

Archaeobotanical analysis in sedimentation deposits of Roman and Medieval pits in caves of NW Iberia. Cova do Xato and Cova Eirós (Lugo, Galicia, Spain)

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Summary: The charcoal analysis results of the firewood consumption, as well as the carpological ones of seeds and fruits, in two caves with roman and medieval levels located in the eastern part of the Lugo province (Galicia), NW Iberia, are analyzed. The results arise from the anthropic exploitation of occasional or permanent sites situated in not very populated areas.

Key words: caves, NW Iberia, charcoal, seeds.

INTRODUCTION

Since 2007 and under the supervision of the Grupo de Estudio para a Prehistoria do NW Ibérico of the Universidade de Santiago de Compostela¹, several archaeological sites have been dug in search for Palaeolithic settlements in the Lugo province (Fábregas *et al.*, 2008, 2009). The substratum of this area, where the only few karst spaces of Galicia can be found, has allowed the formation of caves occupied since prehistoric times. In two of them, Cova do Xato (1080 m, Folgoso do Caurel, Lugo) and Cova Eirós (780 m, Triacastela, Lugo), evidence from the Pleistocene period, as well as of Roman and Medieval settlements has been registered. Both sites are situated in a mid-mountain area, in the so-called Eurosiberian climatic region. This paper summarizes the results from the charcoal and carpological analysis of the charred remains found during the excavations.

DATA AND RESULTS

The analyzed samples were found in sedimentation deposits: in a hearth in Cova do Xato and in a burnt level inside a store-pit in Cova Eirós. The flotation of sediment in meshes of 2, 1 and 0.5mm of light and specific samplings were combined. Also two pollen analyses were carried out, although the ones from Cova Eirós did not bring back positive results due to conservation problems.

During the Cova do Xato excavation, pollen samples from different strata were collected (Expósito *et al.*, 2008). The obtained data helped explaining the paleoenvironmental context in two levels of the Roman period (4th-5th century AD). In both, the arboreal pollen prevails over the NAP (between 60-80%) and *Corylus avellana* stands out -when only taking into account the

AP it accounts for 80% of the total- and in less proportion *Quercus* sp. deciduous, *Betula*, *Quercus ilex/coccifera*, cf. *Juniperus* sp., *Pinus* sp. and *Alnus* sp. Cistaceae (Expósito *et al.*, 2008) was the only shrub identified.

Charcoals come from the flotation of 39.5 litres of sediment (2 samples) and the manual collection of a further 46. Comparing natural vegetation with harvested firewood, important differences can be seen. The charcoal analysis has showed that *Quercus* sp. deciduous is the most common species (67.1%), even though, the most common one in the area is the hazelnut tree, which percentagewise is the third represented inside the cave. Besides oaks, other taxa from the deciduous forest and woodland undergrowth such as *Corylus avellana* (7.5%), Rosaceae/Maloideae (1.4%) and *Prunus* sp. (0.6%), as well as water bound species such as: *Fraxinus* sp. (9.5%), *Salix/Populus* (1.4%) and *Ulmus* sp. (0.6%) are predominant. Also bushes of Fabaceae (10.2%) and thermophilic bushes such as *Arbutus unedo* (0.6%) are common. The use of firewood indicates a temporary harvest of green or still humid branches, observing radial cracks in 20.6% of the charcoals, as well as vitrification in 8.2% and the reduced action of the entomofauna, only detected on *Quercus* sp. deciduous.

Regarding the carpological remains only four seeds and a fragment of wheat (*Triticum aestivum/durum*) very distorted, have been found.

For Cova Eirós 10 litres of sediment have been floated and 5 charcoals manually gathered in medieval levels. In them, they burnt firewood including species from the riparian forest or associated to humid areas such as *Salix/Populus* (27.6%), *Betula* sp. (20.9%), *Ulmus* sp. (6.6%) and *Fraxinus* sp. (5.7%). There is also an important representation of species from mixed deciduous forests: *Quercus* sp. deciduous (14.2%) and Rosaceae/Maloideae (14.2%), in less proportion *Castanea sativa* (2.8%), *Corylus avellana* (1.9%) and

¹ *Ocupaciones humanas durante el Pleistoceno en la cuenca media del Miño* (HUM/2007-63662), and *Poblamiento durante el Pleistoceno Medio/Holoceno en las comarcas orientales de Galicia* (HAR2010-21786). Ministerio de Ciencia e Innovación.

Prunus domestica/spinosa (0.9%). Taxa associated to bush formations such as Fabaceae (3.8%) and thermophilic bushes such as *Arbutus unedo* (0.9%) also appear.

In firewood consumption, we observe a temporary harvest of green or humid branches of *Quercus* sp. deciduous, Rosaceae/Maloideae and *Ulmus* sp. (5.7% with radial cracks and 1.9% with vitrification) and deadwood of *Quercus* sp. deciduous and Rosaceae/Maloideae (2.9% with entofauna action). A fragment of a *Betula* sp. wood container used as firewood in a hearth was also found.

In one of the two storage pits carbonized seeds and fruits have been found; however, these do not relate to the original use of the pit but rather to a later combustion process associated with the last phase of sedimentation when the pits were filled. The identified remains correspond both to cultivated and wild species: caryopsis of wheat cereals (*Triticum aestivum/durum* and *Triticum dicoccum/spelta*) barley (*Hordeum vulgare*), fragmented hazelnut achenes (*Corylus avellana*) and seeds from some type of flax (cf. *Linum* sp.).



FIGURE 1. Excavation process of storage pits from Cova Eirós.

DISCUSSION

Both sites studied are located in areas not very common for human settlement. Even though, we cannot specify the duration and the significance of the settlements due to the small area excavated, the presence of two pits –possibly used for storage – in Cova Eirós allow us to reject the temporary occupation of this settlement. In Cova do Xato we cannot precisely determine the occupation of the cave: whether it was opportunistic, seasonal or permanent; however, it is not only situated at a higher altitude (more than 1000 metres) but it is also in a less humanized habitat.

The charcoal analysis of Cova do Xato, in a wooded habitat, shows a majority of *Quercus* sp. deciduous as opposed to the hazelnut tree more common in the area; this is possibly related to the use as firewood. The exploitation strategy of using both trunks and small and medium size branches is regarded as being opportunistic.

In Cova Eirós, the timber consumption appears to be linked to riparian forests; maybe related to the woodland retreat during the Middle Ages, due to a strong anthropic pressure on the land –reclamation of forest land, fuel production, wood supply, etc.- (Gutián, 2001). The importance of fruit trees appears to be linked to other charcoal analysis in medieval contexts, a period where silviculture is rapidly gaining importance. References to chestnut, apple, pear, cherry or fig trees are constant in the written sources of this age (López, 2009). Even though the carpology sample is reduced, in a vegetable-rich diet, a strategy based on the growing of cereal as well as in the use of wild fruits exists.

In the vicinity of both sites, nowadays we find fields which indicate that a farming area could have existed.

CONCLUSIONS

The obtained results allow us to gain a deeper knowledge of the environmental exploitation in cave settlements in recent historical contexts. These show, not only the use of farming products, but also of seasonal or opportunistic vegetable resources in which food and wood are included. One of the possible interpretations is that we have evidence of an occasional settlement or a shepherd's shelter in Cova de Xato and maybe a more permanent one in Cova Eirós.

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