

Tulips: An Ornamental Crop in the Andalusian Middle Ages¹

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Tulips: An Ornamental Crop in the Andalusian Middle Ages. The authors are working on the project "Crop Flora of al-Andalus," which aims to recover the crop diversity of the Middle Ages in western Europe during the Islamic period. The documental sources of this study are all the agricultural treatises written in this territory and culture between the 10th and 14th centuries. Al-Andalus was the territory occupied by Islam between the 8th and 15th centuries, varying over time on varying regions on the Iberian Peninsula. In this period, a genuine agricultural revolution took place, as well as the incorporation into the Western world of many Eastern agricultural species. When we focused on the study of ornamental species used in gardens, courtyards, and houses, tulips could be identified in several texts, the main one being the *'Umda*, a botanical work written at the end of the 11th century or beginning of the 12th, probably by the agronomist Abu l-Jayr. Tulips are mentioned in this text 500 years before the first known references to their introduction into Europe, traditionally asserted to be from the Ottoman Empire to Holland via Austria, always in the 16th century. Thus the route of these ornamental bulbs in their passage from East to West must be modified.

Key Words: *Tulipia*; Tulips; Andalusia; ornamental plants; Europe; Middle East; Turkey; Islam.

The Genus *Tulipa*

The genus *Tulipa* contains more than 100 different species, and thousands of derived cultivars used nowadays as ornamental crops. These come from the hybridization and selection of at least 15 species. Tulips range from southern Europe (from the western Iberian Peninsula to the Balkan Peninsula), the north of Africa, and especially Asia, from Anatolia and Iran to the northeast of China and Japan. *Tulipa's* diversity center is located in Kazakhstan. In Europe, there are only 11 wild species, most of them occurring in the Balkan Peninsula with only one in the Iberian Peninsula (*Tulipa sylvestris* subsp. *australis* [Link] Pamp.). Countless cultivars come from the germplasm of other species, like those growing wild in the Balkans, Crete, Cyprus, Turkey, or

the Caucasus (such as *T. orphanidea* Boiss ex Heldr., *T. goulimy* Sealy & Turrill, or *T. schrenkii* Regel), and other more Eastern species (*T. gesnerana* L., *T. praecox* Ten.). Some of them, like the last two, are also part of the wild European flora.

KNOWN ORIGINS OF TULIPS CULTIVATED AS ORNAMENTAL SPECIES: HISTORY OF THEIR DISSEMINATION AND CULTIVATION

Tulips are the national flower of countries such as Iran and Turkey, but they are especially linked to Holland, where their cultivation, production, and dissemination have been traditionally important from the 17th century onwards.

Until now, the generally accepted theory on the origin of tulip cultivation and their spread through Europe places their introduction in the second half of the 16th century. There is no trace of tulips in Greek, Roman, or Byzantine texts or illustrations. Pavord (1999) reaffirms this in her

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beautiful book *The Tulip*. According to Wijnands (1991) and Pavord (1999), it was several decades after the arrival of the Seljuq Turks in Anatolia in the 11th century, when the first representations of tulips started to appear on tiles and decorated ceilings (Palace of Konya-11th century, Palace of Topkapi-15th century). In the 13th century, the poet Mevlana Celaleddini Rumi refers to tulips as “the saddest smile of them all.” The Turks called the first cultivated tulips *kefe lale* and *cavala lale*. *Lale* means flower, and Kavala is located in Macedonia, homeland of *T. scherenkii* Regen, a heteromorphic species which is possibly one of the ancestors of tulips cultivated today. However, the term tulip comes from the Persian word for “turban.” In the 16th century, in the time of Suleyman the Magnificent, tulips had already become prevalent in Ottoman Empire culture and gardens. Earlier, tulips often were portrayed on ceramics, tiles, and mosaics of the Palace of Topkapi (Istanbul-15th century).

Under the theory that tulips arrived in Europe during the second half of the 16th century through Ottoman influence, several dates and origins have been considered. There is some evidence (Pavord 1999) of their previous introduction via the Austrian Empire of the Hapsburgs by Busbecq, the ambassador of Ferdinand I at the Court of Suleyman around the year 1554. At that time, Busbecq left Constantinople, having described bulbs cultivated in gardens, such as narcissuses and hyacinths, as well as “those others which the Turks call tulips.” Some time later, confusing reports appear of their possible cultivation in Bavaria, and then, in 1559, Gessner (1561) published their first description and iconography in Europe. Also, Wijnands (1991) mentions a 1570 Mattioli illustration showing a tulip plant of different colors that the Italian author claims to have seen in Venice. Pictures of tulips were common from this date on (Dodoens 1568; Lobelius 1576; Gerard 1597). In 1576 Charles de L'Écluse (Ramón-Laca and Morales 2005) also included an appendix with some exotic species “... brought from Thrace,” where the iconography and description of at least two species are included, one of them of different shapes and colors, as well as information on their cultivation techniques. In this description, there are some comparisons of tulips with lilies, and also comments about basal leaves twisting downwards.

