

# Identification of plant elements represented in the suburban *Villa della Piscina di Centocelle* (Rome, Italy) as a source of reconstruction of the ancient gardens

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**Abstract** – Plants in art are not only decorative elements, they have symbolic values that cannot be neglected, because are bearer of a message, which need to be understood. Moreover, they usually show the connection with the surrounding natural landscape. Indeed, the phytoiconographic elements are important tools to reconstruct the lost garden. Our works aims identifying the plant representation to provide useful information for the reconstruction of the the ancient villa's garden. We studied decorated wall remains and ceiling structures identifying the plant species and attributing their symbolic value and garden role. Preliminary data show the presence of more than twenty plants, mainly Mediterranean. The symbolic groups present a slight prevalence of solar and salvific elements. For the garden we identified species to decorate and border the flowerbeds, but also with productive role. The analysis of these represented naturalistic elements gives support in understanding the historical landscape behind their representation.

## I. INTRODUCTION

Plants in art are often interpreted only for their decorative functions. Indeed, their symbolic values cannot be neglected, since in ancient cultures the representation of an image was the bearer of a message, which needed to be read in relation to their context to be fully understood [1-5]. Furthermore, the phytoiconographic elements present in the archaeological structures are an important source for the reconstruction of cultural landscape [6-7]. The plant representations in architectural structures usually showed the connection with the surrounding green areas in the way to recall the outdoor environment with the form of art. In this way, the importance of iconography, together with palynological, and other archaeobotanical studies, is the starting point to understand the historical and cultural landscape of villas' remains [8-12].

Considering such elements, we studied from a botanical point of view the archaeological fragments of paintings from the suburban Roman “Villa della Piscina (Centocelle)”. Moreover, we perform a bibliographic research of ancient and modern sources to collect all the available information about the knowledge of the natural landscape and greenery area of the villa.

The *Villa della Piscina* dates back to the period of the late Republican age (second half of the first century) until the III (IV) century with different stages of construction, is located in Centocelle Park, in the eastern area of Rome. It was discovered in 1930, on the occasion of the preparation of the military airport [13]. During the archaeological excavations performed between 1996-1999 under the guidance of the Capitoline Superintendence for Cultural Heritage of Rome, a very large complex, of about 25,000 m<sup>2</sup> was discovered. The archaeological data report of several building phases and changing activity during the time since its foundation to the end.

As a suburban villa [14], luxurious representative and residential environments (*pars urbana*) and the productive part (*pars rustica* and *fructuaria*) have been identified with a vast thermal system with a smaller swimming pool (*piscina calida*) and a garden with a large swimming pool (50 x 14 m).

It begin is date back to Republican age (second half of I century) and the building resulted linked to a large productive *fundus*, mainly dropped at grapevine.

The few information about the garden report a characteristic presence of a wonderful pool, with a decorative mural painting, found during the excavation together to the main building and probably a fountain [15].

Considering the geological, geomorphological, and water characteristics of the Centocelle area, the historical and environmental reconstruction has identified possible landscape units suitable for agricultural use to produce cereals, vineyards, and

orchards [15]. In this way, our aims were: to identify the plant forms that can contribute to the increase in botanical/naturalistic knowledge of the site and to provide the information useful for the reconstruction of the adjacent greenery, above all of the gardens present in the ancient villa.

## II. MATERIALS AND METHODS

We performed a bibliographic research of ancient sources to collect information about architecture and floristic composition of Roman garden [11,16]. In addition, we collected data by the garden painting of several ancient roman villas, such as Livia's villa in Rome [5,17,18], Pompei and Ercolano's villas [10, 19-21]. At last, as available, we collected archaeological and archeobotanical data [11,12,22] to collect information about the architecture and flora of the garden.

We analyzed the archaeological materials recovered in the excavation campaign that was carried out between 1996 and 1999. The studied remains were fragments belonging to wall and ceiling structures in the thermal sector and in the boiler pool area, decorated with paintings and stuccoes. Most of them can be dated to the period between the middle of the 1st and the first half of the 2nd century, but it was not possible to establish the relationship and possible connection between the fragments, such as the typology, location, and environment of their origin [23].

The identification phase of the represented plants included observation of specific plant elements and diagnostic elements using botanical platform ad GBIF Global Biodiversity Information Facility [24], World Flora online [25] and botanical diagnostic keys [26]. At last we perform a comparison and confront of our identification with thematic bibliographic sources of naturalistic iconography related to that period and the context [10,11,17,18,21,22,27-29] confirming our results.

