sp. (more rarely of *Scirpus* sp.) around which petals or flowers of *Rosa richardii* Rehder or flowers of *Silene coeli-rosa* (L.) Godr. have been tied. There is a tendency to arrange rose of heaven flowers around a single strip of *Cyperus* sp. which widens towards the apex. On this and in combination with rose of heaven flowers, a ring of *Withania somnifera* (L.) Dunal berries perforated by a strip (0.1 cm) of sedge plant was then placed. The purpose seems to create a composition similar to a flower of the Asteraceae type. All the elements of the fake flowers are held together by a small strip (0.2 cm) of *Cyperus* sp.

In some points, the presence of *Helichrysum stoechas* (L.) Moench flowerheads, today mostly dispersed in the box, can be noted, but it is unclear if they were originally part of the garland, or if it is a modern contamination.

The berries of *Withania somnifera* (L.) Dunal measure 0.5 cm in diameter and are reddish (Munsell 2.5YR 3–4/5). The sepals of *Rosa richardii* Rehder, when preserved, are tomentose on the back and on the edges, and copiously pinnatifid, while the petals today mostly crumpled are from honey (Munsell 2.5Y 7/5) to dark red (Munsell 5YR 2.5/1) color.



Fig. 3 One of the two portions of Kew Gardens Nr. 26883 (photo by F. Andreozzi)

9 https://ecbot.science.kew.org/read_ecbot.php?catno=26883&search_term=petrie&search_type=name&woodcheckboxlist=Woods.

Kew Gardens Nr. 26721¹⁰

A further portion of a garland composed in a very similar way to the previous one is held under inventory number 26721. It also comes from Petrie's excavations in 1888.

The portion is tied to a card in the bottom of a box, on which Newberry has separately placed the elements that compose it together with identification labels. The garland portion is 40 cm long and up to 5 cm wide. Like the previous one, it is composed of a core made from culms of *Scirpus* sp. and strips of *Cyperus* sp. completely covered by numerous ornamental elements. These can be described as "fake flowers" and are mainly of two types. The first one is formed by one or more papyrus strips that widen at the apex around which *Silene coeli-rosa* (L.) Godr. flowers have been placed (fig. 4). At their apex, a ring of *Withania somnifera* (L.) Dunal berries pierced by a small strip (0.1 cm) of a sedge plant has been sometimes put. The second type is instead made up of several strips of *Cyperus* sp. or *Scirpus* sp. (about 4–5 cm long) to which petals or flowers of *Rosa richardii* Rehder or petals of *Matthiola incana* (L.) W.T.Aiton have been tied.



Fig. 4 One of the "fake flowers" with rose of heaven flowers of Kew Gardens Nr. 26721 (photo by F. Andreozzi)

¹⁰ https://ecbot.science.kew.org/read_ecbot.php?catno=26721&search_term=petrie&search_type=name&woodchecklist=Woods.

On the bottom of the box, Newberry placed separately two fake flowers of *Rosa richardii* Rehder and one with the flowers of *Silene coeli-rosa* (L.) Godr. and *Withania somnifera* (L.) Dunal. He then placed separately a fake flower formed like the previous one but without rose of heaven flowers. Finally, two fake flowers have *Epilobium hirsutum* L. flowers as ornamental elements. They must have belonged to the garland, but other examples of such flowers were not observable in the composition. All the fake flowers are tied and then held together at the core by a small strip of *Cyperus* sp. (0.1–2 cm) which spirals around them.

The berries of *Withania somnifera* (L.) Dunal measure around 0.5 cm in diameter and are reddish (Munsell 2.5YR 3–4/5). The petals of *Rosa richardii* Rehder are mostly crumpled and are from honey (Munsell 2.5Y 7/5) to dark red (Munsell 5YR 2.5/1) color. Other parts of the flowers were not present or observable. The flowers of *Epilobium hirsutum* L. are small (1 cm long in the remaining part), with hairy sepals and stems.

LDUCE-UC72696

A final portion of a garland from Petrie's excavations at Hawara is housed in the Petrie Museum (LDUCE-UC72696).

The portion measures 16 × 4 cm in width. On a single culm of a sedge plant (*Cyperus* sp.), 0.7 cm wide ca., fake flowers were tied with a strip of sedge plant (0.1 cm). The fake flowers are made by 1–2 pieces of culms of *Scirpus* sp., partly squeezed, or of a sedge plant to which just flowers of *Rosa richardii* Rehder have been tied with a strip of sedge plant (0.1 cm); or just petals of *Silene coeli-rosa* (L.) Godr.; or just whole flowers (with calyx) of *Silene coeli-rosa* (L.) Godr.

The flowers of *Rosa richardii* Rehder are identified by the sepals, which are tomentose on the back and the edges, and copiously pinnatifid.

BRUGSCH'S EXCAVATION

Brugsch excavated at Hawara in March 1892 after the first and the second season of Petrie. Unfortunately, he never published extensively the results of his investigations and one must rely just on some information he gave during his lectures in 1892 (Brugsch 1892–1893) and the material that was donated to the Ägyptische Abtheilung Königliches Museen (today Ägyptisches Museum und Papyrussammlung) in Berlin (Uytterhoeven 2009: 26–7). From these, it can be deduced that he excavated like Petrie the Ptolemaic and Roman cemetery at the north side of the pyramid, and he dated these burials from the 2nd century BC to the beginning of the Christian era (Brugsch 1892–1893: 26). Specific mention of vegetal material has been also made by him (Brugsch 1892–1893: 26), without that the very exact tombs, where it was discovered, can be known. Today, part of this material is stored in the Ägyptisches Museum in Berlin.

ÄM 3346

Only three garlands with *Silene coeli-rosa* (L.) Godr. flowers, all under the same inventory number (ÄM 3346) are attributable to his excavation. They are preserved in a big paper box (67.5 × 50 × 8.5 cm), each on cardboard covered by tissue. All three present the same composition with small variations.



Fig. 5 One of the three garlands under the access number ÄM 3346 (photo by F. Andreozzi)



Fig. 6 A particular of the rose of heaves flowers of ÄM 3346 (photo by F. Andreozzi)

The first one (fig. 5) measures 67 cm in length and 1.5-2.5 cm in diameter. It consists of 2-3 strips of *Scirpus* sp., 0.5 cm wide, on which numerous twigs of marjoram (5-10 cm long) with leaves and flowers have been placed along the entire length of the garland. Above these, throughout the central part, perfectly preserved flowers of *Silene coeli-rosa* (L.) Godr., with intact petals, have been added facing outwards the garlands, and at regular intervals between them, also inflorescences of *Chrysanthemum coronarium* L. (fig. 6). All the elements were fixed to the core using a strip of *Phoenix dactylifera* L., 0.1 cm wide, which wraps the garland along its entire length. The garland must be a complete specimen since two culms of *Scirpus* sp., respectively 29 and 23.5 cm, protrude from both ends (one on each side) of the core, suggesting that the composition could perhaps have been applied to the neck of the deceased.

The second exemplar is slightly shorter (58 cm × 1.5–2 cm) but is equally composed of a core made of one or two culms of *Scirpus* sp., 0.5 cm wide, partly used double, on which they have been placed for its entire length, numerous twigs of marjoram with leaves and flowers. In the central part, towards the outside, flowers of *Silene coeli-rosa* (L.) Godr. now with lost petals have been added, and in an almost symmetrical way, also two inflorescences of *Chrysanthemum coronarium* L. A single flower of *S. coeli-rosa* (L.) Godr. is also present at one end. All the elements have been fixed to the core by a strip of *Phoenix dactylifera* L., 0.1 cm wide, which wraps the garland along its entire length. A culm of *Scirpus* sp. emerges from the extremities (one on each side). These are knotted together, for a total length of 19 cm. The garland is therefore complete, and the dimensions suggest it was applied to the neck (or perhaps around the head?) of the deceased.

The third and last exemplar is perhaps the least complete. The garland measures 63 cm × 1–2 cm and like the others is equally composed of a core made of one or two culms of *Scirpus* sp., 0.5 cm wide, on which numerous sprigs of marjoram with leaves and flowers have been placed throughout its length. In the central part, facing outside the garland, flowers of *Silene coeli-rosa* (L.) Godr. with the petals still preserved have been added, and at almost regular intervals, five inflorescences of *Chrysanthemum coronarium* L. All the elements have been fixed to the core by a strip of *Phoenix dactylifera* L., 0.1 cm wide, which wraps the garland along its entire length. A culm of *Scirpus* sp., 27 cm long, protrudes from one end, while the one that should have come out from the other end is lost. Like the other two cases, the garland might have been applied to the neck of the deceased.

In all cases, the leaves of marjoram are elliptical, 0.4–0.6 cm × 0.2–0.3 cm, pubescent on both surfaces, with raised midrib on the lower one and green color (Munsell 2.5Y 6–7/3). *C. coronarium* L. flowerheads measure 1.5 ca. cm in diameter.

OTHER EXCAVATIONS

Flowers of *Silene coeli-rosa* (L.) Godr. are part in the composition of other flower arrangements from Hawara, without being possible to attribute them to any specific or well-documented excavation. Most of them belong to Schweinfurth's collection at the Berlin-Dahlem Botanical Garden.

