

# THE ARCHAEOBOTANICAL REMAINS OF THE ERMITA DE SANTA POTENCIANA SITE (JAEN, SPAIN). FIRST RESULTS



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## INTRODUCTION: AIMS AND STUDY AREA

Excavation directed by Antonia González and Juan Nicás Perales have revealed well preserved occupation layers from Roman to Medieval Periods (I-XVII AD). Archaeobotanical analyses in this site are part of an Argentinian-Spanish International research project entitled "The research of traditional crops in the Guadalquivir River and its application to restore of historical sites". The objective is to reconstruct of the ancient local landscape as well as to investigate the economy, especially agro-cultural activities, of this settlement. The archaeobotanical assemblages analysed only referred to Roman Period and their first results are presented here.

Ermita de Santa Potenciana is an archaeological site situated in Villanueva de la Reina in the countryside of northern Guadalquivir River, Jaen province (Andalucía, Spain) (Figure 1a). This site has been place of veneration to Santa Potenciana since centuries ago because according to the tradition, Sta. Potenciana was buried here and her body was discovered in 1627. Also for several decades, it existed the hypothesis that here had been situated Iltugis, an Iberian city that was important during Punic Wars and was destroyed in 209 BC by Roman army (Tito Livio 1990). New excavations (Figure 1b-d) have shown that the site was a Roman village and had not obtained the dimension of Roman city, confirming that Iltugis was not placed here. Also, a sequence of occupation from I century BC to XVII century AD was displayed (Table 1).

Macrobotanical evidence was recovered from earliest phases that correspond the Roman period. The first phase is composed of a set of small furnaces that were probably used to metal smelting. This hypothesis is argued due to proximities of mines of Sierra Morena as well as the existence of river ports on Guadalquivir River that could have been an excellent conveyance among river ports, hills and mines. Furnaces were destroyed during I century AD to build several square-shaped rooms where people of lower class were housed. Also, a second build was placed next to rooms where two dolia were discovered. Until VI-VII centuries was used to storage.

Date	Period	Features
1 <sup>st</sup> Century BC	August and Julio-Claudia Dnastv	Metal industrial area and mineral smelting in furnaces.
1 <sup>st</sup> -2 <sup>nd</sup> Centuries AD	Flavia and Antonina	Furnaces were remodeled and destroyed. Rooms to house and storage were built.
3 <sup>rd</sup> Century AD	Low Empire	Storage rooms had been used. New rooms were built and remodeled.
6-7 <sup>th</sup> Centuries AD	Late-Antique (Visigoth)	Storage rooms were remodeled to use as residential room.
9-12 <sup>th</sup> Centuries AD	Islamic (Emiral-Califal) Islamic (Taifal/African Emires) Era	Rooms had been used. New rooms were remodeled and built.
13-17 <sup>th</sup> Centuries AD	Medieval Christian Era	Road next to Batan and the fort with Santa Potenciana hermitage were built.
18 <sup>th</sup> Century AD	Modern Era	Buildings were survival until the whole abandonment.

TABLE 1. Chronology of Ermita Santa Potenciana site.



FIGURE 1b. Ermita Santa Potenciana site



FIGURE 1c. Olive trees surrounding the site



FIGURE 1a. Villanueva de la Reina study area (Jaen, Spain)

## MATERIALS AND METHODS

Macrobotanical remains from furnaces, storages, and refuse contexts were recovered from aprox 400 liters of sediment in total by dry sieving using 2mm-1mm meshes (Figure 2). Also, carbonized remains were sampled "by eye" when burnt organic material was seen during the excavation. All specimens are carbonized and were scanned under microscope at 20-400X in laboratory. Qualitative and quantitative features were described and the identification were used modern material and references published and un-published (Antolin and Buxó 2011; Buxó 1997; Montes Moya 2014; Nesbitt 2001; Rodríguez-Ariza and Montes Moya 2005, 2010; among others).



