Patricia Bargão

MONTE MOLIÃO *CETARIAE* (LAGOS, PORTUGAL)

This preliminary study presents the results of the emergency intervention carried out in 2007 on Monte Molião Street (Lagos) (**fig. 1**). We present the results of the archaeological work in the context of the project "Urbanização de loteamento em terreno sito no Moleão – Lagos", within the systematic archaeological works carried out by the company Palimpsesto Lda. The emergency work had to be undertaken due to the construction of several inhabitation buildings and an infraset of accessibility and leisure structures. The archaeological work was done in five distinct phases, with the results of previous interventions having partially been published[1].

Location and fieldwork

The Molião hill is situated in S. Sebastião, Lagos-Faro. The archaeological intervention was made in the inferior part of the Monte Molião Street, at the base of the hill, in a relative low altitude (about 3 m high) (**fig. 2**). During the archaeological fieldwork, some well presevered Roman structures, previously unknown in this area, were identified. Associated to these walls we also found archaeological strata of the same period. This occurrence caused the temporary suspension of the infrastructure construction works, and was followed by a set of measures to recover important information about the site. Five excavation areas were opened. Three of these were dug 1,5 m deep whilst the remaining two were excavated until the geologic substratum was reached, making it possible to characterise and summarise all the existing occupation.

Research History

The archaeological occupation of Monte Molião has been known since the 19th century, due to the works of Estácio da Veiga[2]. In 1992, due to the importance of the recovered finds, the archaeological site was classified as being a *Public Interest Heritage*[3].

During the 20th century very few archaeological investigations took place. There the work of Santos Rocha[4] has to be mentioned, who recovered and later published some archaeological materials, and the emergency intervention carried out by Susana Estrela in the end of the 1990's[5].

Fig. 1. Monte Molião. Location in the Iberian Peninsula.

In 2006 a four year project of archaeological surveying on Monte Molião started, which was carried out by an archaeological research team of the Faculty of Letras of Lisbon University, with the support of the Lagos City council.

Everything known about the Monte Molião Roman history allowed us to establish the following goals: to determine the existence and degree of preserved contexts, identify occupational sequences and to record structures, found *in situ*.

1 In 2006 during an emergency intervention, a Roman republican occupation was identified on the top of the hill, cfr. SOUSA/SERRA 2006.

2 The first archeological information recovered was published by Estácio da Veiga in a paper called Antiguidades Monumentais do Algarve (VEIGA 1910).

3 Available information is to be found at the website www.ippar.pt.

4 Santos Rocha was a pioneer of the archeological research undertaken in Algarve during the beginning of the 20th century (ROCHA 1910).

5 Published in 1999 in Revista Portuguesa de Arqueologia (ESTRELA 1999).

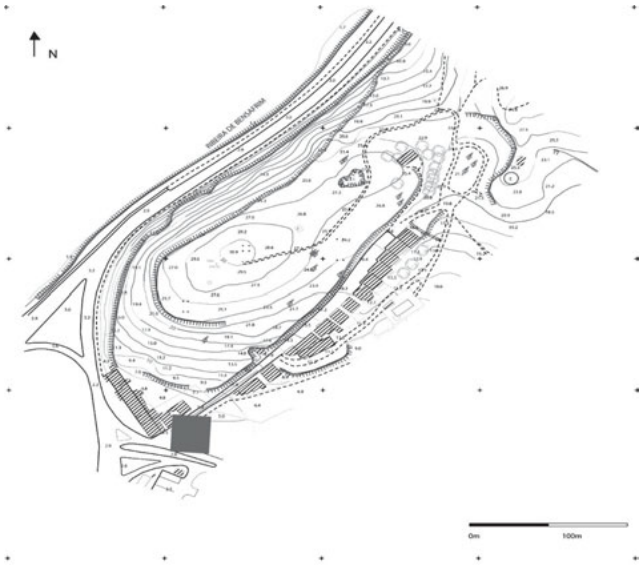

Fig. 2. Monte Molião. Topographic plan.