Schw. Nr. 243

S. Schw. Nr. 243 (fig. 7) preserves some (3 or 4, the box could not be opened) small bouquets which may have been part of a garland like fake flowers. The label written by Schweinfurth states that they come from a Roman tomb of the 2nd–3rd century AD near the pyramid of the Labyrinth.

The bouquets measure approx. 7 cm × 2 cm at the apex. They are made by short culms of *Scirpus* sp. to which twigs of marjoram (*Origanum majorana* L.) and, in the lower part, flowers of *Silene coeli-rosa* (L.) Godr. have been tied with a strip of *Phoenix dactylifera* L., 0.1 cm wide. 2–3 of these bouquets are further tied together by a strip of the same material.

The leaves of marjoram are elliptical, 0.7–0.5 cm × 0.2–0.3 cm, pubescent on both sides, with an evident midrib on the lower one and green in color (Munsell 2.5 6/3).



Fig. 7 Schw. Nr. 243 (photo by F. Andreozzi)

Schw. Nr. 244

S. Schw. Nr. 244 is instead a portion of a garland, also coming according to the label of Schweinfurth, from a Roman tomb of the 2nd-3rd century AD near the pyramid of the Labyrinth.

The piece measures 9.5 cm × 1.5 cm. It is made of a core with 3-4 culms of *Scirpus* sp. (*S. corymbosus* according to the label), on which twigs of marjoram have been placed along its entire length. Flowers of *Silene coeli-rosa* (L.) Godr., of which one is detached in the box, and inflorescences of *Acacia seyal* Delile (just one visible) were then added. All the elements were tied to the core via a strip of *Phoenix dactylifera* L., 0.1 cm wide, which wraps the garland in a spiral along its entire length.

The leaves of marjoram are elliptical, 0.5 cm × 0.2-0.3 cm, pubescent on both sides, with a little raised midrib on the lower one, and green in color (Munsell 2.5Y 6-7/3). The inflorescences of *Acacia seyal* are 1.5 cm in diameter. The identification at the species level for the latter has been done based on Schweinfurth's notes since the box was not openable and the flowers could not be seen at a higher magnification.

Schw. Nr. 239

Another garland portion (fig. 8) is preserved under the number 239. It comes from the excavations of Badir (1897) at Hawara and dated to the 2nd or 3rd century AD.

It measures approximately 15 × 2.5 cm and is composed of a core of 7-8 pieces of *Scirpus* sp. on which were placed several small bunches held together by a strip of date palm (0.2-0.1 cm wide). The bunches are formed by short pieces of *Scirpus* sp. (3-4.5 cm long), to which *Nelumbo nucifera* Gaertn. petals have been tied at the apex. A second type of composition tied to the core is composed of peeled pieces of *Scirpus inclinatus* Asch. & Schweinf. ex Boiss. arranged in a radial pattern with a *Withania somnifera* (L.) Dunal berry in the center, tied from strips



Fig. 8 Schw. Nr. 239 (photo by F. Andreozzi)

of *Cyperus* sp. Additionally, twigs of *Lawsonia inermis* L. and *Silene coeli-rosa* (L.) Godr. flowers were directly inserted into the core.

The berries of *Withania somnifera* (L.) Dunal measure around 0.5 cm in diameter and are brownish (Munsell 2.5YR 3/2). The petals of *Nelumbo nucifera* L. appear thick in consistency, with longitudinal streaks and light brown (Munsell 7.5YR 4/4). The branches of *Lawsonia inermis* Gaertn. are recognizable by the fruits: globose capsules 0.3–0.4 cm in diameter.

Schw. Nr. 240

Schw. Nr. 240 also comes from the excavations of Badir (1897) at Hawara and is dated to the 2nd or 3rd century AD.

It is very similar to the previous one, but on the core, small bunches made just of one or two pieces of culms of *Scirpus inclinatus* Asch. & Schweinf. ex Boiss. tied by a strip of the pith of a sedge plant have been added, while petals of *Nelumbo nucifera* Gaertn. and twigs of henna (*Lawsonia inermis* L.) have been placed as singular elements. The flowers of *Silene coeli-rosa* (L.) Godr. and twigs of marjoram noticed by Schweinfurth could not be seen anymore. All the components are tied to the core by a strip of *Phoenix dactylifera* L.

The petals of *Nelumbo nucifera* Gaertn. and the branches of *Lawsonia inermis* L. can be described as the ones of Schw. Nr. 239.

Schw. Nr. 228

A further portion of a garland (fig. 9) is stored under the number 228. It originates from Hawara, and it is dated to the 2nd or 3rd century AD, according to the label written by Schweinfurth. It was discovered in 1893.

The portion has an arched shape and is remarkable for its excellent state of conservation. It is 35 cm long and 3 cm wide approx. It is formed by a core of culms of *Scirpus* sp. (?), which is hardly observable because it is wrapped in *Vitis vinifera* L. leaves tied with a small strip of



Fig. 9 Schw. Nr. 228 (photo by F. Andreozzi)

Phoenix dactylifera L. (0.1 cm). With the same material, a series of small bunches are joined to the core, arranged regularly, and facing outwards. Each one is formed by short pieces of culm of *Cyperus* sp. to which flowers of *Silene coeli-rosa* (L.) Godr. are tied with strips of *Cyperus* sp. Regularly interspersed with these, finally, simple rigid strips of a sedge plant with ornamental purpose branch off directly from the core.

The leaves of *Vitis vinifera* L. are 3–4 cm long, of light color (Munsell 2.5Y 8/1–2), and with serrate margins.

Schw. Nr. 247

The small box labeled Schw. Nr. 247 contains five fake flowers. According to Schweinfurth's label, they come from a Roman tomb (2nd–3rd century AD) near the Labyrinth pyramid (Hawara).

Three of these are composed of a short (4 cm long) and thin (0.2 cm wide) *Cyperus* sp. strip to which the petals of *Punica granatum* L. were tied to the apex, using a further strip of the same material. The pomegranate petals are approximately 2 cm long, almost black (Munsell 5YR 2.5/1–2) and crumpled. In the absence of specific identifying elements, the identification used here is that of Schweinfurth.

One fake flower is instead made up of a piece of the culm of sedge (*Cyperus* sp.?) plant (0.5 cm wide; approx. 5 cm long), to which the petals of *Rosa richardii* Rehder have been tied to the apex, via a strip of *Cyperus* sp. (0.2 cm wide approx.). The petals of *Rosa richardii* Rehder are mostly crumpled, with longitudinal veins and reddish (Munsell 5YR 3/4).

The last fake flower is instead made up of one or two pieces of squeezed culm of a sedge plant (*Scirpus* sp.?), about 4 cm long, to which *Silene coeli-rosa* (L.) Godr. flowers without petals have been tied to the apex.

Others (ÄM 14154; Schw. Nr. 193 and Schw. Nr. 194; E13446)

Other flowers were destroyed and consist only of single flowers ÄM 14154; Schw. Nr. 193 and Schw. Nr. 194; E13446). Flowers of *Silene coeli-rosa* (L.) Godr. were also part of a portion of a garland now lost (ÄM 14154). As ornamental elements, this had twigs of *Lawsonia inermis* L. and of *Origanum majorana* L., petals of *Nelumbo nucifera* Gaertn. and *Withania somnifera* (L.) Dunal berries (Germer 1988: 19, n.45). There is no information regarding the composition of the core or the material of the binding.

Some individual flowers of *Silene coeli-rosa* (L.) Godr., no longer part of any composition, are preserved under the Schw. numbers 193, 194, and Ägyptisches Museum n. 19543 (the latter now lost; Germer 1988: 17, n.8). These elements date to 2nd-3rd century AD.

Finally, a portion of a garland from Hawara preserved at the Oriental Institute of Chicago which could not be seen (E13446)¹¹ must be mentioned. The catalog describes the floral elements that compose it: in addition to *Silene coeli-rosa* (L.) Godr. flowers, petals, or flowers of *Rosa richardii*, twigs of *Origanum majorana* L., petals (?) of *Punica granatum* L., and flowers (?) *Acacia seyal* Delile are mentioned.

ABUSIR EL MELEQ

Several portions of funerary garlands were discovered during the excavation of Rubensohn at Abusir el-Meleq and they are preserved at the Ägyptisches Museum in Berlin. The discovery of garlands during the excavation was reported in the excavation diary, now kept in the museum archive, and I thank Dr. Helmbold-Doyé for its transcription. The excavation notes had already been partly reworked and published by Möller - Scharff (1926).

Towards the end of the excavation, it was decided to excavate some graves to collect osteological material, including a shaft tomb with seven chambers already discovered by Rubensohn. Garlands were found in chambers 2, 3, and 5 (Möller - Scharff 1926: 104-5; fig. 26). In room 2 two rectangular sarcophagi with a frieze of uraei were found. The burial, and therefore also the garlands, have been dated approximately to the 2nd century AD. In the third room, instead, five sarcophagi were found, one of which was of a child. This is described in the excavation journal as having the body covered with garlands (*“über den ganzen Körper hin mit Blumenkränzen umwunden”*, p. 89). The last ones are described as garlands of acacia and papyrus flowers wrapped in a thin sheet of copper. Noteworthy, the portions of garlands now preserved in the museum have neither acacia flowers nor copper foil.

The portion of garland with *Silene coeli-rosa* (L.) Godr. flowers is stored in a box under the accession number ÄM 17614 (Germer 1988: 17, n.9).

