

ARCHAEOENTOMOLOGY APPLIED TO THE GRAN CANARIA MUMMIES:

First results

López Dos Santos, N.* [nlopez@cifor.net] • Patiño Martínez, C.** [p2pamac@hotmail.com] • Delgado Darías, T.*** [tdelgado@elmuseocanario.com] • Alberto Barroso, V.**** [veroalberto1@gmail.com] • Velasco-Vázquez, J.***** [javier.velasco@ulpgc.es]

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. Only Cuscoy (1960) in his works on the sepulchral cave of Roque Blanco, Pinto and 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 partially mummified remains, offers some information about the sarcosaprophagous entomofauna associated with the burials of the ancient Canaries.

As well, Hanski (1977) offers some information about the carrion flies of the archipelago, and in recent years, the works of Morales et al. (2014), in granaries of the former inhabitants of the islands, are providing interesting information about insects associated with them.

Currently we are witnessing a revolution in 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 us with a large amount of information. Both the colonizing sequence and the faunal composition undergo seasonal and geographical variations, which allows different analyzes of forensic nature (Smith, 1986).

For funeral 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 can be 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 the information about its origin is almost non-existent. In this regard, the archaeoentomology can provide direct details about the conditions of the decomposition process and the features of the place chosen as grave. Secondly, it will allow to know if the treatment of the corpse, and in particular its 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.

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 us with information in order to carry out analysis of the fauna found in archaeological and other forensic contexts (Arnaldos et al., 2006).

In this work we present the first results obtained after sampling and analysing the fauna 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".

MATERIAL AND METHOD

The insects studied come from the direct sampling carried out on 3 mummies of Gran Canaria, specifically the numbers 8, 11 and 15.

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 in 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. Mègnin (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).

RESULTS AND DISCUSSION

The first results of the taxonomic studies are provided.

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

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 of them that present the greatest difficulty.

The future of the archaeoentomology in the Canary Islands is very promising. Multidisciplinary collaboration promotes the data exchange among professionals from different fields of knowledge, which will inexorably contribute 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.