The attribution of the symbolic values of the identified plants was performed considering the botanical historical literature reporting mythology and plant symbolism [17,29-35]. In the same way, literary and scientific references related on the classical botanical history *Naturalis Historia*, (Plinio Gaio Secondo), *Historia plantarum* (Teofrasto),

## III. RESULTS AND DISCUSSION

The garden of Roman suburban villas was very similar to the garden of urban villas, but with some essential differences. In addition to have, in any case, a small area with productive aim, the suburban villas generally had *peristylum* placed in front of the *atrium*, differently by the urban villas that it was located in the back of the house. The *peristylum*, columned porch, included and closed the garden. The green space was divided in small

geometric areas bordered by evergreen brush species and path [36]. The garden included a lot of different architectural elements as statues, marbles and decorated seats, with decorative role to increase the aesthetic feeling, but much more the spiritual and ritual value.

The porch wall, generally were decorated with frescos representing mythological scenes, or representing gods or natural element and landscape. Particular were the garden representation that probably had the aim to enlarge the visual feeling the closest real garden, more than a decorative role.

The floristic composition of the Roman garden was characterized the dropping of native (*Laurus nobilis*, *Myrtus communis*, *Populus sp.*, *Quercus ilex*) and non-native species (*Phoenix dactylifera*, *Nymphaea spp.*). The latter introduced both from near and far lands had important religious and ritual role and moreover, their rarity and peculiarity representing a status symbol of the property.

The Trees were dropped both for their shadow capacity and for their fruit productivity (*Olea europaea*, *Malus sp.*, *Prunus sp.*, *Pyrus sp.* etc.). The age of the trees was very important, because the presence of old plant demonstrated the linking with the previous generation of property that they took care and made them grow. In the ritual ceremony, the leaf and the branch of these trees were taken and burned and ate the fruit in relation to their meaning.

The brush (*Nerium oleander*, *Viburnum tinus*, *Ruscus aculeatus*, *Rosmarinus officinalis*, *Rosa gallica*) and the climbing plant (*Vitis vinifera*, *Hedera helix*) were usually used to border the green areas and cover the bowers, to create shadow in the garden, but the latter covered also walls and columns.

The analyses of the botanical representations on archaeological material showed the presence of more than twenty different plants, some of them not securely identifiable at a species level, both for the lack of diagnostic characteristics, the state of conservation, and the nature of the fragments. Table 1 lists the 16 identified species together with their biological form, chorological type, and symbolic value.

The plants show a prevalence of Mediterranean and Euri-Mediterranean species, even if plants of Eastern (Caucasus and subtropical elements), and Western origin (Atlantic) are also present. The leaves prevail in the representations, followed by the flowers and inflorescences. An equal distribution can be observed among the symbolic groups (Table 1), with a slight prevalence of the solar and salvific elements. Considering the characteristics of the identified species, and the bibliographic data relating to the plant compositions of the gardens of Roman villas in general (but above all the suburban ones, it can be assumed that these species were also detectable in the gardens of the villa.

**Table 1.** The plant species identified on plaster, stucco and fresco painting fragments of the Villa della Piscina

PLANT, REPRESENTED VEGETAL FORM	LIFE FORM /CHOROLOGICAL TYPE	FRAGMENT POSITION	SYMBOLIC VALUE
<i>Buxus sempervirens</i> L. (Buxaceae), leaves	NP/ P caesp, Subatl./ Submedit.	Fresco, garland	The plants linked to the thresholds of the afterlife
<i>Cupressus sempervirens</i> L. (Cupressaceae), scaly leaves	P scap, Euri-Medit.-Orient.	Fresco, border	Solar and salvific elements
<i>Dracunculus vulgaris</i> Schott (Araceae), inflorescence, leaf	G rhiz, Steno-Medit.	Fresco	Divine and fertility messages
<i>Hedera helix</i> L. (Araliaceae), branches, leaves, flowers/inflorescence	P lian, Subatl./ Submedit.	Fresco, garland	The allusion to the vegetative force (Dionysus)
<i>Iris</i> cfr. <i>versicolor</i> L. (Iridaceae), flower	G rhiz	Stucco reliefs, frame	Divine Messages
<i>Laurus nobilis</i> L. (Lauraceae), flower	P caesp/ P scap, Steno- Medit.	Fresco, garland	Solar and salvific elements
<i>Lilium</i> cfr. <i>candidum</i> L. (Liliaceae), flower	G bulb, E-Medit.	Stucco reliefs, frame	Divine and fertility messages
<i>Malva</i> cfr. <i>arborea</i> (L.) Webb & Berthel. (Malvaceae), flower	H bienn, Steno-Medit.	Stucco reliefs	Solar and salvific elements
<i>Nymphaea</i> sp.cfr (Nymphaeaceae), flower	I rad	Fresco, garland	Plants linked to water as the origin of life
<i>Phoenix dactylifera</i> L. (Arecaceae), leaves	P scap, Paleosubtrop.	Fresco	Solar and salvific elements
<i>Pinus</i> cfr. <i>pinea</i> L. (Pinaceae), cone	P scap, Euri-Medit	Fresco, border	Divine and fertility messages
<i>Platanus orientalis</i> L. (Platanaceae), leaves, inflorescence/ infructescence	P scap, SE-Europ.	Fresco, garland	Plants linked to water as the origin of life
<i>Populus alba</i> L. (Salicaceae), branches, leaves	P scap, Paleotemp.	Fresco	The plants linked to the thresholds of the afterlife
<i>Verbascum sinuatum</i> L. (Scrophulariaceae), leaves	H bienn, Euri-Medit.	Stucco reliefs, frame	Solar and salvific elements
<i>Viola</i> sp. (Violaceae), flowers	H ros	Fresco, garland	The plants linked to the thresholds of the afterlife
<i>Vitis vinifera</i> L. sl. (Vitaceae), fruits, leaves	P lian, Caucasus	Fresco, garland	The allusion to the vegetative force (Dionysus)