It measures 72 cm in length and 1-2 cm in width. It consists of a core made of 1-2 culms of *Scirpus* sp. on which twigs of marjoram (*Origanum majorana* L.) have been placed along its entire length. Flowers, now without petals, of *Silene coeli-rosa* (L.) Godr. have also been added, in three different points, along with some flowerheads of *Helichrysum stoechas* (L.) Moench now scattered in the box. These have been added in one point of the garland, but they may be

11 <https://isac-idb.uchicago.edu/id/656f54d3-612f-4e08-909d-e51b4d797359>.

a modern contamination. The elements were fixed to the core using a strip of *Phoenix dactylifera* L., 0.1 cm wide, which wraps the garland along its entire length.

The inflorescences of *H. stoechas* (L.) Moench has bracts with sharp or fringed apexes. The leaves of marjoram are elliptical, 0.5 cm × 0.2–3 cm, pubescent on both surfaces, with the raised midrib on the lower one, and green (Munsell 2.5Y 7/2–3).

FAG EL GAMOUS

Some capsules of *Silene coeli-rosa* (L.) Godr. have been found in the sarcophagus of a young woman from the Ptolemaic period (220 BC) and coming from Fag el Gamous (Fayum), whose mummy is now stored at the Egyptian Museum in Cairo (Nr. 127c). The young woman also had a composed garland on her body (Hamdy 2015: 87), in whose composition the flowers of the rose of heaven take no part. The presence of just their capsules in the coffin may be then also a later contamination. If this were not the case, this would be instead the oldest and best-dated attestation of *Silene coeli-rosa* (L.) Godr. in Egypt.

UNKNOWN PROVENIENCE

Two small floral arrangements with *Silene coeli-rosa* (L.) Godr. flowers are kept in two boxes at the Berlin-Dahlem Botanical Museum which could not be opened, a condition that limits the identification of the species and their description. In both cases, indeed, the identification at the species level of the flowers of *Acacia seyal* Delile has been possible just because of the Schweinfurth notes. The author can assure they belong to the *Acacia* genus. Both are datable to the 2nd–3rd century AD. They likely come from Hawara too, like most of the pieces of the Schweinfurth collection described above.

The first is a portion of a garland (Schw. 217; Germer 1988: 18) and measures 10 cm × 3.5 cm. It is composed of a core (?), not visible, perhaps composed as in other cases of culms of *Scirpus* sp. or of *Cyperus* sp. On this (?) a series of small “bunches” with culms of *Scirpus* sp. (4–5 cm) have been fixed. At least five flowers of *Acacia seyal* Delile (1.5–2 cm in diameter) are visible and concentrated on one side, while on the other side, flowers of *Silene coeli-rosa* (L.) Godr. are recognizable. The strips used to tie these elements and the bunches together (0.2 cm) are of *Phoenix dactylifera* L. and a sedge plant. A modern (?) thread seems to have been added to reinforce the garland.

The second arrangement (Schw. 218; Germer 1988: 18) instead is more similar to a small bouquet rather than a garland. It is about 8 cm long, and it is made up of 6–8 thin strips (0.2–3 cm) of a sedge plant (*Scirpus* sp.?) knotted together by a strip of date palm (0.1 cm) knotted at one point to which a linen thread has been added as a reinforcement. The flowers of *Silene coeli-rosa* (L.) Godr. (two still attached, two detached) and at least six *Acacia seyal* Delile flowers (1.5 cm in diameter) have been inserted on one side only.

Finally, two flowers and nine fruits of *Silene coeli-rosa* (L.) Godr. of uncertain period and provenance are today stored in the Dokki Museum in Cairo (Nr. 1/56; see Cappers – Hamdy 2007: No. 0407).

TEXTUAL REFERENCES

THE NAMES

A name for the rose of heaven in ancient Egyptian has not yet been recognized. The plant is indeed absent from Charpentier's dictionary (1981), in the CDD, and in the main works specialized in ancient Egyptian flora. Loret (1892: 107, n.178), talking about the *Lychnis coeli-rosa* of the Hawara garlands, underlines that the plant is not more present in Egypt nowadays, and Keimer (1984: 40) and Germer (1985: 30) consider it just as cultivated in the Egyptian gardens during the Graeco-Roman times. To possibly suggest a name for this flower, Greek sources can be taken into consideration.

In Greek, there is not an identified name for the *Silene* (or *Lychnis*) *coeli-rosa*. Indeed, the *Silene* (or *Lychnis*) *coeli-rosa* is not native to Greece. Instead, it is known as a name for *Lychnis coronaria* L. Desr. (or *Silene coronaria* (L.) Clairv.), that is λυχνίς (the same name found in Egyptian papyri), a species very similar to the former and equally used for garlands. The only extensive description of this plant is the one by Dioscorides (*De materia medica*, III, 100). The latter tells that the λυχνίς is a flower, used to make garlands, similar to the gillyflower (λευκόϊον), and with purple color. Its seeds are helpful drunk with wine for those stung by scorpions. The exact identification of this plant with the *L. coronaria* (Liddell – Scott 2003: 1068; Carnoy 1959: 165; Beck 2017: 226) seems to be mostly based on its use for garlands and the modern specific epithet “*coronaria*”, which supports similar employment. The comparison between its flower and the λευκόϊον is just partially helpful since Dioscorides (*De materia medica*, III, 123) does not describe it and just tells that is a well-known plant. Although this, if its current identification with the *Matthiola incana* (Liddell – Scott 2003: 1041; Beck 2017: 235) is not wrong, the comparison between the two is well understandable and it justifies the identification of the former as *Silene coronaria* (L.) Clairv.: both have small flowers with purple color and rounded margin petals (Pignatti 1982: 394).

Nevertheless, likely, more similar species were considered under the name λυχνίς. One of the synonyms for the latter given by Ps. Dioscorides (*De materia medica*, III, 100), γερανοπόδιον (Carnoy 1959: 129; Liddell – Scott 2003: 345), may refer indeed to the similarity between the shape of the crane paths and the petals with bipartite margins. Such a feature does not fit the petal of the *Silene coronaria* (L.) Clairv. but is accurate for several other species belonging to the *Silene* and *Lychnis* genus. It should be taken into consideration that in our modern taxonomy, the differences among them are quite minimal (mainly they concern how deeply the petals are divided, the shape and length of the calyx or the ratio of the calyx and carpophore length) and difficult to distinguish at first glance, and it is not unlikely that more modern species were categorized under just one name in Antiquity.

It is worth to mention here, that above the λυχνίς flower, designated by the Dioscorides as στεφανωματική (“used for garlands”), and just discussed, the Greek author distinguished another variety, the λυχνίς άγρία or “wild” variety. This is said to be similar in every respect to the former and it is employed to draw bilious matter down to the bowel and to make scorpions lethargic and inoffensive when set next to them (Dioscorides, *De materia medica*, III, 101). It has been identified with the *Agrostemma githago* (Liddell – Scott 2003: 1068, corn cockle; Beck 2017: 226; Pignatti 1982: 238), a plant that looks like the *L. coronaria* (or as we said, *L. coeli-rosa*).



Again, however, the same description fits well also other species of the *Silene* and *Lychnis* genus,¹² such as the *Silene dioica* (L.) Clairv., red campion, which has purple flowers with five bilobed petals (Pignatti 1982: 252). The leaves of *S. dioica* (L.) Clairv. are also eaten as vegetables, like other *Silene* species (*Silene vulgaris* (Moench) Garcke, *Silene alba* (Miller) Krause). Further, an anointment of this species seemed to be used in British folk medicine for bites of poisonous animals (Allen – Hatfield 2004: 93), so like Dioscorides indicated its use against scorpions. This suggestion does not want to be a one-by-one identification, but just a proposal to consider the complexity of the case and the fact that ancient names indicated more than one modern taxonomic species and that our distinctions of species may be differently covered by the couple “λυχνίς”/“λυχνίς ἀγρία”. One cannot exclude that under the simple name “λυχνίς” also species which today we want to identify with the “λυχνίς ἀγρία” may be sometimes meant.

Having then considered all the possible Greek designations under which the *Silene coeli-rosa* may be covered, one may return to the possibility of suggesting an Egyptian (Demotic) name for it. The list of synonyms of the Ps. Dioscorides suggests σεμεώρ as the Egyptian name for the common λυχνίς (*De materia medica*, III, 100), and σεμουέρ as the Egyptian name for the wild variety (*De materia medica*, III, 101). Both are similar, differing just for the position of the ε and for the ου instead of ω so that it is not clear how distinguished these names were or if just a corruption of the manuscript tradition is involved in these differences (no important variants are reported by Wellmann (1906: 112)). To understand where this (or these) name(s) may have originated, two main hypotheses can be followed: considering it coming from one name or seeing it composed of two names.

If one considers the first suggestion, for the possible Egyptian correspondent names, these structures may be suggested: *smwr*, *smr*, *smwl*, *sml*. Of these, just the last two are attested as plants, and they have been also suggested to be variants of the same name. They do not have many occurrences. The term *sml* appears once in the history of the contention for the armor of Inaros (P. Krall, XII, 25), as the material, of which a mat part of the equipment of the hero Pamu is made. Hoffmann (1996: 242) translates it as “Schilf (?)”, a plant suitable for this purpose. Further, it appears in an inventory of a Roman temple, as the material of the container *lgs* (P. Berlin 6848, 3/01; Dousa – Gaudard – Johnson 2004: 740), which may confirm the translation as “reed”, and in an ostrakon of Medinet Madi (88.1; Gallo 1998: 164).