FIGURE 2a. Dolium - storage area



FIGURE 2b-c. Furnace area

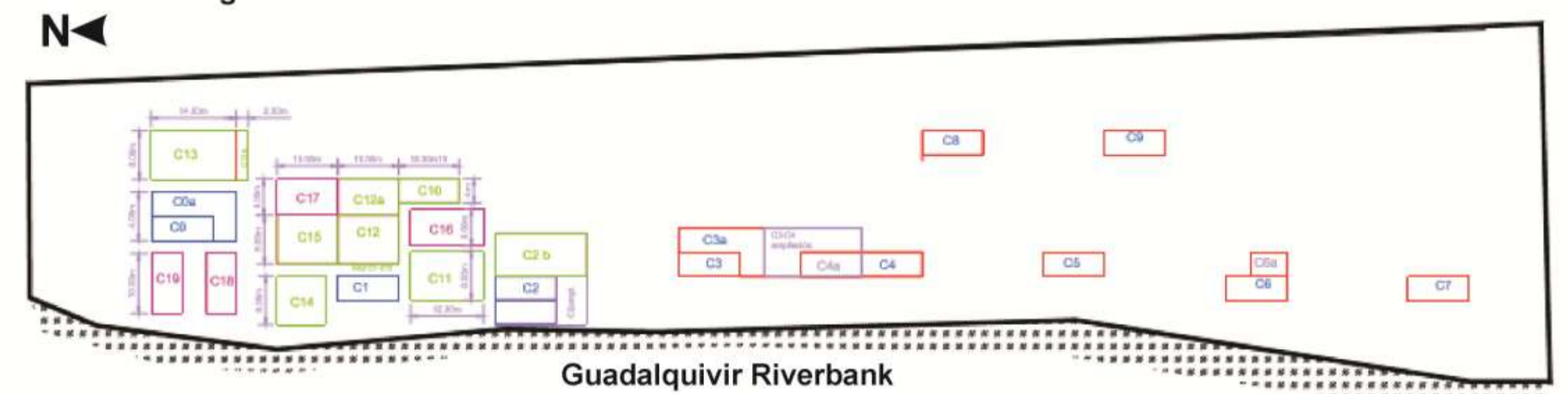


FIGURE 1d. Esqueme excavation at Ermita Santa Potenciana site



endocarps of almond (*Prunus dulcis*)