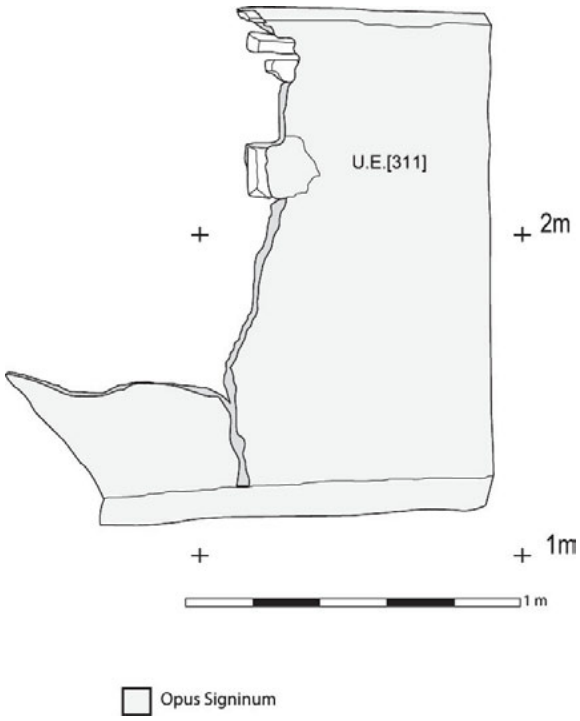

Fig. 3. *Opus signinum* wall of *cetaria* 1.

Results

The analysis of the occupational sequence allowed us to identify four phases of occupation.

In all phases and sub-phases, deposits and structures could be identified, with associated materials, allowing us to propose a chronological and functional characterization of the site. However, given the small size of the excavated areas, as well as the attempt to preserve the largest number of archaeological structures *in situ*, it was not always possible to get a synchronic reading of the space, as it would be desirable for a interpretative characterisation. Despite this fact, we think there are enough and unequivocal characteristic elements for the Roman imperial occupational sequence.

The Roman imperial period

The Roman occupation was identified directly under the contemporary levels. The Roman imperial strata and structures had been greatly damaged by the insertion of sewer pipes in the street in the 1980's. Nevertheless, the stratigraphic sequence, combined with a significant number of structures attributed to it, allowed us to clearly define two occupational phases:

– The earlier imperial Roman levels correspond with the construction and occupation of a *garum* factory.
– The removal of the contemporary deposits allowed us to identify the plant of two *garum* tanks, as well as their filling levels.

Tank 1 is made by three walls that correspond to two walls and the base of the *cetaria*. All the structures are completely covered with *opus signinum.* The compartment presents a square structure of 1.40 × 1.40 m with a depth of 1.30 m. The *cetaria* presents 2, 54 m^3 corresponding to a maximum capacity of 2500 liters (**fig. 3**). The *cetaria* was filled by successive clay deposits, with scarce ceramic components. On the *cetaria* floor, a green moist sediment was detected, that corresponds to the first use of the room, although no fish fauna was present. This sediment is typical for the deposition of fish residues in the interior of the tank (as shown in tank 2).

In **tank 2**, three walls are visible, that have identical dimensions and similar characteristics as those of tank 1. A level of demolished wall stones, under which a succession of soil layers was found (**figs. 4–5**), is a sign for the later abandonment of the place.

This *cetaria* floor was covered by a thick layer of fish residues with occasional ceramic and metallic fragments. A preliminary analysis allowed us to identify the presence of small dimension fish bones.

As mentioned above, the *cetariae* walls were partially destroyed. The study of the broken walls allowed us to identify the construction techniques used. The walls were made of medium size stones held together only with clay. The absence of mortar discloses some archaism in the construction techniques. All the faces and tops of the structures were coated by a layer of *opus signinum*, about 3–4 cm thick (**fig. 6**). The bases of the compartments are equally coated with *opus signinum.* The gap between the base and the wall is closed by an oblique baseboard with rounded corners.