To the word *sml*, Smith (1983: 203, n. 20) suggested linking the term *smwl*, attested just twice and in a fragmentary way. It appears in a Demotic herbal published by Tait (1977: 68), where the plant seems to be used in an anointment against the fever, but because of the

12 This is clear from the synonyms, which the Ps.-Dioscorides (*De materia medica*, III, 101) indicated for the λυχνίς ἀγρία, useful for its description. If τραγόνωτον (Carnoy 1959: 269) may recall the hairy aspect similar to the back of a goat and λαμπάς (Carnoy 1959: 157; LSJ, p. 1027), the red vivid color similar to a flame; the synonym ἱερακοπόδιον (Carnoy 1959: 144; LSJ, p. 820), which may refer to the bilobed shape of the petals resembling the paths of the falcon, does not fit the petals of *Agrostemma githago*. Further, from the papyri documentation, it seems that the λυχνίς ἀγρία (λαμπάς) was considered and used as a vegetable, while *Agrostemma githago* is known today to be possibly poisonous (Firbank 1988: 1239), even if sometimes it is reported to be eaten as a famine food. It is not likely then to consider it normally cultivated in a garden as a vegetable. Considering that there is no certainty that each of the Dioscoridean synonyms indicated the same plant, there is no reason to exclude that the λυχνίς ἀγρία could indicate other edible *Lychnis* or *Silene* species with purple flowers.

fragmentary state of the text, it is difficult to prove with certainty this use. The first letter appears just in part in the papyrus ,¹³ but the traces led to think to the upper part of an *s*. Also, the *w* is partially deleted in its upper part, but its reading is quite unquestionable. The second possible occurrence of this term is in a Demotic dream book (P. Carlsberg 14, h, 3; Volten 1942: 102), where the vision of the plant corresponds to an infaust result (*jw=f r mwt*). In this case, however, just *]mwl* is preserved, even if the determinative used is the same as the precedent attestation .

Finally, the plant *]wl*, which appears in another Demotic herbal (P. Carlsberg 230, fr. 8, x+5; Tait 1991: 78), may be also linked to this name. The plant is said indeed to grow near the lakes, a habitat, which will fit well with the identification of *smwl* with the reed.¹⁴

In all these cases, there seems no reason, however, to link the word *smwl/sml* with the Greek *σεμεώρ/σεμουέρ* as rose of heaven, since the latter is not apt to make mat or container nor has a particular connection with the fever or lakes (but for the letter, see below the hypothesis of Černý).

The second possible suggestion is that *σεμεώρ/σεμουέρ* may originate from two names conflated in one. It seems possible to propose a conceivable Egyptian language structure for this name. The first part *σεμ* recall indeed the word *s(y)m*, “herbs, grass” (CDD, s, 207), while the second part of the word may suggest the adjective *wr*, “great” (CDD, w, 107), whose Coptic outcome is *ουηρε* (Černý 1976: 214), and which is rendered in Greek as *-ουηρ* (m.) or *-υερ* (f.), like it is known from the name of places.¹⁵ This proposal would be fit for *σεμουέρ*, whose meaning could have been translated then as “the great plant”, without that one can speculate about the reason of this name referred to the rose of heaven. Another possible understanding of the reconstructed name **“s(y)m wr”* could be to consider *wr* as a shortened epithet of a god, to translate it as “the plant of the Great one”. The Greek names *Ἐσοηρις* (f.) or *Πετεσουήρις* (m.) are both compound with the *wr*-element at the end, which gives the Greek outcome *οηρ/υήρ* + the sigma needed in Greek for people name added, and which is a shortened form of “Isis the Great” (*3s.t wr.t* (the Great Isis) = *Ἐσοηρις* and *p3-dj-wr.t* (the one given by the Great Isis) = *Πετεσουήρις*). In this case, the meaning of the plant *σεμουέρ* would be “the plant of the Great One”, a nomenclature already well-known for other plants in Demotic (see note 14). In this case, nevertheless, the absence of the genitive “-n-” present in the other examples may result in problems. Furthermore, to the best of my knowledge, a name as **“s(y)m wr”* has never been attested, even if this may be due just to a lack of documentation.

A final suggestion that has been explored is the derivation from *3hr* (CDD, 3, 67, “swamp”). Černý (1976: 154) indeed suggested linking *σεμουέρ* to the Coptic *σαμαθρη*, which he interprets as *σαμ* (“plant”) + *αθρη* (“marsh”), that is “plant of the marsh”, epithet not suitable for rose of heaven as it grows on dry soils. This translation may be well understood if the Greek toponym

13 The remaining parts of a vertical line and an upper curved part recall the Demotic sign for an *s*.

14 Although this general accordance, other plants have names ending with *-wl*, like the onion *mdwl*, so that this last occurrence should be taken with caution.

15 This structure is not unusual for Demotic plants' names. It has been already suggested regarding the origin of the Greek name of the marjoram (*σάμψουχον*) as *sym-n-šbk* (the “plant of Sobek”), as there are other names compound with *sm* + gods name, such as *sym-n-Imn* (CDD, s, 210, “the plant of Amon”) or *sym-n-Inp* (CDD, s, 210, “the plant of Anubis”). There are also other possibilities attested: *sm*+a ethnic characters, like *sym wynn* (CDD, s, 210, the “Greek plant”), or *sym-n-hl* (CDD, s, 211, the “Syrian plant”); or *sm*+adjective or a common name, like *sm nyn* (CDD, s, 211, the “plant of the bird nyn”), *sym krf* (CDD, s, 211, the “evil plant”), or *sym-n-gyd* (CDD, s, 211, the “plant of the hand”).

Σαμαχηρε is considered, a place of the Aphroditopolis nome, attested once in P. Lond. 41481 (Bell – Crum 1910: 429–430), together with Σαμαηρ, which precedes it. The absence of the fricative in σεμουέρ is indeed explained by Černý and Crum (342b), equalizing the toponyms, but these look like two distinct places in the list. Regarding the identification of the Coptic $\sigma\alpha\mu\alpha\eta\rho$, there is little information. Crum (342ab) proposed to link it to $\psi\alpha\mu\alpha\rho$, whose meaning “fennel” is deduced from the Arabic شمار. The Arabic-Coptic Scala 43 (f. 34, unpublished) translates indeed $\sigma\alpha\mu\alpha\eta\rho$ with شمار, but the Scala 44 (f. 82; Munier 1930: 167) translates it with اسفانج, that is “spinach”. Beyond these, the name is attested just once in a medical text, where it is used together with the incense against psoriasis (Zoega 1810: 628; Till 1956: 56, n.34). There is no particular reason based on this information to match σεμουέρ to $\sigma\alpha\mu\alpha\eta\rho$ through this series of equivalencies, even if its meaning as “spinach” may be in accordance to the use of the $\lambda\upsilon\chi\nu\acute{\iota}\varsigma$ άγρία as vegetables in Greek papyri, and Dioscorides suggested two similar but still different Egyptian names for the wild variety and the common one¹⁶.

Except for this possible name, in Coptic, there is no recognized word to indicate the rose of heaven. The Coptic renderings of the Greek words $\lambda\upsilon\chi\nu\acute{\iota}\varsigma$ or λαμπάς, $\lambda\iota\chi\nu\omicron\varsigma$ and λαμπας, seem indeed not to be attested in Coptic as plants (λαμπας is just the “lamp, torch”, see Förster 2002: 462; 486).

GREEK PAPYRI FROM EGYPT

There are not many papyri where the word $\lambda\upsilon\chi\nu\acute{\iota}\varsigma$ appears (see table 2). Further, the fragmentary status of some papyri makes it difficult to distinguish this word from similar ones (like $\lambda\upsilon\chi\nu\acute{\iota}\omicron\nu$ or $\lambda\upsilon\chi\nu\acute{\iota}\delta\iota\omicron\nu$, “lamp”). Two documentary papyri where $\lambda\upsilon\chi\nu\acute{\iota}\varsigma$ has been possibly recognized are presented here.

Title	Word	Content	Date	Origin	Publication	TM
An account with Herakleides the vine	$\lambda\upsilon\chi\nu\acute{\iota}\delta\omicron\varsigma$	Account	1. June 252 BC	Philadelphia? (Arsinoites)	P. Cair. Zen. 2 59269	913
Fragment of a list of gains and expenses	$\lambda\upsilon\chi\nu\acute{\iota}\delta$ (l. 103);	List	293	Hermopolis	P. Baden 2 26	80103
	$\lambda\upsilon\chi\nu\acute{\iota}\delta$ [α (l. 105);					
	$\lambda\upsilon\chi$ [νίδος (l. 117)					
Fragment of letter and fragment of account	λαμπάδα	List	Mid-3rd BC	Philadelphia? (Arsinoites)	P. Cair. Zen. 4 59608 a	1241
Rent of a garden	λαμπάδας	Contract	14. March 22 BC	Alexandria	BGU 4 1118	18560
Rent of a garden	λαμπάδας	Contract	24. Nov. 5 BC	Alexandria	BGU 4 1120	18562

Table 2 Synthesis of the attestations of $\lambda\upsilon\chi\nu\acute{\iota}\varsigma$ and λαμπάς (*Silene* spp.) in Greek papyri.