The spread of tulips all over Europe is attributed to Clusius, who was also responsible

for the so-called “tulipomania,” namely, the feverish trend that tulips enjoyed at the beginning of the 17th century in the ornamental world, first in Holland and later in the rest of Europe. In spite of this “tulipomania,” tulips had not yet been mentioned, although many other bulbous plants appeared in *Agricultura de Jardines* (1st ed. 1592, 2nd ed. 1604), a work by Gregorio de los Ríos, an expert gardener appointed “Chaplain of the Casa de Campo” by Philip II. The monarch himself, knowledgeable about botany, wrote about ornamental bulbs, mentioning narcissuses but not tulips in letters to his daughters (de los Ríos 1991). However, later on, in other works by Renaissance botanical illustrators, such as Basilius Besler's (1613) *Hortus Eystettensis*, large colored plates of several species of tulips are indeed included. With stimuli such as this publicity, these bulbs rocketed to success as ornamental plants.

CROPS AND ORNAMENTAL FLORA OF AL-ANDALUS; ANDALUSÍAN AGRONOMISTS AND BOTANISTS

The authors of this work are members of a multidisciplinary team of Arabists, agronomists, and botanists who aim to reconstruct Andalusi Crop Flora from the study of all the known texts of Andalusi agronomists, and, eventually, of botanists and pharmacists to solve some identification doubts. So far, the result has been the publication of several studies on economic botany and ethnobotany in the Andalusi world, as well as other works related to ornamental species and Islamic gardening in the Iberian Peninsula (Hernández-Bermejo 1987, 1991; Hernández-Bermejo and García-Sánchez 1988, 1995, 1998; García-Sánchez and Hernández-Bermejo 2007; Martín-Consuegra et al. 1995; Carabaza et al. 2004).

Agricultural techniques were quite advanced in the Iberian Peninsula before and during the Roman settlement. Although the influence of Byzantium on Iberian agriculture and gardening is scarcely documented before the Arab domination, it probably stimulated the incorporation of Eastern species into the Western agricultural world. In any case, it was after the 8th century, due to the progressive Arabic influence and dominance, that a profound agricultural transformation occurred, which reached gardens and ornamental plants two centuries later.

Al-Andalus was a territory dominated by Hispano-Arabic culture. Its surface area gradually

diminished from the 8th until the 15th century; consequently, its character varied in both time and place. Above all, al-Andalus represented a dynamic historical process vital to understanding the history and essence of Europe. Andalusí cultural evolution was influenced by the Hispano-Roman period, and, to a lesser degree, by the Visigothic period, which took its roots from the eastern Roman Empire of Byzantium. Al-Andalus stimulated real cultural, artistic, scientific, and even religious rebirth, which took place several centuries before the Renaissance in the rest of Europe. It was a period of tradition-based innovation (González-Ferrín 2006).

From an agricultural perspective, these same phenomena were observed. Many Oriental species arrived, or, if they were known previously, they were consolidated as Iberian crops. Others were the object of intense foreign trade. These species included rice, sugar cane, cotton plants, sorghum, aubergine, cucumber, artichoke, spinach, sweet melons, hemp, safflower, taro, licorice, tiger nut, ginger, aloe, diverse citrus trees (citron, lime, lemon, bitter orange, or ancient grapefruit), banana trees, Judas tree, paradise tree, jujube tree, mulberry trees, argan tree, etc.

It was in the 10th century that Andalusian scientists began to make original contributions to science. Besides an incipient tendency toward their independence from Eastern culture and science, a series of elements and circumstances came together in al-Andalus, which became the embryo of the so-called “Andalusian Agronomic School,” reaching its highest peak in the 11th and 12th centuries.

The first activities of this school took place in Caliphal Cordova, in the circle of physicians, pharmacists, and botanists around Abd al-Rahman III (Caliph from 912–961) and his son al-Hakam II (961–976). One of the incidents exerting a most favorable influence on the development of pharmacology and botany, and thus affecting agronomy, was when the Byzantine emperor Constantine VII Porfirogenete sent Abd al-Rahman III a copy of *Materia Medica* by Dioscorides.