Inside the fish tanks some Iron Age and Roman Republican (residual) materials were found. The recovered finds from within the fish tanks are scarce, mainly fragments of South Gaulish Terra Sigillata and domestic pottery. This suggests that fish sauce production was the sole purpose of the tanks.

The latest occupational phase corresponds to a dense earth strata, registered at the bottom of the hill, which was covering the most recent Roman structures found. The analy-

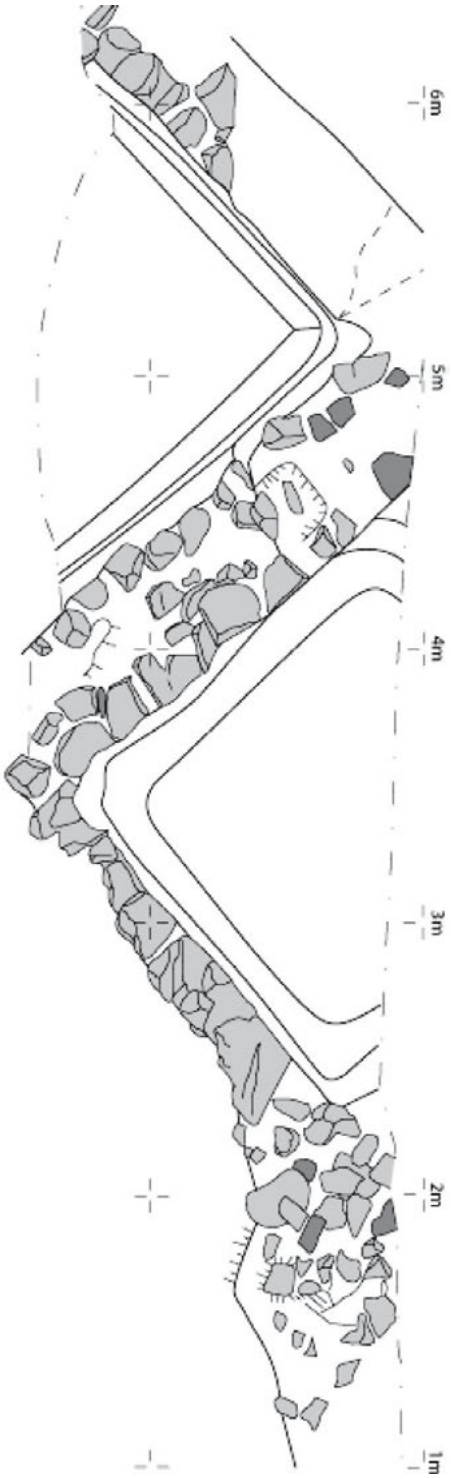

Fig. 4. Plan of tanks 1 and 2.

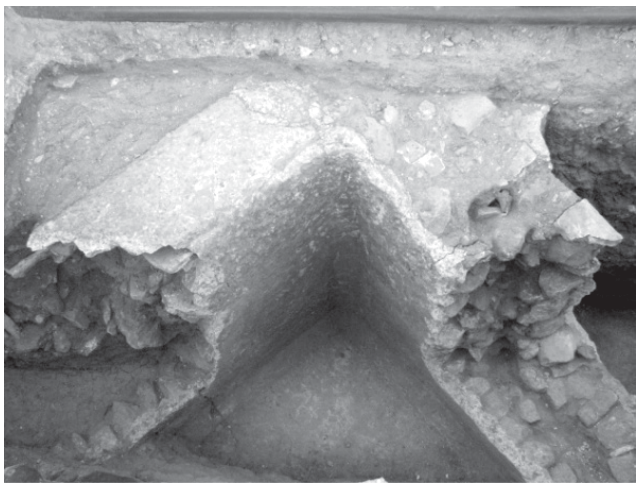

Fig. 5. Walls and floor of *cetaria* 2.