¹⁶ At the same time, the suggestion of $\sigma\alpha\mu\alpha\eta\rho$ as “plant of the marsh” cannot recall the Demotic word *smwl/sml* before discussed, which indicates a species of the same environment. Is it possible that while in Greek the difference between the “ $\lambda\upsilon\chi\nu\acute{\iota}\varsigma$ ” and “ $\lambda\upsilon\chi\nu\acute{\iota}\varsigma$ άγρία” (λαμπάς in papyri) is maintained in Egypt, in Demotic, the Egyptians conflated in one the two plants or assimilated one of them or both to another plant growing in moist soils?

The first one, which is the oldest, belongs to Zenon's archive, the manager of the properties at Philadelphia (Fayum) of Apollonios, διοικητής under Ptolemy II. It is a list of transactions (P. Cair. Zen. 259269; Edgar 1926: 116–8) dated to 252 BC, which involves both payments and collections for different people. Among these dealings, there appears a sale of the “*λυχνίς*” plant cultivated in the vineyard, for which Ephesos paid 13 drachmae (r, 3, ll. 3–4). The price can be compared with the ones mentioned before for the selling of roses (60 drachmae), onions (90 drachmae), or figs and pomegranates (20 drachmae). The flower does not have such a high economic value, but the main limit of this comparison is naturally represented by the fact that the text does not mention the quantities. It is interesting otherwise to know that the rose-campions were grown directly in the vineyard at Philadelphia, and it would have been interesting also to know the reason why Ephesos bought them. An “Ephesos” is mentioned other times in Zenon's papyri,¹⁷ like for line work (P. Cairo Zen. 459782, b, col. 6.87), for a hunt (P. Cairo Zen. 459747, 13), and woodwork (P. Michigan Zen. 38, col. 3.53), and as related to the city of Crocodilopolis (P. Col. Zen. 259176 (+ P. Lond. 72161) 62, 193), but it is unlikely to be always the same person. Nevertheless, it is likely he belonged to the workers of Apollonius' estate and could earn enough to buy some flowers, which are not primary needs. If he was the same “Ephesos” said to be paid four copper drachmae and four obols per day (P. Col. Zen. 2 63, r. col. 2.21), these flowers must have been quite expensive though.

The second relevant text comes instead from Hermopolis and it is dated to 293 AD. It preserves a list of expenses and gains (Bilabel 1923: 37ff.) presumably all belonging to Aurelius Felix, *prostates*, mentioned in the first line of the fr. 213r. The papyrus is quite fragmentary and the fragments that transmit the word *λυχνίς* are not at all complete since they lack the mention of the person from whom or to whom the money is given and often the sum associated. The word appears in its more complete form in the fr. 217. a, l. 105, where it is preceded by a feminine article and where the left part of the *δ* is still clearly visible. These two elements permit us to distinguish it from similar terms (see above). In the other two occurrences in the same papyrus (217. a, l. 103, 217. b, l. 117), just a minor part of the word is preserved, thus making it more doubtful if lamps or flowers are here bought or sold, since the uncomplete entry *λυχνίδ*[makes it possible to be understood as *λυχνίδιον* (neuter), a synonym of *λυχνεῖον*, that is “lamp”. This latter integration is maybe cautiously more likely since the context of the account is lost. For these entries neither the price nor the people are preserved, so nothing can be inferred about possible changes in value or use of the rose of heaven, but it still proves its presence in the mentioned time and space.

Above these two mentions, to the best of our knowledge, there is no other documentary evidence for the *λυχνίς*. Some other references to its near relative *λαμπάς* or *λυχνίς ἀγρία* (possibly *Silene dioica* (L.) Clairv.), are instead known. One (the most ancient) is in an account of mainly edible items belonging to Zenon's archive (Edgar 1931: 58),¹⁸ and is dated around the

17 P. Cairo Zen. 459747, r. 2, 8 and 13; 459782, b, col. 6.87, 7.123, 7.131; 259176 (+ P. Lond. 72161) 62, 110, 193 and 302; P. Michigan Zen. 38, col. 3.53; PSI 4331, r. 3; P. Cornell 1.162 and 167; P. Iand. Zen. 53, r. col. 4.44; P. Col. Zen. 1 5 + P. Col. Zen. 2 63, r. col. 2.21, col. 3.23; 2 77, r. 7.

18 The papyrus preserves a short letter on the recto very likely written by one of Zenon's agricultural men, which informs him about some works done about the sesame, while the mentioned account is on the verso, and it mentions as elements the cabbage (*ράφάνινος*), the beet (*σεῦτλον*), mustard (*σίναπυ*) and wine, along with the *λαμπάδα* (l. 30).

half of the 3rd century BC. The other two references are preserved in two very similar contracts for the rent of funerary gardens in Alexandria both dated to the end of the 1st century BC.¹⁹

The presence of the λαμπάς in such documents, and overall, among the vegetables, makes evident that this plant, although similar to the common λυχνίς (if we trust the Dioscorides' description), had mainly a role in the human alimentation rather than as an ornamental crop (naturally they are not mutually exclusive, just there is no proof for the second employment).

DISCUSSION

TIME AND SPACE

The data concerning *Silene coeli-rosa* (L.) Godr. in Graeco-Roman Egypt, though scarce, suggests a presence mostly limited to the Fayum area. While much surely depends on our documentation, the finding agrees with the peculiar cultural situation of the Fayum in the Ptolemaic time.

If the “λυχνίς” mentioned in the archive of Zeno (3rd century BC) is indeed the *Silene coeli-rosa* which is found as used in garlands from the 1st century-Fayum, it is possible to place this mention as a *terminus post quem* term for its presence. Its reference in the archive of Zeno, administrator of Apollonius, διοικητής of Ptolemy II fits well with the other testimonies of the same archive, which explicitly testify the willingness to introduce through cultivation various new species or varieties of plant species found in the Mediterranean in Apollonius' properties (Orrieux 1985: 90–91; Schmitz 2007: 183–191). Usually, the suckers were borrowed from other gardens of people who it is well to assume belonged to the Ptolemaic elite and located in the Delta or the Alexandrian capital, in addition to the royal gardens in Memphis. Other foodstuffs of plant or animal origin that could not be produced locally were imported from the Mediterranean (Orrieux 1985: 84–90). The presence of “λυχνίς” in the archives fits then well into this framework of “experimentalism” in the 3rd-century Fayum agriculture, as defined by Crawford (1973: 247). Such innovations were made possible by the economic capabilities of the elite and aimed not only at satisfying the primary food needs of “foreigners”, but also luxury needs, and to increase economic income through the new products. Furthermore,

19 These were both found as part of the cartonnage of mummies coming from Abusir el-Meleq during the excavations of Rubensohn. In the first one (P. 13074r of Berlin Museum), dated to the 22 BC (Schubart – Mitteis – Zereteli *et al.* 1912: IV, 200, n. 1118), a certain Aisopos rented a garden for a year to Tryphon and likely to another person. The contract describes all the kinds of plants cultivated in the garden (mainly vegetables) that the tenants had to care about and not damage. Here the λαμπάς (l. 12) is mentioned together with cabbage (κράμβη), cauliflower (καυλός), fan-palm (κεφαλώνων), wild lettuce (μηκωνίς), grapes (σταφυλή and βότρυς), plantain (θρυαλλίς), cucumber (σίκυος), sweet leek (πράσον) and beet (σεϋτλον). The second contract (P. 13109r), instead, is slightly later and dated to the year 5 BC (Schubart – Mitteis – Zereteli 1912: IV, 206, n. 1120). It registers a rent for five years of a garden belonging to Diodoros, son of Akestor, from Hermias, son of Apollonius, his son Hermias, and his wife Isidora. Again, the main cultivations present in the garden are described. Many of them are the same as the precedent contract (cabbage, cauliflower, beet, plantain, sweet leek, grapes, cucumber), underlining a certain commonality in the food culture, while others, that is the colocynth (κολοκύνθη), date-palm (φοῖνιξ), asparagus (ἀσπάραγος) and jujube (παλίουρος), are different. It is noteworthy that the number that accompanies these plants is often in the order of thousands or several hundred so these gardens must have been quite extensive. The λαμπάς (l. 14) is mentioned together with the other products in the number of three hundred.

the permanence of the use of this plant in the Fayum agrees with the high presence of Greek-speaking people in the region (Clarysse – Thompson 2006: 140), which may have created over time the social and cultural conditions suitable for its persistence. In the following centuries, the species only seems to be attested in this area and its vicinity (Abusir el-Meleq) and just once in Middle Egypt (Hermopolis). The limited spread may have its explanation in the fact that it is a species of almost exclusive ornamental use or the fact that the plant grows in dry soils and may have not grown spontaneously in the desert or the marshes²⁰. Its emergence in the archaeological record, especially in Roman times, can be explained by the fact that in this period Egypt, especially in areas that had undergone major population restructuring in the previous centuries, participated in the “fashions” of the (Greek)-Roman Empire, including a renewed interest in funerary garlands, which had their long tradition in Egypt.