However, a more decisive element in the birth of the Andalusian Agronomic School was the 'Arib b. Sa'id's *Calendar of Cordova* (1961). Due to its antiquity (10th century), it became of great value in the study of the botany and agriculture of Muslim Spain. It included many of the species introduced by the Arabs into the Iberian Peninsula, and mentioned some others that were already

acclimatized and whose use or cultivation was then being promoted. Another agronomical text from the end of the 10th century was the *Kitab fi tartib awqat al-girasa wa-l-magrusat* (Anonymous 1990), probably the first written in al-Andalus. Its main significance lies in a chapter devoted to garden plants, with its instructions for the cultivation of the most important ornamental plants in al-Andalus, which completed the information gathered in the *Calendar of Cordova*.

In the 11th century, Ibn Hayyay, born in Seville, was one of the best representatives of the theoretical approach; his biography is little known. Another author born in the same century and geographical context was Abu l-Jayr (1991), about whom there is not much information except for indirect comments from other authors who used his theoretical-practical work. Abu l-Jayr (2004, 2007) was probably also the author of the *Umda*, the most important contribution to the knowledge of the wild flora of al-Andalus (and the Western Mediterranean), written in the Middle Ages. A contemporary of Abu l-Jayr was Ibn Bassal (1995), who was born in Toledo but probably had some relationship with Abu l-Jayr in Seville (in about 1073). Chronologically, the last author of the 11th century and beginning of the 12th century was al-Tignari (2006), a physician, writer, and excellent poet. One century later, Ibn al-'Awwam wrote his encyclopedia on rural economy, which, for a long time, was the only reference on Hispanic-Muslim agronomy, and which includes a multitude of quotations from Andalusian and Eastern texts, this being precisely its greatest significance. It is one of very few works of Andalusian literature preserved whole. The last known work on Andalusian agriculture appeared in the 14th century: a didactic poem by an author from Almeria, Ibn Luyun (1975). This, too, was preserved in its entirety.

Mentions of Tulips in Andalusí Authors' Works: *'Umda* (Abu l-Jayr) and *Kitab al-Filaha* (Ibn al-'Awwam)

Several authors of agronomical and botanical treatises dealt with ornamental species, although only some of them did so in an extended way. *'Umda*'s author, at the end of the 11th and beginning of the 12th century, and, one year later, Ibn al-'Awwam (1988) mention a species of ornamental bulbs called *naryis muqawdas* and *basal al-maqdunis*. These terms had been identified by

different translators sometimes as a type of lily, and others as a daffodil or Oriental onion (Banqueri, in Ibn al-'Awwam 1988). The literal translation of the texts of these two works is included below, followed by our own comments.

ABU L-JAYR, *'UMDA*

Narcissus shaped like a water-wheel bucket (*naryis muqawdas*): its leaves are as thin and fine as those of garlic, with ridges, dark green and purplish and with a white spot in the middle, difficult to remove by rubbing. While growing, it bends towards its foot, until it reaches the ground drawing a circle. A stem thicker than the collyrium brush springs up from the center, around one span high, crowned by a flower similar to a lily (*sawsan abyad*), with two layers. Each leaf has a red cover, which is like another leaf adhering to it, bright red, the inside one being golden yellow, so that when looking at it you can see something marvelous: a scented red flower containing a yellow one inside. The underground organ [root in the translation] is an onion as big as that of "nazareno," (*balabus*), slightly adhered to the soil, its outside skin being as black as fan palm (*dawm*) fibers. They are called *muqawdas* because their flower is similar to a water-wheel bucket (*qawadis*), and are known in Sicily and Ifriqiyya as *maqḍunis*, also applied to a kind of celery (*karaf*) also called *maqḍunis*. This species appears in spring. I have seen it in Montemayor, Monteber and mountains of Algeciras. Dioscorides in III called it *inmaruqalas* in Greek, and included it among lily species (*sawsan*).

Like Dioscorides, the *'Umda* associates *naryis muqawdas* with a type of *sawsan*, the Arab term for lilies and other similar plants, both Liliaceae and Iridaceae. According to this work's author, the adjective *maqḍunis* ("from Macedonia") referred to the "bucket narcissus" in Ifriqiya (in Western North Africa) and Sicily. *'Umda's* translators, Bustamante et al. (Abu l-Jayr 2004, 2007), think that it could be a misprint for *muqawdas* (water-wheel bucket) due to the similarity of both words. However, it must be taken into account that *maqḍunis* is one of the Arabic names for parsley, as it has been considered a rock celery from Macedonia. The fact that *naryis maqḍunis* was also the name used for bulbous plants in Sicily and Ifriqiya, as mentioned in the quoted text, would confirm that these geographical areas, together with al-Andalus, played an important role as centers for the dissemination of Eastern species toward western Mediterranean regions (García Sánchez 2007).