Fig. 6. Detailed view of the interior of the *cetaria* walls.

sis of the recovered finds (ARS C sherd lips of type Hayes 50[6] associated with ARS A sherds and Hispanic Terra Sigillata) allowed the dating of the abandonment of the site to the mid of the 3rd century A.D. According to the dating of the production of type Hayes 50A[7], the end of the Roman occupation in the whole area is dated to the middle of the 3rd century A.D.

Under this deposit a residential area was discovered, consisting of a small, two walled room with a *tegulae* floor and fine plaster, painted red and black. Unfortunately the plaster was too damaged to reconstruct the enrolled decorative motifs in it (**fig. 7**). The African kitchen ware type Lamboglia

[6] Hayes, 1972, 68 fig. 12.
[7] Ibid. 73.

Fig. 7. Interior of the residential compartment.

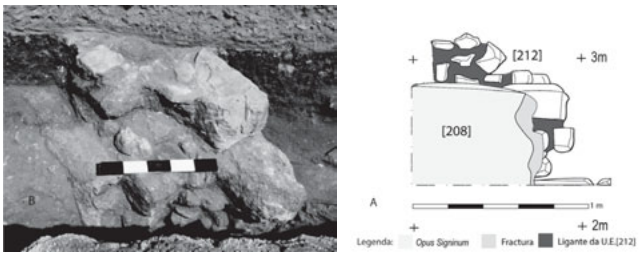

Fig. 8. *Cetaria* wall partially destroyed by 2nd century A.D. constructions.

23B/Hayes 10[8] e 197[9] which was found there, is associated with the ARS A type Hayes 14/17[10], the South Gaulish and Hispanic Terra sigillata types Drag. 29/37, further the Baetican and Lusitanian amphora types Dressel 14 and Beltran II B[11], which suggests a mid 2nd century A.D. chronology for the occupation of this compartment. We underline that the ditch of the south wall of this room cuts one of the tank walls implanted south in half. This is the main reason to attribute an earlier chronology to the *garum* factory. We interpreted this cut wall as a result of a remodeling phase or perhaps a complete abandonment of the factory (**fig. 8**).

Analysis of the Roman finds

In an assemblage of more than 500 sherds classified, 43 are of Terra sigillata vessels. Less common are the Italic and Spanish productions. The most common type of the Spanish Terra sigillata is Drag. 37, with decorations of concentric circles.

The South Gaulish Terra sigillata is clearly dominant, being more than 50% of the ensemble of the sigillata imports. There are more plain sherds (types Drag. 27, 15/17, 24/25 and 18/31) than decorated ones. However the only decorated form is the Drag. 37(**fig. 9**).

Among the South Gaulish productions, there are two well preserved potter stamps. One of the stamps is broken; the first three letters are OF.P. We lack the information to attribute it safely to a distinct potter's manufacture. The other stamp on a Drag. 18/31 corresponds to the potter IVCVNDVS. At La Graufesenque two potters with this name are known, but they worked in slightly different periods; the use of "OF" *(officina)* is only documented for the most recent production period, in the last third of the 1st century A.D.[12] This specific stamp was widely spread and about 250 marks are known[13]. In Portuguese territory identical stamps were collected in Santarém, Conímbriga, Miróbriga, Alcácer do Sal, Torre de Palma and Castro Marim[14].

ARS A is documented by type Hayes 14–17 and ARS C by type Hayes 50. The ARS sherds are rather damaged and the red slip is practically inexistent, making it impossible to specify its characteristics.

Among the table ware some fragments of thin walled pottery were also found (**fig. 10**).

In the Roman levels several amphorae were present, such as Haltern 70, Dressel 20, Dressel 14 and Beltran II, but only in small numbers. The majority of the amphora sherds was produced in *Baetica* (in the Cadiz or the Guadalquivir area) and has been collected in the residential area attached to the *cetariae* (**fig. 11**). For this reason we believe, that the amphora sherds found certify the domestic consumption of oil and fish sauces, and are not related to the fish sauce factory.

Analysing the table and kitchen ware made it possible to distinguish bowls and mortars made in *Baetica* (Cadiz area), African kitchen ware (Hayes 23B and 197) and locally produced pots, lids and pans (**fig. 12**).