In the face of this picture and considering that *Silene coeli-rosa* is not native to either Egypt or mainland Greece (even if it is native to Greek-speaking southern Italy), it is possible to assume that the arrival of the species in Egypt could be slightly (?) earlier than the 3rd century. It can perhaps be placed in the Late Period (664–332 BC), with the increase of Greek immigration into Egypt, although it could have admittedly occurred at any time. It is also possible that it was either linked to some conscious event but just purely accidental. Cases of accidental introduction of non-native species, especially through commercial contacts, are well proven even in modern times (Hulme – Bacher – Kenis *et al.* 2008). Other times, the simple action of one or a few traveling people who brought with them seeds of an alien species had strong consequences in the spread of a plant in a new territory (Alm 2013). Indeed, it seems more plausible to consider the introduction of the rose of heaven as accidental and not directly desired by the Greek elite of the 3rd century, as otherwise, one would not understand why they did not import the *Silene* species native from mainland Greece or Anatolia, where the *Silene coronaria* (L.) Clairv. is native. Instead, the *Silene coeli-rosa* (L.) Godr. introduced accidentally may have easily replaced the Greek λυχνίς (*Silene coronaria* (L.) Clairv.) attested in Classical texts to be used for garlands, since the latter was not native in Egypt and then not available.

CULTIVATION

Even if there is little data regarding the cultivation of *Silene coeli-rosa* (L.) Godr. in Graeco-Roman Egypt, these are quite relevant. According to the indication in the Zeno papyrus, it seems to be understood that the fore was cultivated in the vineyard together with other ornamental species such as the rose. This mixed crop regime is not surprising. Being species that possibly need care in cultivation such as water and fertilizer, they could have benefited

20 It can be seen as a comparison, that the presence of the “wild sister” of the λυχνίς, the λαμπάς, is reduced to three attestations, one from the 3rd century BC (a papyrus from Zeno’s archive) testifying its presence in the Fayum, and two funerary garden contracts in Alexandria from the end of the 1st century Bc. It is only conceivable that if it was a species not native to Egypt (like *Silene dioica*), it followed a similar path of introduction as *Silene coeli-rosa* and did not then become widely distributed in the territory. However, it could also be a species such as *Silene vulgaris*, which is widespread throughout the Mediterranean and thus also native to Egypt, which the new Greek-speaking inhabitants such as Zeno would have already found in the area and thus exploited and that its presence was limited to the area with high presence of Greek-speaking people.

from the attention of the major crop i.e. the vine. These may have been considered as “minor” species, that is species whose cultivation required less space, both for physiological reasons (smaller size) and for reasons of necessity, given their likely almost exclusively ornamental use.

It is then, of course, also possible that the rose of heaven was also cultivated in small plots of land specially prepared with soil from the Nile (Hugonot 1989: 228–33), close to houses, or in open spaces, without any special requirements.

Some ideas on the cultivation of λυχνίς can also be suggested by the data that the papyri provide us on its “wild sister”, the λαμπάς. The latter appears cultivated in funerary gardens (BGU 41118 and BGU 41120), which included vegetables (as cabbage, lettuce, or beet) but also fruit trees since figs, dates, and grapes are among the products mentioned. One can therefore imagine that λαμπάς, like the λυχνίς, was cultivated among the fruit trees or in a special part of the garden in a mixed regime, perhaps in square plots filled with fertile soil from the Nile as in the examples from the Pharaonic period (Hugonot 1989: 228–33). Cultivation must have benefited from the water of the Canopus branch, as the gardens are said to be “ἐπὶ τῆς κα[τ]ὰ Κανωβ[ὶ]δ[ος]” (BGU 41120, 1.7). The reference to their irrigation is also recalled in the contract (κατὰ καιρὸν ἀρεσ[τῶ]ς [σκ]άπτροντας καὶ ποτίζοντας, BGU 41120, 1.30).

From contemporary experience, it is known that the rose of heaven needs full sun (at least seven days with more than 12 hours of light (Nougarède – Rembur – Francis – Rondet 1989: 31), and well-drained, calcareous or clayey soil. It can grow in a wide range of temperatures and areas: from cold winters (down to –10 °C) to areas with mild winters (more than 4 °C) (Brickell 2019: 303). Therefore, its cultivation in Egypt seems well conceivable.

The plant was likely propagated by seeds, which can be sown in temperate countries in March-June (20 °C) in moist soil, while in Egypt, sowing could be earlier. After sowing, the seedlings appear in two to three weeks and must be watered until the plant is established. It will flower during the summer (June–September). After that, it can be cut. The harvest period coincides with that of Zeno’s papyrus (June).

USES

FOOD

No alimentary use is known for the *Silene coeli-rosa* (L.) Godr. Instead, as mentioned below, several species of *Silene* fall sporadically into modern food use.²¹ The alimentary use could have been the discriminating factor (apart conceivably from the morphological one) between “λυχνίς” and “λαμπάς” (or “λυχνίς ἀγρία”). The latter does not seem to have had an ornamental use in Greek authors, as in the manufacture of crowns, while it appears among the products – mostly vegetables and foodstuffs – of the two funerary gardens in Alexandria at the end of the 1st century BC, just as it appeared to be a cultivated product already in Zeno’s archive.

21 For example, the young shoots and leaves of *S. vulgaris* (Moench.) Garcke is used cooked as a vegetable (Chandra – Rawat 2015: 126). The leaves of *S. dioica* are also eaten as vegetables. Further, in North-East Italy, it is used for the stuffing of ravioli together with ricotta.

MEDICAL USES

In ancient Greek medicine, certain medical properties were recognized – at least for λυχνίς. There is no direct information for its medical use in Graeco-Roman Egypt as its name does not appear in Greek medical papyri, nor its possible use in Demotic medicine is known since its Egyptian name is only a hypothesis and never attested. However, it is possible to get an idea of its possible use from Greek medical authors, many of whom studied and worked in Alexandria.

Used parts

Of the 22 mentions of λυχνίς (either generically mentioned, or specifically – the one for crowns or wild) that I have collected in the classical Greek authors, and after excluding those that mention it exclusively as a synonym for other plants or as a comparative description for other species, 15 specifically use the seeds of λυχνίς, either of the one used for the garlands or of the wild one. In contrast, the remaining nine attestations mention the plant as an ingredient without further indication and can therefore be imagined indicating the stem with the leaves, perhaps the flower or otherwise. To these can be added a mention by Pliny (*Naturalis historia*, XXI, 171) on the use of the λυχνίς root. The paragraph closely recalls those of Dioscorides dedicated to λυχνίς for garlands and wild λυχνίς (*De materia medica*, III, 100–101), but at the end of this, the Latin author adds: “its (lychnis) root is called *bolite* by the Asians, of which it is said that keeping it tied over the eye eliminates *albugines* (white spots on eyes)”. Even concerning the use for the eye, I have found no other trace in Greek authors.

Diseases

Greek authors mention λυχνίς instead for two rather specific uses. Both kinds of λυχνίς are used for the bites of venomous animals (Nicander, *Theriaca*, 1.899), and specifically against scorpions, although in a different way. The seeds of the λυχνίς of the garlands, crushed into a potion with wine, cure bites (Dioscorides, *De materia medica*, 3, 100); while wild λυχνίς is used as a prophylactic since the plant itself keeps scorpions away (Dioscorides, *De materia medica*, 3, 101; Dioscorides, *Euporista*, 2, 133.1; Aëtius, *Iatricorum liber*, XIII, 11, 1.2).

The second use concerns only the wild λυχνίς and is its purifying activity. The seeds of this plant, when drunk, purify the intestines (Dioscorides, *De materia medica*, 3, 101; Oribasius, *Collectiones medicae*, 11, chapter λ, section 19); and eliminate bile and phlegm (Oribasius, *Collectiones medicae*, 7, chapter 26, section 121).

A third and final use (excluding Pliny’s use of the root) is attested only once and concerns λυχνίς without further specification (Paulus, *Epitomae medicae libri septem*, III, 24.8). This plant placed in the nostril would stop bleeding. The mention is rather late and can be traced back to the etymological connection reported in Byzantine texts of λυχνίς being used as a lamp wick (λύχνος = lamp).

In comparison to these uses, mention may be made here of the indication in a Coptic medical text of the ΓΑΜΑΧΗΡ plant against psoriasis, a use not found in Greek texts.

General properties (since Galen, 2nd century AD)

In addition to the uses for specific ailments, of which the one against scorpions is attested by Nicander, thus from the 3rd or 2nd century BC, one can remember the general properties that, following the Hippocratic system of humors, Galen attributed to the λυχνίς used for crowns, and in particular to its seeds. According to Galenus, these possessed moderate warming and drying properties, and he considered them at the second- and third-order warm and dry in the same way (Galenus, *De simplicium medicamentorum temperamentis ac facultatibus*, XII, 65, l.1). The same opinion was later followed by Oribasius (*Collectiones medicae*, XV, 1, 27) and Paulus Egineta (*Epitomae medicae libri septem*, VII, 3, 11). There is no mention of the properties of wild λυχνίς. The seeds could therefore form part of remedies for diseases due to an excess of humors or where there was a need to warm the body. The first need is reflected in the use of the seeds of the λυχνίς (but wild!) against bile and phlegm, while the second property finds apparently no practical applications.