Hulled barley (*Hordeum vulgare*) seed



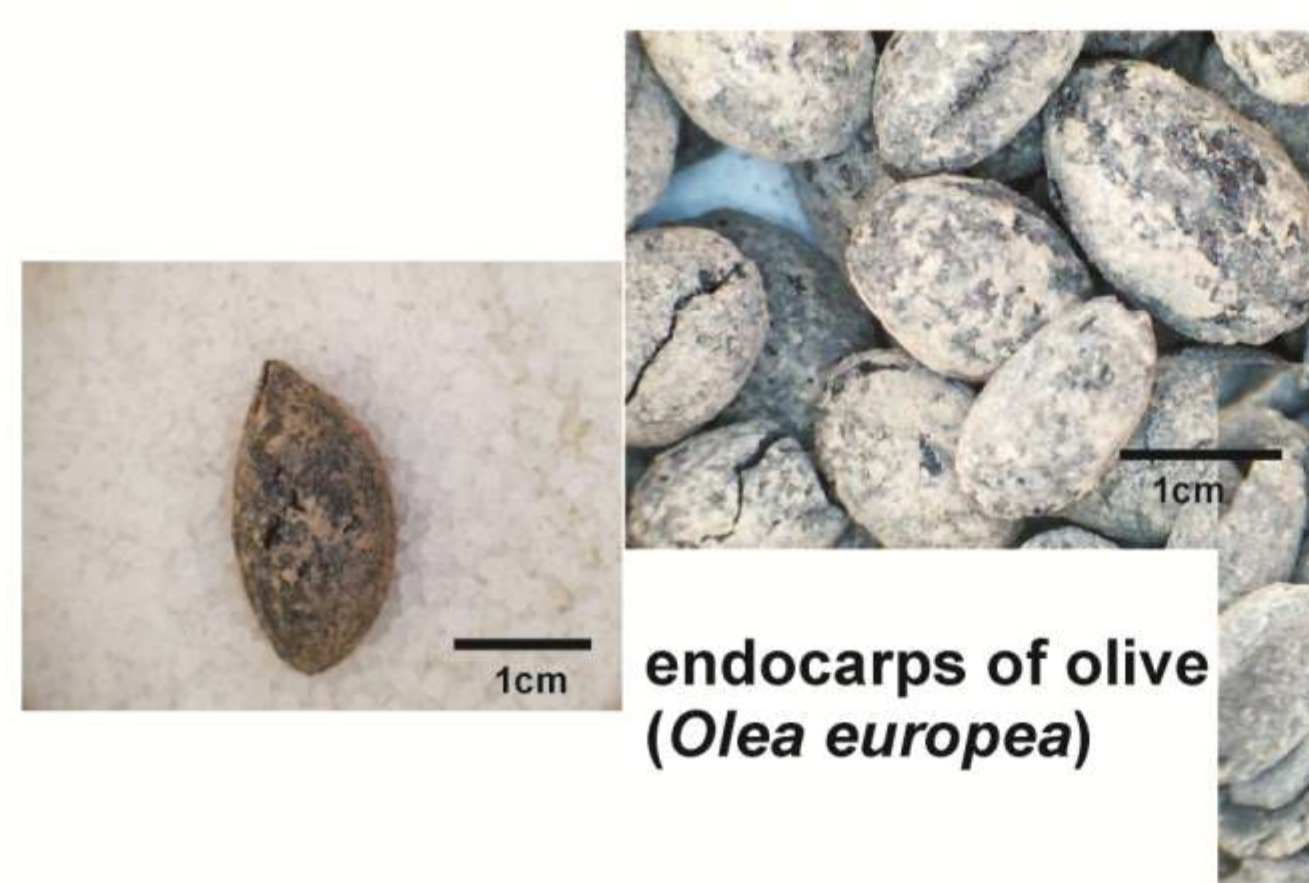
lentil (*Lens culinaris*) seeds

## RESULTS

Carbonized seeds and fruits fragments were recovered. Taxa included fruit-trees, cereals and pulses (Table 2, Figure 3). The fruit-trees recovered are *Olea europea* (olive), *Vitis vinifera* (grape), *Prunus dulcis* (almond) and *Prunus domestica* (plum). The cereals are mainly *Triticum aestivum/durum* (bead/hard wheat) and *Hordeum vulgare* (hulled barley). Pulses are represented by *Lathyrus cf. sativum* (grass pea), *Lens culinaris* (lentil), *Pisum sativum* (peas) and *Vicia* spp.

Taxa	<i>Olea europea</i>	<i>Vitis vinifera</i>	<i>Prunus dulcis</i>	<i>Prunus domestica</i>	<i>Triticum aestivum/durum</i>	<i>Triticum cf. monococcum</i>	<i>Hordeum vulgare</i>	<i>Lathyrus cf. sativum</i>	<i>Lens culinaris</i>	<i>Pisum sativum</i>	<i>Vicia</i> spp.	Unidentified species
Context												
C0-Dolium									X			X
C11-Furnace	X		X									X
C12-building on destroyed furnaces	X		X	X			X	X				X
C13-Dolium	X											X
C15-building on destroyed furnaces	X											X
C16-furnace	X				X	X	X	X			X	X
C17-landfill	X	X			X	X	X	X	X	X	X	X

