

Charcoal analysis of the Iron Age archaeological site in Los Morrones I, Cortes de Arenoso, Castellón, Spain

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Summary: During the excavations of the year 2007 at the Iron Age settlement in Los Morrones I (Cortes de Arenoso), three habitation areas affected by fire were documented, providing plenty of charred wood remains. Since these woods might have been part of building structures, they may supply data about their use in construction during that period.

Key Words: Iron Age, settlement, building structures, charcoal analysis.

INTRODUCTION

The farm Los Morrones, located in the city limits of Cortes de Arenoso, is a broad archaeological area where four settlements have been found, proving the long occupation of this space situated in the high plateau of Alto Mijares. Among all settlements, the one, which seemed to be the best preserved called Los Morrones I, was dating back to the Old Iron Age. Therefore, we decided to initiate a series of interventions with highly satisfactory results (Barrachina, 2004-2005). The results in the first three archaeological works showed a group of rooms which might have been part of the same house. All the structures are concentrated on the top of the hill, apparently without extending towards the steep slopes.

DATA AND RESULTS

During the 2009 works, an entire room was excavated (Room 2) and so were part of the other two (Rooms 1 and 3). It was possible to document elements that showed the effect of fire on structures not made in stone. All of them provided abundant remains of charred wood, although in Room 1 they were smaller and scattered. Since those remains were part of building elements, they can put forward data related to their use as building material during that period.

The 104 samples obtained are remnants of timber from the room structures; they were retrieved manually and each item was marked individually (VV.AA. 2003). Afterwards, using a reflection optical microscope, an anatomical analysis was carried out on one or more than one charcoal fragments from each sample. Through that examination, it was possible to identify three taxa: *Pinus nigra-Pinus sylvestris*, deciduous *Quercus* and evergreen *Quercus*.

Following the anatomical analysis, the study of data in connection with the stratigraphic units (S.U) was carried out (Table 1).

After gathering all the data, the next step was to examine the distribution of the identified taxa in relation to each room (Fig. 1). Three facts can be observed:

1. The significant presence of deciduous *Quercus* and *Pinus nigra-Pinus sylvestris* charcoal, shows that the construction timber was used, among other things, as building material for elements such as poles, beams, roof, floorboards, doors, stairs, furniture, etc., which might have been part of the rooms.

2. Findings in Room 1 differ from the other rooms, since the only taxon represented is *Pinus nigra-Pinus sylvestris*.

3. The presence of evergreen *Quercus* is scarce; it was identified only in Room 2.

S.U	Number of samples	TAXA		
		Deciduous <i>Quercus</i>	Evergreen <i>Quercus</i>	<i>Pinus nigra-Pinus sylvestris</i>
1017	4			100
1025	64	64,4	1.5	34,1
1026	1	100		
1027	2	50		50
1028	12	75		25
1029	3			100
1032	18	66,6		33,4

TABLE 1. Los Morrones I. Percentage of taxa identified in relation to stratigraphic units.

DISCUSSION

The settlement of Los Morrones I is situated on top of a hill at about 1146 m asl, in the municipality of Cortes de Arenoso, in the natural region of Alto Mijares. The site is framed in the *maestracense* chorological sector, under the influence of the following bioclimatic levels (Roselló 1994, Peris *et al.*, 1996): a) Superior Mesomediterranean. It is located south of Cortes de Arenoso. Evergreen oaks are predominant, although the valley bottoms are covered by deciduous oaks, b) Supramediterranean. It is located to the north of Cortes de Arenoso, where extensive *Pinus nigra* forests grow. At the lower levels, they mingle with evergreen oaks, c) Oromediterranean. It is located at the top of Las Cruces peak (1710 m asl). *Pinus sylvestris* here clearly dominates. This vegetation was already exploited by the

inhabitants of Los Morrones I in the Iron Age, as we can infer from the three identified taxa in this study, since the retrieved samples were taken precisely from those forests. However, the extension of these formations cannot be determined through this analysis due to the origin of the samples; these were concentrated samples associated with building structures that provide ethnological data, but not environmental data at a quantitative level (Grau, 1991; Chabal, 1991). What seems to be evident is that deciduous oak, pine and evergreen oak woods were selected for a specific purpose. This particular use is unknown so far, although we could be talking about poles, beams, roof buttresses, lintels, stairs, etc., which fell down to the room level during the fire.

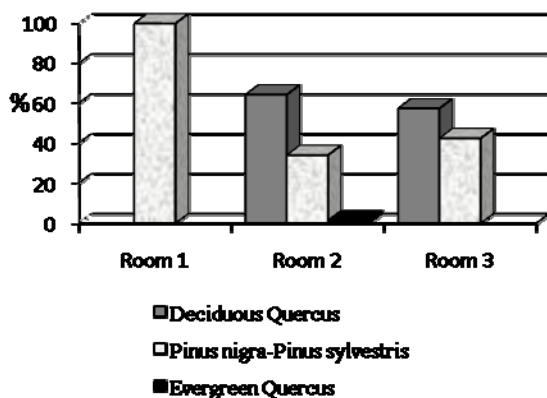


FIGURE 1. Los Morrones I. Taxa identified in relation to each room.

Other archaeological sites dated to that period, such as Castellet de Bernabé (Llíria, Valencia) and Puntal dels Llops (Olcou, Valencia) (Grau, 1991), have revealed remains from the building structure (Grau, 1991). This has also been documented in Los Villares (Caudete de las Fuentes, Valencia) (De Haro, 2002).

CONCLUSIONS

At the archaeological site of Los Morrones I, three rooms affected by fire have been documented, providing charcoal remains of deciduous *Quercus*, *Pinus nigra-Pinus sylvestris*, and evergreen *Quercus*, which were part of building structures. Deciduous *Quercus* and *Pinus nigra-Pinus sylvestris* were mainly used as timber and evergreen *Quercus*, to a lesser extent. The woods

were extracted from areas near the site: *Pinus nigra-Pinus sylvestris* from the north of Cortes de Arenoso and deciduous *Quercus* and evergreen *Quercus* from the hillsides and the valley bottoms to the south.

The extension of the excavated areas, including Room 3, it is likely to offer new data that complement those presented here. We should not forget that what we present here in detail is only a first approximation from the study of the carbonized remains.

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