Summary

To summarise, although there is no mention of λυχνίς from Greek medical papyri or Egyptian texts from the Greek or Roman period, its medical use is well attested in Greek medical authors, including those who worked in Alexandria, such as Oribasius, Aetius, and Paulus (fig. 10). In this regard, attention may be drawn here to the anecdotal prologue of the *Liber de succedaneis* attributed to Pseudo-Galenus. The author of the book relates how, being in Alexandria, a dying woman came to him to be cured, but not finding λυχνίς seeds, he replaced them with cotton-thistle (ἀκάθιον) seeds. From this episode, he had the idea of writing a book that would list possible substitutions for the ingredients (Pseudo-Galenus, *De succedaneis liber*, XIX, 722). If the story must be believed, it can be imagined how it was at least conceivable to look for λυχνίς seeds in the market of Roman Alexandria for medicinal purposes, even if in this case, the doctor could not find them.

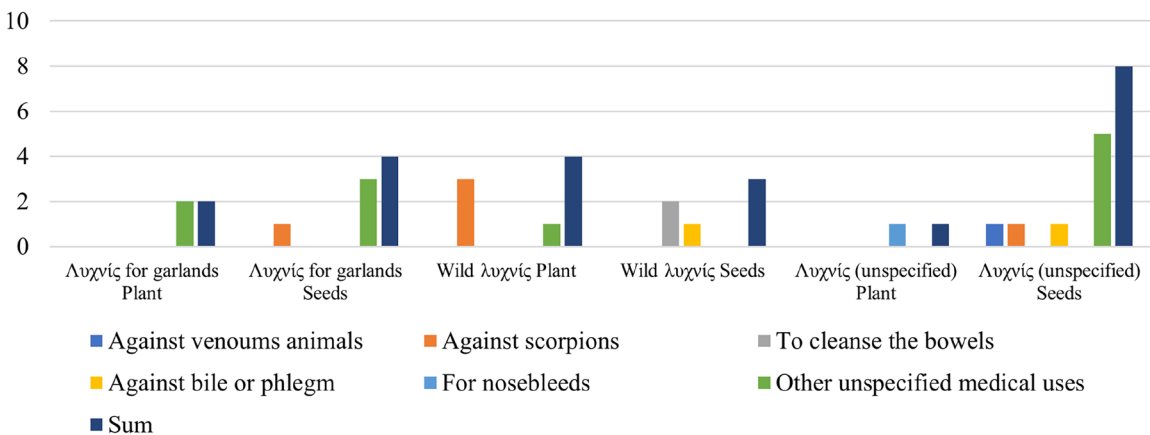


Fig. 10 Use of the λυχνίς in Greek medical authors

Indeed, it seems plausible that the application of the seeds of the λυχνίς against the bites of venomous animals and scorpions may have met with some success over time in Egypt.²²

GARLANDS' MANUFACTURE

Thanks to the Graeco-Latin sources, the use of λυχνίς in the composition of garlands in the Greek and Roman world is known outside Egypt. Theophrastus mentions the λυχνίς as a summer flower for wreaths (*Historia plantarum*, VI, 8.3), information also noted by Athenaeus (*Deipnosophistae*, XV, paragraph 24; 27). Plutarch also recalls the use of λυχνίς for crowns, especially for winners (*Quaestiones convivales*, 612c–748d). Finally, it is worth remembering the adjective “στεφανωτική” (“for crowns”) used by medical authors to distinguish the common λυχνίς from the wild one, which emphasize its main use (Dioscorides, *De materia medica*, III, 100; Paulus Medicus, *Epitomae medicae*, VII, 4.10). The information on the use of λυχνίς for crowns is repeated by Plinius (*Naturalis Historia*, XXI, 18; 67), who also adds that it is called “Greek rose” in Latin.

In Egypt, among the species of the genus *Silene* or *Lychnis*, only *Silene coeli-rosa* (L.) Godr. is attested in use for garlands, which, as said, is not native to mainland Greece but to the western Mediterranean.

The production of garlands with this species is only attested with certainty in the Fayum area (Hawara, Fag el-Gamous, Abusir el-Meleq), although the bias of excavation history and possibilities of preservation of such material must be taken into account. In terms of time, on the other hand, considering data from museum labels that in most cases come directly from the excavators, their production is attested from the 1st century BC to the 2nd–3rd century AD. Here too, however, the partiality of the data must be considered.

The type of garlands into which *Silene coeli-rosa* (L.) Godr. is used are exclusively those of core-type garlands (except a few objects that in this contribution have been defined as “small bouquets” (Schw. Nr. 243; Schw. Nr. 218), but which, as mentioned, could be single components of this type of garland; and except single flowers (Schw. Nr. 193; Schw. Nr. 194), which certainly however originate from other arrangements, even if kept today under separate entries in museums). This type of garland consists of a central core formed by Cyperaceae culms, on which the single flowers, twigs with leaves, or other ornamental elements are placed, and spirally bound by thin strips of date palm or more rarely of material from Cyperaceae.

In the case of garlands which include *Silene coeli-rosa* (L.) Godr. in their composition, the core mostly consists of *Scirpus* sp. culms (seven cases out of 20) or *Cyperus* sp./sedge culms (six cases out of 20). At other times it is difficult to observe the core as it is completely covered by the ornamental elements. *Scirpus* sp. is a lake plant, not attested in the Pharaonic period to produce garlands, and which is well adapted to the environment of the Fayum due to its ecology. This is a connection whose importance should not be underestimated when assessing the originality of this production outside of Hellenistic or Roman influences. As for the material used for binding, date palm strips are the most used (11 times out of 20), compared to other materials (*Cyperus* sp. or sedge pith, five cases; two uncertain).

22 To the best of my knowledge, the curative effect of *S. coeli-rosa* against snake bites has not yet been proven by pharmacology.

In this type, the single flowers of *Silene coeli-rosa* (L.) Godr. are mainly used. They nowadays appear mostly without petals, or more rarely, single petals (LDUCE-UC72696). Both elements can be found in the analysed compositions in two macro-groups: in composition with marjoram, which appears as the dominant element, or for the creation of a special decoration, the so-called “fake flowers”.

13 of the 20 flower arrangements collected correspond to the type of “marjoram garlands” in which *Silene* flowers are used as an additional decoration. The pink–green contrast must have been intended to give a particularly lively appearance. Nevertheless, marjoram and flowers of rose of heaven are rarely used alone. A possible case in which this happens is in one of the portions of the garland under number ÄM 17614, consisting almost entirely of marjoram on which the flowers of *Silene coeli-rosa* (L.) Godr. have been placed mainly in the central part facing outwards. Small fragments of helichrysum inflorescence are also attached to the garland but given the small quantity, they may be a later contamination. Schw. Nr. 243 uses only marjoram and flowers of rose of heaven as ornamental elements, but the definition of this composition is unclear (whether they are “small bouquets” or elements part of more complex garlands). Finally, in Kew Gardens Nr. 26816, which shows marjoram as the predominant element, flowers of rose of heaven are added as decorative elements. However, in one point, a small fragment of petals of an unidentified flower (hibiscus?) remains, which would suggest a richer decoration.

Otherwise, yellow is easily added to the pink–green contrast. In the three garlands ÄM 3346, the pink *Silene coeli-coeli* (L.) Godr. flowers are very precisely arranged along the central part of the marjoram-covered composition and face towards what must have been the most visible part (as in ÄM 17614). Flowers of *Chrysanthemum coronarium* L. with their yellow color are interspersed along the garland. Flowers of *Chrysanthemum coronarium* L. in addition to those of rose of heaven and sprigs of marjoram (now almost completely disappeared) are present in Kew Gardens Nr. 26565. In the garland portion Schw. Nr. 244, which is similarly decorated by marjoram twigs and rose of heaven flowers, the yellow color is given instead by the flower heads of *Acacia seyal* Delile.

In one last doubtful case, since the garland is now destroyed (ÄM 14154), the composition appears to be quite different. To the pair marjoram – rose of heaven, in ÄM 14154, petals of *Nelumbo nucifera* Gaertn., sprigs of *Lawsonia inermis* L., and berries of *Withania somnifera* (L.) Dunal are added. However, as it is lost, one cannot be certain whether marjoram was the visually predominant element, just as its manufacture cannot be proven.

Finally, the garland preserved in Chicago (E13446) needs an in-person view. In the online catalog, it is described as decorated with marjoram, rose of heaven, acacia, and flowers or petals of roses and pomegranate. In this case, one cannot be certain of its manufacture.

The second macro group of compositions which includes the use of *Silene coeli-rosa* (L.) Godr. flowers is the one of garlands with fake flowers. The separation with the former is evident not only from the peculiar way in which the flowers are used but also from the absence of the use of marjoram in these arrangements, except Schw. No. 243, which however is not clear if it must be considered as a small bouquet or as a fake flower. “Fake flowers” are ornamental devices typical of the Roman era, while they do not appear in the garlands of the Pharaonic era. They are generally formed by short pieces (3–5 cm) of the culms of a Cyperaceae (*Scirpus* sp. or *Cyperus* sp.) around which petals or entire flowers or other decorative elements that imitate their function are placed and tied together from a strip of the same species as the core.

In this way, a composition that resembles a flower is created, made up of several flowers or petals arranged together. The flowers of *Silene coeli-rosa* (L.) Godr. with their elongated shape, are well suited to this type of formation.

These can be used alone in the way described or together with *Withania somnifera* (L.) Dunal berries, which, are perforated, circularly arranged, and placed above the flowers to create a ring and therefore an even more complex composition.