IBN AL-'AWWAM, *KITAB AL-FILAH* (AGRICULTURE TREATISE)

Regarding the way of planting the Macedonian onion (*basal maqḍunis*): it is a kind of yellow narcissus (quotes Abu-Abdalah [Ibn Bassal] and others), and comes from Macedonia, province of Alexandria. Its flower is yellow inside and pink outside, bucket-shaped, inside of which there is another very aromatic and beautiful flower. It grows in humid mountainous places and it is cultivated like the yellow narcissus.

Banqueri, translator of Ibn al-'Awwam, called this species "Macedonian onion," and he added a footnote indicating that Alexandria referred to Alexander's country, which was, at the time, Byzantium.

The original quotation by Ibn Bassal mentioned by Ibn al-'Awwam cannot be found, since the agricultural text of the Toledan agronomist is not totally conserved and only an abridged version exists. It is important to note that Ibn Bassal was the teacher of *'Umda's* author (Abu l-Jayr) in Seville and, therefore, a direct information source who could have transmitted his information orally. Ibn Bassal made a long journey to the East, possibly to collect exotic seeds and plants for the garden of King al-Ma'mun of Toledo. His itinerary is known in broad outlines from data found in his work about plants cultivated in the East, then transmitted by Abu l-Jayr and Ibn al-'Awwam. He probably embarked from Valencia and headed to the East, stopping over in Sicily where he stayed for some time in order to learn about the agricultural practices on the island. Then he visited Cairo, going up the course of the river Nile to Abyssinia. From there, he crossed the Red Sea to reach Yemen and the holy cities of Hiyaz (Mecca and Medina) and also visited Ascalon in Syria, Basra in Iraq, Iran, and even the north of India, at a time when, and to places where, the Seljuq Turks had extended their domain. Thus, it would not be surprising if Ibn Bassal obtained this "Macedonian onion" in any of the places he visited, later informing his disciple Abu l-Jayr.

Poetic Works

Together with the description of gardens, flowers were one of the topics preferred by Andalusian poets from the end of the 9th century, although it was in the 11th and 12th centuries when both poetic genres, *rawdīyyat*

(“gardens”) and *nawriyyat* (“flowers”), reached their highest peak. Not long ago, these poems were the only source of the brief references to plants in studies of Andalusian gardens. There are controversial opinions about whether or not poems can be considered as documental sources for the Andalusian garden, since their authors often use literary figures not reflecting reality.

Most of these prose or verse works from 11th-century Sevillian authors were compiled by the poet Al-Himyari (1940) in an anthology entitled *al-Badi' fi wasf al-radi'a* (Marvels in the Description of Spring), giving descriptions of flowers during this season, but also their entire flowering cycle. The list of flowers is not very long, and some of them are frequently repeated, like, for example, daisies, violets, irises, wallflowers, lilies, and water lilies. Others are only sporadically quoted, such as wild jasmine and the “bucket narcissus” (*naryis qadusi*). About the latter, the poet highlighted the fact that it was a new variety “not seen before,” different from the two other narcissuses known and continuously mentioned in Andalusian poems, namely, yellow and white ones. He also pointed out that it was a tall narcissus, whose popular name came from its similarity to buckets or waterwheel scoops.

An almost general rule in this work is the establishment of a parallelism between the morphological characteristics of this “strange narcissus” and precious metals and female silhouettes, also accentuating its scent and bright colors:

There is a golden cup with a narrow base that becomes wider at the top exhibiting itself to attract admiration.

If you smell it, it is like a scented bunch of flowers and if you need a glass to be in good company, it resembles one.

When bending its neck in rapture for the goodness in it, it mimics the keeling over of an inebriated man passionate about games.

[Or] it resembles a beautiful slim woman in a green silk dress, standing among drinkers with a gold glass in her hand.

Curiously, as in the other text sources analyzed, no more quotations about this “bucket narcissus” or “Macedonian onion” have been found in Andalusian poems after the 11th century.

Identification

So far, the identification of this “Macedonian onion with a bucket-shaped flower” is confusing.

