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ARCHAEOENTOMOLOGY APPLIED TO THE GRAN CANARIA MUMMIES: FIRST RESULTS

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Abstract. Archaeoentomology in funerary contexts provides relevant information regarding the treatment of the corpse, the taphonomic history of the human remains and the main features of the burial sites. These data are especially interesting for the study of the mummies of Gran Canaria for several reasons. Firstly, the mummy collection of El Museo Canario was created between the end of the 19th and the 30s of the 20th centuries, so any data about its origin is almost non-existent. The archaeoentomology offers direct details about the conditions of the decomposition process and the features of the place chosen as grave. Secondly, it allows knowing if the treatment of the corpse, and especially the shroud, conditioned the presence of different taxa of cadaveric fauna or if differences can be established depending on the quantity and quality of the materials used in the funeral wrap. This paper provides the first results of the archaeoentomological study of mummies 8, 11 and 15 from El Museo Canario.

Keywords. Forensic Entomology. Burial Cave. Wrapping. Pre-Hispanic. Differential Conservation.

1. INTRODUCTION

Archaeoentomology in the Canary Islands is a discipline that, despite having great potential, has not been subject to the usual attention by the scientific community. In regard to the funeral contexts, only Cuscoy (1960) in his works on the sepulchral cave of Roque Blanco, Pinto & Ortega (1992) in their study of the material found in the abdominal cavity of two guanches mummies and more recently Trujillo & González (2011) in a taphonomic study of some partially mummified remains, offer some information about the sarcosaprophagous entomofauna associated with the burials of the aboriginal population. In addition to this, Hanski (1977) offers some information about the carrion flies of the archipelago, and, in recent years, the research of Morales and colleagues (2014) are providing interesting data about the insects found in the granaries of the former inhabitants of the islands.

Nowadays, we are witnessing a revolution in the Canarian archaeology and, as a result of the interdisciplinary research, constant contributions are being made to the knowledge of the funeral practices of the ancient inhabitants of the Archipelago. The fauna associated with a corpse can provide a large amount of information. Both the colonizing sequence and the faunal composition undergo seasonal and geographical variations, which allow different analyzes of forensic nature (Smith, 1986).

The current reality of the discipline in the Spanish state and in the Canary Islands makes it necessary to start up new research adapted to the recommendations of professionals in the field. In addition, in those areas where information is lacking, studies of sarcosaprophagous faunal succession process should be developed to provide data in order to carry out analysis of the fauna found in archaeological and other forensic contexts (Arnaldos *et al*., 2006).

In this paper we present the first results obtained after sampling and analyzing the fauna remains contained in 3 ancient mummies of Gran Canaria, within the framework of the Research Project: Study of the collection of mummified human remains of El Museo Canario.

2. MATERIAL AND METHOD

The insects studied come from the direct sampling carried out on mummies 8, 11 and 15. Mummy 8 (Gran Canaria) corresponds to a male, 25-30 years old,

wrapped in four long shrouds of animal hides and dated between the 5th-6th centuries AD cal (Beta – 391059; 1570±30 BP; (95,4%) 417–555 cal AD). Mummy 11, dating from 7th century AD (Beta – 468990; 1370 ± 30 BP; (95,4%) 608-688 cal AD) belongs to a 15 years old female, wrapped in two long layers of animal skin. Finally, mummy 15 (Guayadeque) is composed of the remains of two incomplete subadult individuals, which preserve a shroud maid of animal skin. 15a corresponds to a perinatal individual (41,4 ± 2,08 gestational weeks; Scheuer and Black, 2000). 15b is a 1-1,5 years old child.

In the three cases, abundant cadaveric fauna is preserved in a good state of preservation, which has favoured the assessment of the representation of preserved specimens, their location and their taxonomic diversity.

The samples were obtained by active search, carefully scrutinizing all those sensitive areas where arthropod remains could be found. The samples were correspondingly labeled and stored dry or fixed in 70% ethanol according to each case. Additionally, some sediment was extracted in order to study it later under laboratory conditions. The taxonomic assignment was made through the use of identification keys for each group, following the usual procedures.

When developing studies about the process of cadaveric decomposition, the process tends to be divided into different stages. Megnin (1894) divided the process into eight states. Later Payne (1965) considered 6 states (fresh, emphysematous, active decomposition, advanced decomposition, dry and remains), a division that seems to be assumed, with certain modifications, in later works (López Dos Santos, 2008).

3. RESULTS AND DISCUSSION

We have found remains, at least, belonging to 9 insect species (Table 1), of which 4 are strictly sarcosaprophagous organisms, while the rest are omnivorous or insects associated with museum pests or stored products (Fig. 1).