TABLE 2. Identified species and contexts recovery



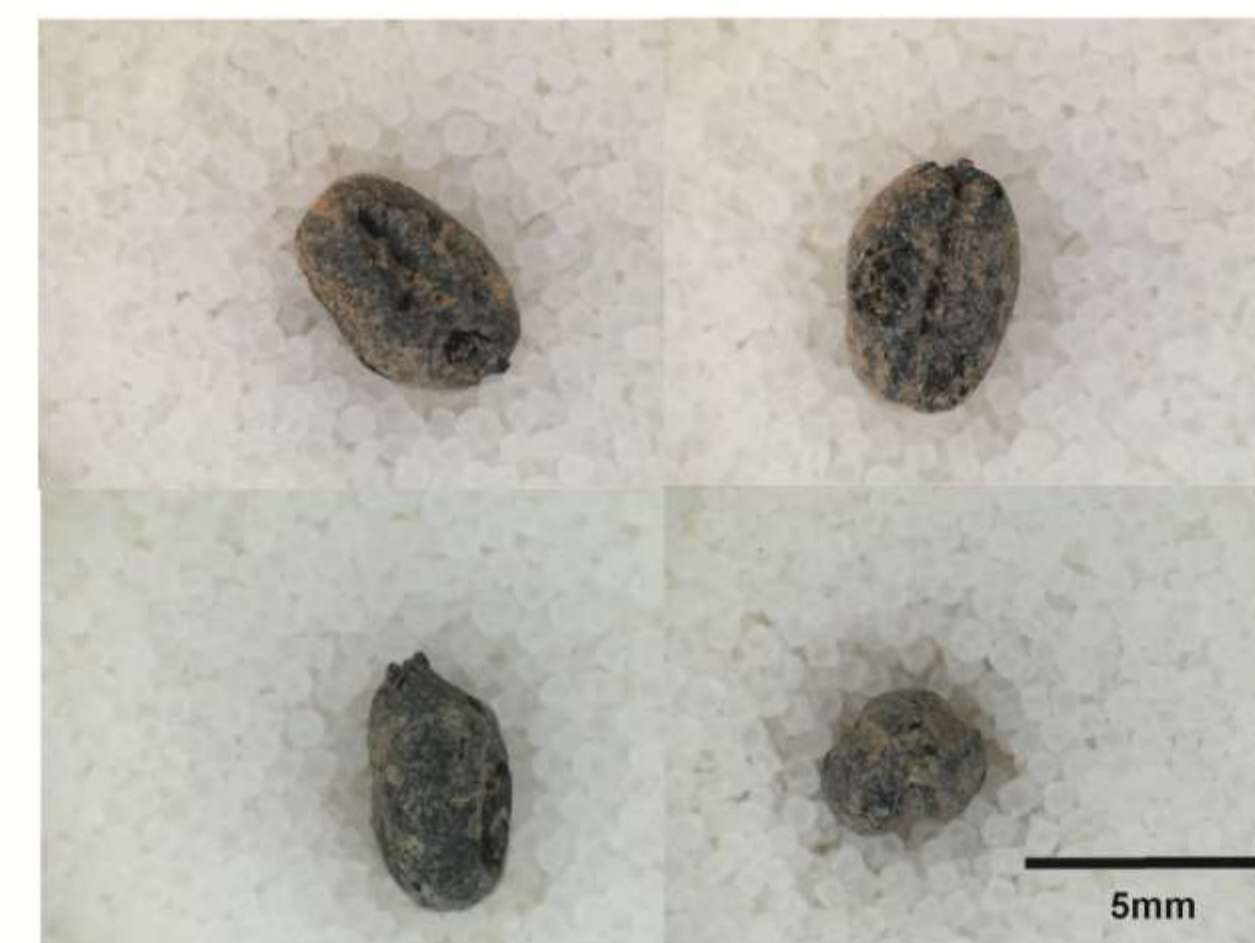
endocarps of olive (*Olea europea*)