*Buxus sempervirens* (Fig. 1<sub>1</sub>) and *Laurus nobilis* (Fig. 1<sub>6</sub>), for example, were the species used to decorate and border the flowerbeds. Flowerbeds, *Hedera helix* (Fig. 1<sub>4a-b</sub>) and *Viola* sp. (Fig. 1<sub>15</sub>) were grown to cover the ground among other species, and *Iris* sp. (Fig. 1<sub>5</sub>), *Lilium candidum* (Fig. 1<sub>7</sub>), *Viola* sp. as flowering plants. Palms (*Phoenix dactylifera* (Fig. 1<sub>10</sub>)) and arboreal species (*Cupressus sempervirens* (Fig. 1<sub>2</sub>), *Pinus pinea* (Fig. 1<sub>11</sub>), *Platanus orientalis* (Fig. 1<sub>12</sub>)), were also recurrent in the Roman gardens to tree-lined or in sacred woodland, while the climbing species (*Hedera helix* and *Vitis vinifera* (Fig. 1<sub>16</sub>)) were grown in the ground or in pots near the columns and pergolas to create 'shadow. In the vast pool of the garden, along with the other aquatic plants, species of the genus *Nymphaea* (Fig. 1<sub>9</sub>) were certainly placed. Obviously, it should be emphasized that each of the named species could be cultivated in another context, decorative or productive, as fruit plants as in the case of *Vitis vinifera*, or for the production of flowers in the case of *Lilium*, *Viola*, *Iris*.

Undoubtedly, the choice and placement of the species in the garden were closely linked to their own symbolic values, which were addressed to augural elements and Dionysian forces. From a symbolic point of view, it is important to highlight the presence of species with vegetative strength value (*H. helix*, *V. vinifera*), and the plant representing to goodness and fertility (*Dracunculus vulgaris* (Fig. 1<sub>3</sub>), *Iris* cfr. *versicolor*, *Lilium* cfr. *candidum* L., *Pinus* cfr. *pinea*). In this way, the species with solar and healthiness (*C. sempervirens*, *L. nobilis*, *Malva* cfr. *arborea* (Fig. 1<sub>8</sub>), *P. dactylifera*, *V. sinuatum*) and also the with death symbolic value (*B. sempervirens*, *Populus alba* (Fig. 1<sub>13</sub>), *Viola* sp.). Surely, the the context of pool, remained to the water symbols as *Nymphaea* cfr. *alba*, *Platanus orientalis* (Fig. 1<sub>12</sub>) represented in the fragment paintings.

#### IV. CONCLUSION

The analysis of these naturalistic elements gives support in understanding the historical landscape behind their representation. The wide variety of plant species carved on the fragments has not only a decorative function. Their selection and distribution are not casual, but they are almost always descriptive of the environment, and they also have a very pertinent symbolic connection.



**Figure 1.** The plant species identified on the archaeological fragments of the Villa della Piscina. 1) *Buxus sempervirens* L., 2) *Cupressus sempervirens* L., 3) *Dracunculus vulgaris* Schott, 4a,b) *Hedera helix* L., 5) *Iris* cfr. *versicolor* L., 6) *Laurus nobilis* L., 7) *Lilium* cfr. *candidum* L., 8) *Malva* cfr. *arborea* (L.) Webb & Berthel., 9) *Nymphaea* sp.cfr., 10) *Phoenix dactylifera* L., 11) *Pinus* cfr. *pinea* L., 12) *Platanus orientalis* L., 13) *Populus alba* L., 14) *Verbascum sinuatum* L., 15) *Viola* sp., 16) *Vitis vinifera* L. sl

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