The entomosarcosaprophagous fauna found configures a scenario that shows a certain degree of natural decomposition of the bodies, with the logical physical limitations imposed by the shrouds.

A more detailed analysis of the samples collected using the SEM technology, among others, will help us to complete the taxonomic identifications of the specimens or partial remains with a greatest degree of difficulty to be identified.

Table 1. Decomposition stages considered (F: fresh; E: emphysematous; AcD: active decomposition; AdD: advanced decomposition; D: dry and R: remains). Trophic relations (NC: Necrophagous NF: Necrophilus; OM: Ommnivora; OP: Oportunist; AC: Accidental).

Order	Family	Scientific name	Decomposition stage	Trophic relations
Coleoptera	Cleridae	*Necrobia rufipes* (DeGeer 1775)	AcD, AdD	NF
	Dermestidae	*Dermestes maculatus* (DeGeer, 1774)	E, AcD	NC
	Anobiidae	*Stegobium paniceum* (Linnaeus, 1758)	–	AC
		Mezium americanum (Laporte de Castelnau, 1840)	–	AC
Diptera	Calliphoridae	*Chrysomya albiceps* (Wiedemann, 1819)	F, E, AcD	NC
	Fanniidae	unidentified	–	NC
Hymenoptera	Formicidae	*Pheidole* sp.	–	OM
Lepidoptera	Tineidae	unidentified	–	¿?
Siphonaptera	Ceratophyllidae	*Nosopsyllus fasciatus* (Bosc, 1800)	–	AC

The future of the archaeoentomology in the Canary Islands is very promising. Multidisciplinary collaboration promote the data exchange among professionals from different fields of knowledge, which will inexorably contributes to increase the knowledge and better understanding of the processes related to the treatment methods applied to the corpses and the burial traditions of the ancient Canarians.

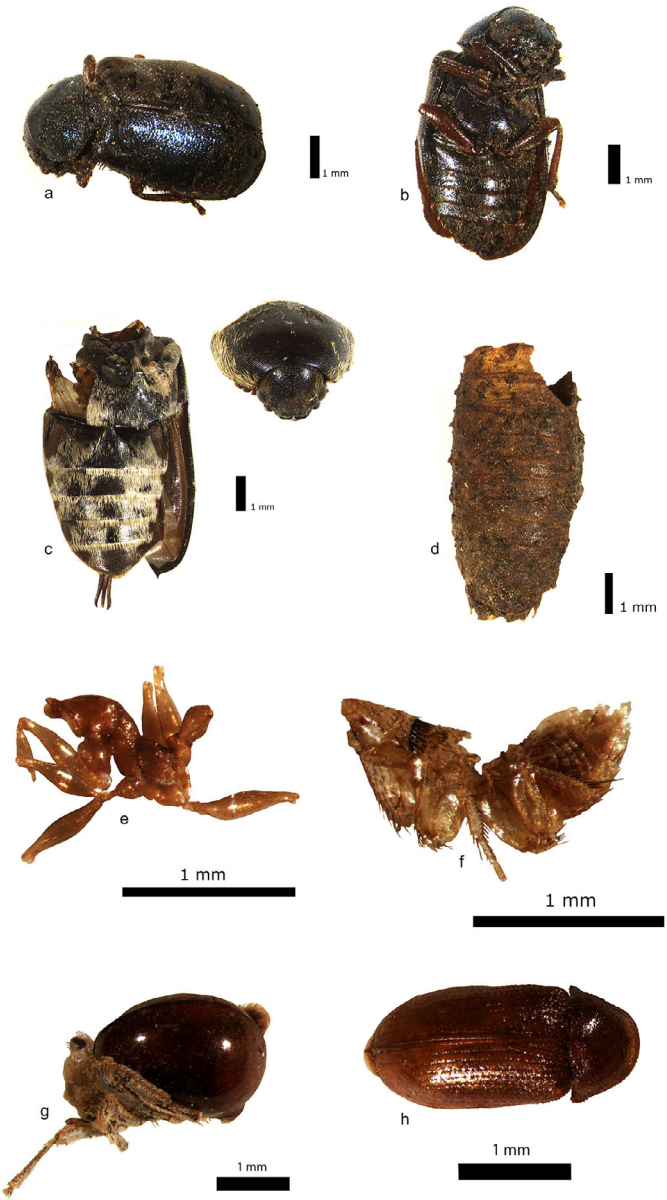

Fig. 1. a. *Necrobia rufipes* (dorsal) **b.** *Necrobia rufipes* (ventral) **c.** *Dermestes maculatus* **d.** *Chrysomya albiceps puparia* **e.** *Pheidole* sp. **f.** *Ceratophyllidae* **g.** *Mezium americanum* **h.** *Stegobium paniceum.*

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