Fake flowers with only petals or flowers of *Silene coeli-rosa* (L.) Godr., furthermore, are used in compositions with other species. For example, together with leaves of *Vitis vinifera* L. (Schw. Nr. 228), together with acacia flowers (Schw. Nr. 217), and together with fake flowers with rose petals (LDUCE-UC72696). Schw. Nr. 218 deserves a separate discussion. It shows rose of heaven together with roses and acacia flowers, but as a whole, because of its dimension, it is perhaps more similar to a small bouquet than a fake flower.

In two compositions (Kew Gardens Nr. 26721 and 26883), fake flowers with *Silene coeli-rosa* (L.) Godr. are topped with a ring of *Withania somnifera* (L.) Dunal berries. In these cases, the fake flowers of the rose of heaven are used together with fake flowers formed by petals of *Rosa richardii* Rehder, and of *Epilobium hirsutum* L. in the case of Kew Gardens Nr. 26721.

A unique typology is that of fake flowers made up of *Silene coeli-rosa* (L.) Godr. flowers topped by a single mud ball which probably imitates a *Withania somnifera* (L.) Dunal berry (Kew Gardens Nr. 26647). There are no other floral elements in the garland.

Overall, therefore, compared to marjoram garlands, there is also a difference in aesthetic taste, not only in manufacturing but also in color preferences. Out of seven compositions, four are predominantly made up of rose of heaven flowers and roses, with a preponderance of red tones.

To these two macro groups, two other portions of garlands (Schw. Nr. 239 and 240) can be added, which only partially fall into that of fake flowers. Schw. Nr. 239 is made up of fake flowers like the previous ones but petals of *Nelumbo nucifera* Gaertn. and pieces of decorticated *Scirpus inclinatus* Asch. & Schweinf. ex Boiss. are used, while the flowers of *Silene coeli-rosa* (L.) Godr. are used individually, together with sprigs of *Lawsonia inermis* L. The second portion of the garland (Schw. Nr. 240) is rather similar to the first: it is predominantly decorated with pieces of *Scirpus* culms, some organized in bunches, and with fake flowers with *Nelumbo nucifera* Gaertn. petals. Single sprigs of *Lawsonia inermis* L. are then added. According to the Schweinfurth label, marjoram twigs and flowers of rose of heaven should have been present, but they were absent at the in-person examination (although the box could not be opened, and the back of the garland was not seen).

The main combinations in which *Silene coeli-rosa* (L.) Godr. it is used in floral compositions are summarized below. The possible composition period based on the flowering season of the species is also added.

- In garlands of marjoram (*Origanum majorana* L.):
 - type 1: only marjoram, *Silene coeli-rosa* (L.) Godr.: Schw. No. 243 (small bouquets?); ÄM 17614 (+ *Helichrysum stoechas* (L.) Moench.?); Kew Gardens No. 26816 (+ *Hibiscus* sp.?); possible period: June–September or slightly earlier.
 - Type 2: marjoram, *Silene coeli-rosa* (L.) Godr. and *Chrysanthemum coronarium* L. (ÄM 3346 (three pieces); Kew Gardens Nr. 26565); possible period: around May–June.

- Type 3: marjoram, *Silene coeli-rosa* (L.) Godr. and *Acacia seyal* Delile (Schw. Nr 244); possible period: around May–June.
- (Type 4: marjoram, *Silene coeli-rosa* (L.) Godr. and *Acacia seyal* Delile, *Rosa richardii* Rehder and *Punica granatum* L. (E13446)); possible period: around May.
- (Type 5: marjoram, *Silene coeli-rosa* (L.) Godr. and *Lawsonia inermis* L., *Nelumbo nucifera* Gaertn., and *Withania somnifera* (L.) Dunal (ÄM 14154)); possible period: around July.
- In garlands with fake flowers with *Silene coeli-rosa* (L.) Godr.:
 - Type 1: fake flowers with *Silene coeli-rosa* (L.) Godr.:
 - with *Acacia seyal* Delile (Schw. Nr. 217); possible period: around May–June.
 - With *Rosa richardii* Rehder (LDUCE-UC72696); possible period: around May.
 - With *Vitis vinifera* L. (Schw. Nr. 228); possible period: June–September or slightly earlier.
 - Type 2: fake flowers with *Silene coeli-rosa* (L.) Godr. and berries of *Withania somnifera* (L.) Dunal + fake flowers of *Rosa richardii* Rehder (Kew Gardens Nr. 26721; Kew Gardens Nr. 26883); possible period: around June.
 - Type 3: fake flowers with *Silene coeli-rosa* (L.) Godr. and mud balls (Kew Gardens Nr. 26565); possible period: June–September or slightly earlier.
- Other: fake flowers with *Scirpus inclinatus* Asch. & Schweinf. ex Boiss. and *Nelumbo nucifera* Gaertn. petals; free flowers of *Silene coeli-rosa* (L.) Godr. and twigs of *Lawsonia inermis* L. (Schw. 239 and 240); possible period: August.

Overall, therefore, the production of garlands or floral compositions with flowers of rose of heaven is concentrated in the spring period (May but perhaps even slightly earlier) and summer (until August, perhaps September), without a great possibility of distinguishing a certain seasonal consequentiality between the macro-typologies. It can only be hypothesized that the garlands with acacia, chrysanthemum, and rose are to be placed at the beginning of the season, and those with lotus and henna are later. It is also possible that the poorer ones, which only contain elements with a longer seasonality, such as the leaves of the grapevine, or perennials, such as marjoram, could be produced when nothing else was available.

CONCLUSION

The data regarding the presence of *Silene coeli-rosa* (L.) Godr. in Graeco-Roman Egypt allows some general considerations regarding the phenomena of cultural introduction of foreign species. Regarding the vector of introduction, it is possible that the introduction occurred completely randomly as a set of individual events, rather than consciously by a human carrier. Nevertheless, it is conceivable that trade was the mode of introduction and ports were the first stations of the presence of this species. It is also conceivable, although not provable with certainty, that the introduction could be placed in the Late Period (664–332 BC). During this time, the Greek presence in Egyptian territory (mostly mercenaries and visitors) increased considerably (Pfeiffer 2013), as the importance of *Silene* (*coronaria*) in Greek culture was highlighted.

The emergence of data regarding *λυχνίς* only in the 3rd century in the Fayum, in turn, raises some reflections. Meanwhile, it is imaginable how before arriving in the Fayum, and in the properties of Zenon, the plant passed through the ports of the Delta (the relationship between Zeno and Alexandria, but also gardens of elite personalities of the Delta is after all well clear).²³ Secondly, the (almost sudden) emergence of the presence of this species in the Fayum can be easily linked, as mentioned, to the agricultural experimentalism of the first-generation Greek inhabitants, often people of social importance, who had the economic possibility of not abandoning all their native habits or to procure exotic species to grow on their properties. Thirdly, if Zeno's *λυχνίς* already corresponds to *Silene coeli-rosa* (L.) Godr. and not to another species of the same genus, it must be admitted that a sort of cultural adaptation occurred at a certain moment in history: the native Greek species *Silene coronaria* (L.) Clairv. was replaced in its use by the aesthetically very similar *Silene coeli-rosa* (L.) Godr. It is not possible to know whether this "substitution" occurred consciously or not, but it is a culturally relevant phenomenon.

The diffusion of this species seems to have remained limited to the Fayum itself (with some exceptions as once attested at Abusir el-Meleq, once at Hermopolis): probably because its itself use was rather limited. On the contrary, the high concentration of Greek settlers in the Fayum as early as the 3rd century BC may have created the optimal conditions for its permanence, as the ecological environment of the Fayum where it may have been easily grown.

Regarding its uses, the only certainty is its ornamental and floral compositions. The food use probably remains confined to a species that was categorized similarly at the Greek level, but whose exact nature escapes us, while the medical use, although possible, seems to have remained confined within the writings of the school of Alexandria. In the garlands, the *Silene coeli-rosa* (L.) Godr. is used exclusively in core-type garlands. This is a particular type of manufacturing, innovative in the Graeco-Roman period, which, unlike other contemporary typologies, mainly uses recently introduced and Mediterranean species, as can be seen from the species in which it is included (*Origanum majorana* L., *Rosa richardii* Rehder). In this case, although the use of the *Silene* species was known in Classical and Roman times and a Graeco-Roman influence can be hypothesized, especially in an area such as that of the Fayum, there is no doubt that the final product is an Egyptian innovation (or at least the Egyptian Fayum). This innovation integrates numerous native species (such as *Scirpus* sp., *Cyperus* sp., and *Phoenix dactylifera* L.). It is therefore not merely a phenomenon of cultural transfer, but a cultural elaboration with more complex roots.

The fact that *Silene coeli-rosa* (L.) Godr. found its main use in the production of funerary garlands can also explain why it is no longer attested with certainty after the 3rd century AD, when even the tradition of production of colored funerary wreaths has gradually disappeared, as has that of funerary portraits in which these are often represented. The plant, having lost human interest in it, was unable to naturalize in Egyptian territory and therefore gradually disappeared.

23 Zeno administered the properties of Apollonius, *dioiketes* of Ptolemy II Philadelphus, who resided in Alexandria and had the possibility of obtaining plants from the royal garden of Memphis and other gardens in the Delta (P. Cair. Zen. 259156; P. Cair. Zen. 159033).

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