The clear relationship with narcissuses established by Ibn al-'Awwam comes from Ibn Bassal, and, similar to other comments by him, it is implicitly linked to its description in the *'Umda*, where it is included among the ornamental bulbs (*naryis muqawdas*, i.e., bucket-shaped narcissuses). This is absolutely logical, if we take into account the profuse use of this species in Andalusian gardens, as well as the fact that narcissuses were well known (the genus *Narcissus* has its diversity center in the Iberian Peninsula), and even received special treatment in poems. Although the term *naryis* is used to refer to narcissuses in a general way, poets had a great capacity for differentiating more than four different types: yellow, white, speckled, and daffodils, apart from the bucket narcissus. These types partly correspond nowadays to the recognized sections of the *Narcissus*, or, at least to the groups made by professional cultivators of these ornamental species, among them *Narcissus pseudonarcissus* L., *N. jonquilla* L., *Narcissus tazetta* L., *N. poeticus* L., *N. triandrus* L., *N. papyraceus* Ker-Gawl., and *N. serotinus* L. None of these species correspond to the diagnostic elements describing the *naryis muqawdas*. In this case, it seems to be the first mention of tulips in Europe, in the *'Umda* text, 400 years before other mentions in the second half of the 16th century. This hypothesis was proven not only by the brief characteristics mentioned by Ibn al-'Awwam but, especially, by the detailed mention in the *'Umda*, rich in its morphological descriptions since it is a botanical text. The following quotes can be found in it:

Regarding their Leaves:“... they are as thin and long as those of garlic, and they have ridges; they are dark green and... when growing they veer downwards towards their base until they reach ground level, lying on the earth as if they were rings.” Tulips leaves are indeed elliptic or linear, flat or canalicate, according to the different species, but their basal leaves always curl back. Clusius also mentioned this characteristic in his description of tulips in 1576, and said that they were bluish green. (Ramón-Laca and Morales 2005).

Regarding their Scape or Floral Stem:“... a stem thicker than the collyrium brush arises from the middle, one span up; on its top there are flowers like lilies, which have two layers.” Tulip flowers appear individually at the top of the scape, whose height and thickness are indicated in the *'Umda*.

Regarding their Flowers: "... like lilies, which have two layers. Each petal has a red wrapping or it is as if two leaves were stuck to each other; the outer part is bright red and the inner one is golden yellow. When noticing the beauty of these flowers, you observe, amazed: red flowers outside yellow ones, and they have an aromatic smell." In 1576, Clusius also compared tulips to lilies (Ramón-Laca and Morales 2005). The name "bucket narcissus" is not so strange if one takes into account the trunk-conical shape of tulip flowers. Regarding the two layers and mention of different colors inside and out, this description is true for many varieties of tulips, and the surprise of the *'Umda's* author at their beauty was indeed justified. The combination of red or orange on the outside and yellow or black-smudged inside is common in many tulip varieties. The reference to their scent is also accurate.

Regarding their Blooming Season: "This species blooms in spring." Tulips do bloom at the beginning of that season.

Regarding their Root: "Its root is an onion similar to that of 'nazarenos,' stuck to the soil; its outer bark is black in the shape of the fan palm fiber." This is also true; bulb color of tulips ranges from dark brown to blackish, and their consistency is fibrous, something that also attracted Clusius's attention in the 16th century.

Regarding their Distribution Area: "... it is known in Sicily, but I have seen it in Montemayor, Monteber and the Algeciras mountains." Indeed, this mention of the Algeciras mountains is not unusual, since *Tulipa sylvestris* subsp. *australis*, the only species of wild Iberian tulip, still grows nowadays in that region. Finally, the designation of "Macedonian onion" by Ibn al-'Awwan reminds us not only of its Oriental origin and its introduction route, but also the great diversity of the genus *Tulipa* in the Balkan Peninsula. In the 16th century, Clusius was again one of the first authors to mention and iconographically depict tulips, precisely in a chapter devoted to certain "exotic plants from the Thrace."

Conclusions

We believe we are dealing with the first historical quotations about tulips. The *'Umda's* likely author, Abu l-Jayr, called them *maqḍunis* ("Macedonian") and *basal al-maqḍunis* ("Macedonian onion"), and

they were mentioned again by Ibn al-'Awwam one century later. The existence of tulip portrayals in the temples of Konya in the 11th century under the Seljuq government, and their mention in al-Andalus in the *'Umda*, seem to hint at the introduction of tulips into the ornamental world of Europe 500 years before the references known so far, and not by an Ottoman-Central European route, but by a Byzantine-Seljuq-Andalusian one. Apparently, tulips were not mentioned in al-Andalus after the 13th century, nor were they found in the *Agricultura de Jardines* by de los Ríos in 1620 (ed. 1991).

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