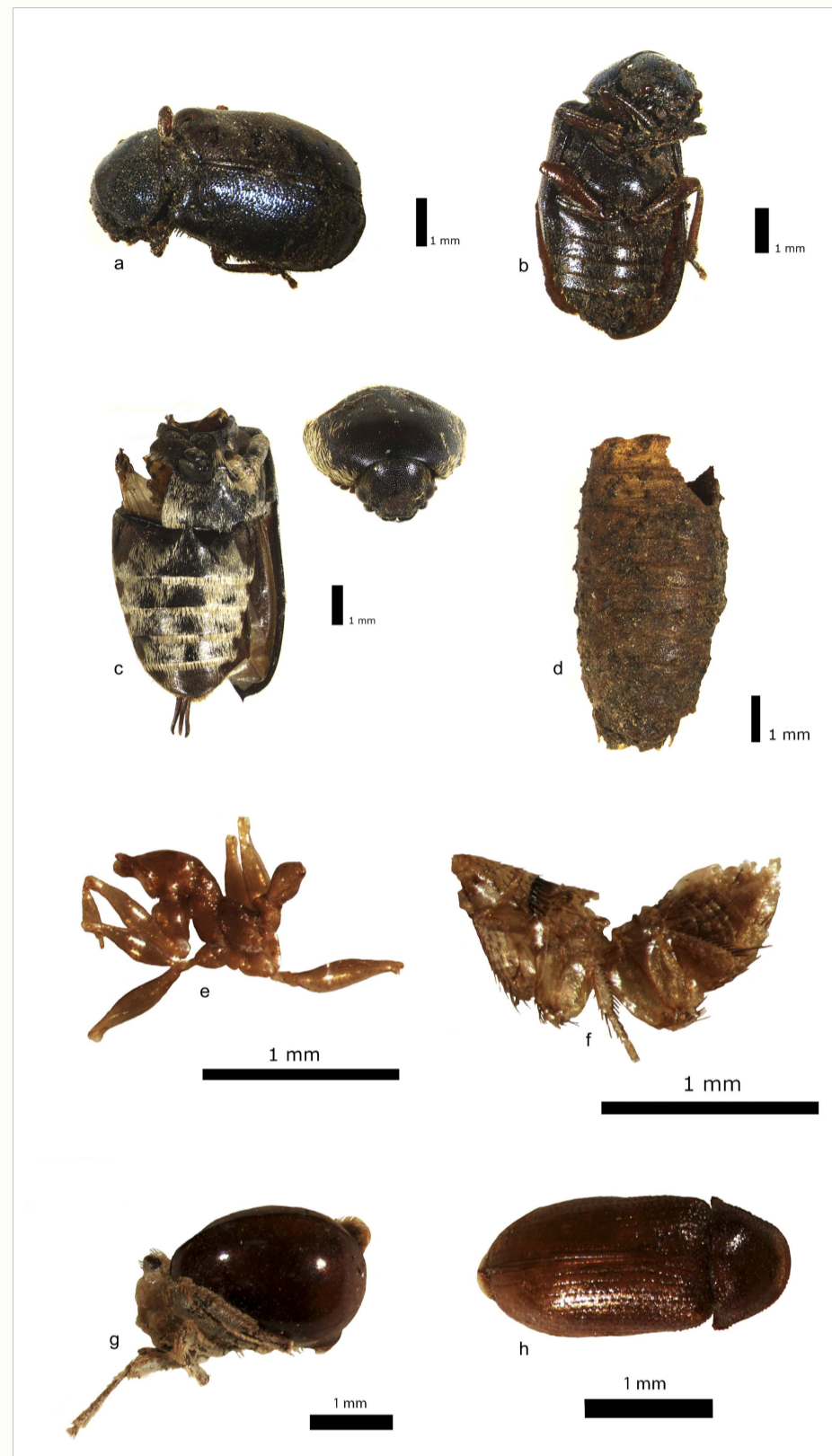


Figure 1:
a) *Necrobia rufipes* (dorsal) b) *Necrobia rufipes* (ventral) c) *Dermestes maculatus* d) *Chrysomya albiceps* puparia
e) *Pheidole* sp. f) *Ceratophyllidae* g) *Mezium americanum* h) *Stegobium paniceum*

Order	Family	Scientific name	Decomposition stage	Trophic relations
Coleoptera	Cleridae	<i>Necrobia rufipes</i> (DeGeer 1775)	AcD, AdD	NF
	Dermeidae	<i>Dermestes maculatus</i> (DeGeer, 1774)	E, AcD	NC
	Anobiidae	<i>Stegobium paniceum</i> (Linnaeus, 1758)	-	OP
		<i>Mezium americanum</i> (Laporte de Castelnau, 1840)	-	OP
Diptera	Calliphoridae	<i>Chrysomya albiceps</i> (Wiedemann, 1819)	F, E, AcD	NC
	Fanniidae	unidentified	-	NC
Hymenoptera	Formicidae	<i>Pheidole</i> sp.	-	OM
Lepidoptera	Tineidae	unidentified	D, R	?¿
Siphonaptera	Ceratophyllidae		-	AC

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: Omnivora; OP: Opportunist; AC: Accidental).

REFERENCES

- ARNALDOS M.I., LUNA A., PRESA J.J., LÓPEZ-GALLEGO E. & GARCÍA M.D. (2006). Entomología Forense en España: Hacia una buena práctica profesional. *Ciencia Forense* 8, 17-38.
- DIEGO CUSCOY L., MATHIESEN J., SCHWIDETZKY I., ORTUÑO F., SERRA E. & FERNÁNDEZ J. (1960). *Trabajos en torno a la Cueva Sepulcral de Roque Blanco*. Publicaciones del Museo Arqueológico, n.º 2. S/C. de Tenerife. 108 pp.
- HANSKI I. (1977). Biogeography and ecology of carrion flies in the Canary Islands. *Annales Entomologici Fennici* 43: 101–107.
- LOPEZ DOS SANTOS, N. (2008). *Estudio de sucesión faunística en cadáveres expuestos en ambiente silvestre*. Tesis de Máster en Ciencias Forenses. Universidad de Murcia, Murcia.
- MÉGNIN, J.P. (1894). La Faune des cadavres: application de l'entomologie à la médecine légale. *Encyclopedie Scientifique des Aide-Memories*, Masson et Gautiers–Villars, Paris. 214 pp.
- MORALES, J.; RODRÍGUEZ, A.; GONZÁLEZ, M.C.; MARTÍN, E.; HENRÍQUEZ, P. & PINO, M. (2014). The archaeology of long-term crop storage in northwest African communal granaries: a case study from pre-Hispanic Gran Canaria (cal. AD 1000-1500). *Veget. Hist. Archaeobot.* 23 (6): 789-804.
- PAYNE, J.A. (1965). A summer carrion study of the baby pig *Sus scrofa*. *Ecology* 46 (5): 592-602.
- SÁNCHEZ-PINTO, L. & ORTEGA, G. (1992). Análisis del material localizado en la cavidad abdominal de dos momias guanches. *Actas del Congreso Internacional de Estudios sobre Momias*. Santa Cruz de Tenerife: Museo Arqueológico y Etnográfico, pp. 145-150.
- SMITH K.G.V. (1986). *A manual of forensic entomology*. Trustees of the British Museum (Natural History), London.
- TRUJILLO A. & GONZÁLEZ J.M. (2011). Taponomía de alta montaña. Aproximación multidisciplinar al estudio de restos parcialmente conservados. *Actas de las IV Jornadas "Prebendado Pacheco" de Investigación Histórica*, Tegueste.