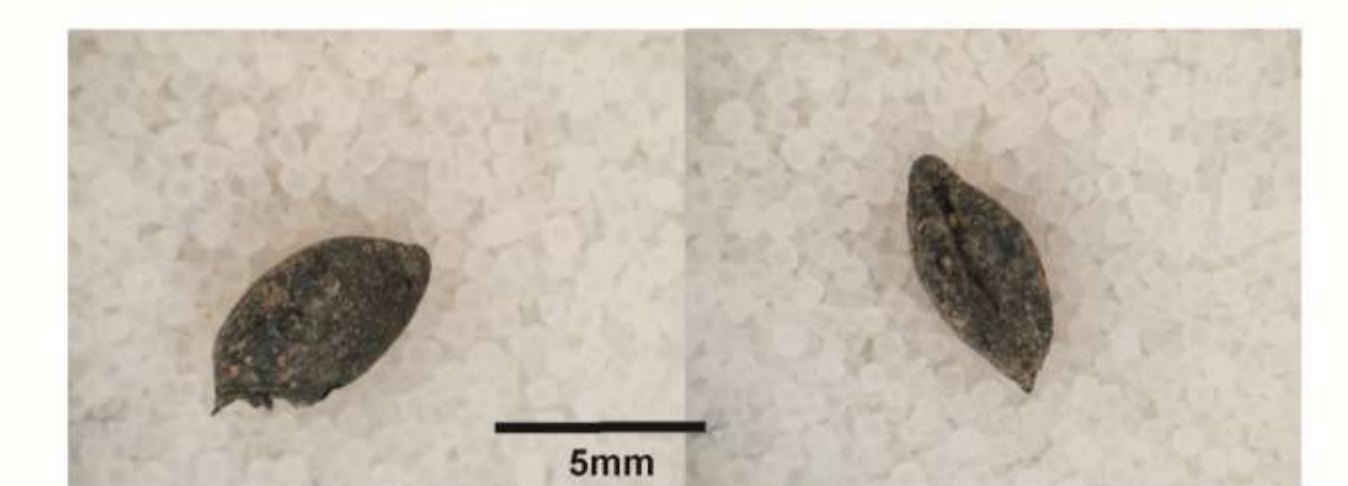
grape (*Vitis vinifera*) pips



bead/hard wheat (*Triticum aestivum/durum*) seed



endocarps of plum (*Prunus domestica*)



einkorn (*Triticum cf. monococcum*) seed

## DISCUSION AND CONCLUSIONS

Archaeobotanical data of Roman period suggest, at Ermita Santa Potenciana site, a landscape strongly influenced by human action, most of it in relation to olive-trees plantations, agricultural and husbandry practices. Also, different ways of use of these plants were identified, such as for food, fodder and fuel. The high presence of olive stones, complete and broken, in furnace contexts shows their use as fuel, probably to metal smelting practices. Olive fragments show fractures rounded and a matte surface along the smooth edges as the result to broke during ancient times (Margaritis and Jones 2008a, b). Further analysis will allow to recognize id they represent a post-processing mix of olive oil by-products and residues from consumption of olives. The fact that samples includes a large number of complete olive stones and noy only fragments pices can indicate that they are the results of a very gentle milling procedure, which left the majority of the stones uncrushed (Margaritis and Jones 2008b). Also, the presence of other fruits, cereals and pulses can indicate that archaeobotanical assemblages reflect post-processing mixture of residues of olive oil extraction with leftovers from eating foods.

The presence of grass pea in archaeobotanical assemblages shows its consumption by humans (Peña Chocarro and Zapata 1999; Valamoti et al. 2011). Judging from common occurrence both among storage and refuse contexts it is very likely that it was regular ingredient of daily meals of people during the occupation of Ermita Santa Potenciana site. Under certain conditions, eating large amounts of grass pea can result in a nervous paralysis of the lower limbs in humans (Lathyrism) but it can be consumed without problems for human health if its toxicity is reduced (Margaritis 2011). Also, it was likely used as fodder, as Peña-Chocarro and Zapata (1999) have shown in Iberian Peninsula. So, livestock management was probably part of economy developed at the site duron Roman Period. Cereals and pulses show development of agro-cultural practices. Low presence of bead/hard wheat and hulled barley cannot allow compare with other sites in Andalucía region where common/durum wheat (in the lead) and hulled barley (in second place) were the main taxa (Montes Moya 2014).

In sum, first results of archaeobotanical analysis are presented and some generalizations about plant managements are proposed. Deeper analysis of material and contexts are required to perform interpretations about economy and practices post-harvest developed at Ermita Santa Potenciana site during the Roman Period.

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