Cetariae in the Western Algarve region

In all areas Roman imperial occupation levels could be identified. The latest Roman occupation, located in area 2, clearly proves, that this area has been in use after the *cetariae* phase. The hypothesis of the existence of a residential space is confirmed by the presence of a set of structures and materials, like terra sigillata, amphorae, etc. However, the excavated area is too small to establish the layout of this occupation.

The identification of a *garum* factory must be analyzed within the context of the *garum* production in the Algarve region. Its localization, next to the coast at the right bank of Bensafrim River, in a place of low altitude, provides the access to all the necessary resources to produce fish sauces. *Garum* factories have been known for a long time in the Algarve region. The first work of synthesis on this subject was carried through by Estácio da Veiga, who described the existence of some *cetariae* at several places[15]. Concerning the Algarve region, the list of *garum* factories is long, and

8 Ibid. 46 fig. 7.
9 Ibid. 206 fig. 36.
10 Ibid. 40 fig. 6.
11 BELTRAN 1970.
12 POLAK 242–244.
13 OSWALD 1964, 148.
14 VIEGAS 2003, 173 and 2005, 641–646.
15 VEIGA 1910, 212.

has been updated several times[16]. *Garum* production is known at seven places of Lagos County[17] (**fig. 13**).

We have to point out, that for the sites of the Ilhéu da Baleeira or Salema[18], the discovery of *cetariae* is merely registered, there exist no collected archaeological data. On the other hand, the existing data on the *cetariae* of Beliche do not supply any chronological information[19]. According to the published data, existing information on the Roman *cetariae* of Burgau consists of scarce references to a late Roman occupation, the beginning of the occupation could not be dated[20].

The absence of a valid chronology for these establishments prevents the comparative analysis with Monte Molião *cetariae*. The possible chronological comparison of the *cetariae* of Monte Moleão with the known data in the Western Algarve region, is reduced to the analysis of three sites: Boca do Rio, Senhora da Luz and Lagos city.

Among the best preserved complexes are the cetárias in Boca do Rio (Budens-Vila do Bispo), known since the end of the 18th century (Santos 1971, 78). In accordance to the existing data, the *garum* factory at the site was active between the 1st century A.D. and the 4th or 5th century A.D.[21] An identical chronology was identified in Senhora da Luz, although the chronology of the first phase of occupation is not definite[22]. At both places the *garum* factories were associated with urban settlement. Other *garum* factories were connected with *villae* nearby, like on the Island of Pessegueiro[23] or at Troia[24].

Recent excavations in the urban area of Lagos, made it possible to document the existence of a fish sauce production in the city[25]. An intervention, carried out in the Silva Lopes Street, consisted of the excavation of a late Roman *cetariae* complex[26]. Furthermore an early Roman ditch was excavated, but the relationship between this feature and the *cetariae* complex is not clear.

Another intervention carried out in a building of the historical center of Lagos[27] uncovered another *cetariae* complex of considerable dimensions.

The first analysis of the data confirms the late chronology of the *cetariae* in the urban area of Lagos, as well as in the Western Algarve region[28]. The Monte Molião *cetariae* are unique, being to our best knowledge the earliest ones, without parallels known in this region, for all the other *cetariae* complexes were still working during the late Roman Empire. Unfortunately the excavated area was so small, that it was not possible to find out to which context the Monte Molião *cetariae* belonged.

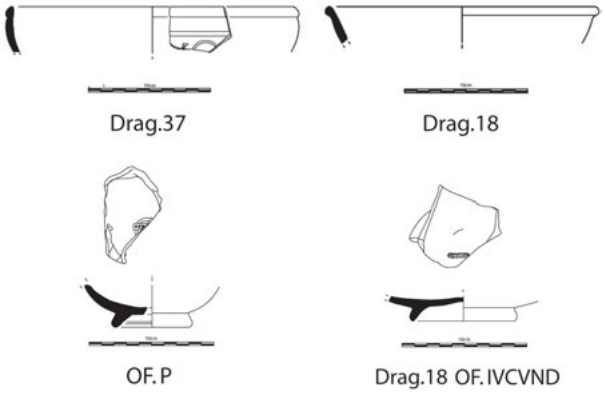

Fig. 9. South gaulish *terra sigillata.* Scale 1:4.

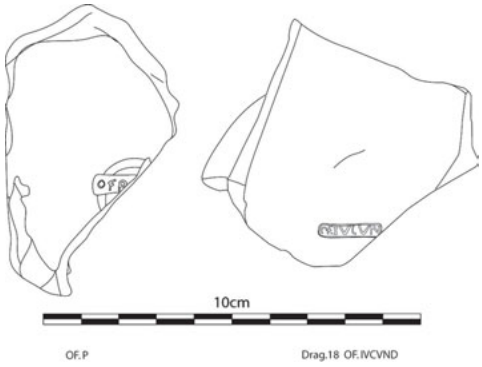

Fig. 10. Two Stamps in south gaulish *terra sigillata.* Scale 1:2.

Fig. 11. Dressel 20 amphora (Gualdalquivir production).

16 Edmunson 1987; Etienne/Makaroun/Mayet 1994; Fabião 1994, 247 attachment II.
17 Etienne/Makaroun/Mayet 1994, 104–105.
18 Santos 1971, 69.
19 Ibid.
20 Veiga 1910, 218, Santos, 1971, 107.
21 Santos 1971, 95; Fabião, 1994, 249.
22 Cfr Saints 1971, 111.
23 Cfr Silva/Soares 1993.
24 Cfr Etienne 1994; Fabião 1994, 243.
25 Cfr Veiga 1910; Santos 1971.
26 Cfr Ramos/Almeida/Laço 2006.
27 Comunication presented to the V Encontro de arqueologia do Algarve.
28 Fabião 1994, 241.

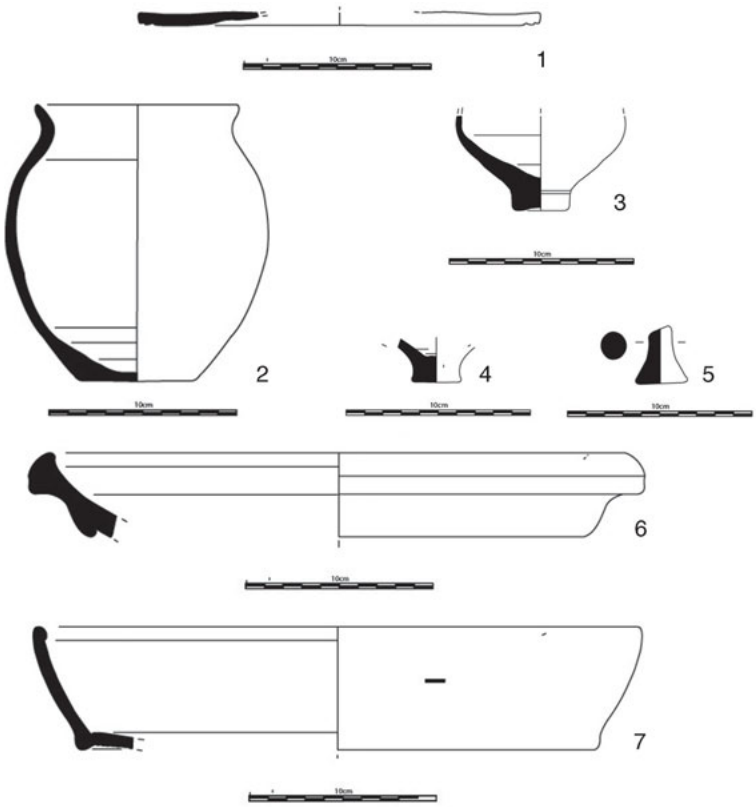

Fig. 12. Kitchen ware. **1–2** local production; **3–6** baetican production; **7** African production.

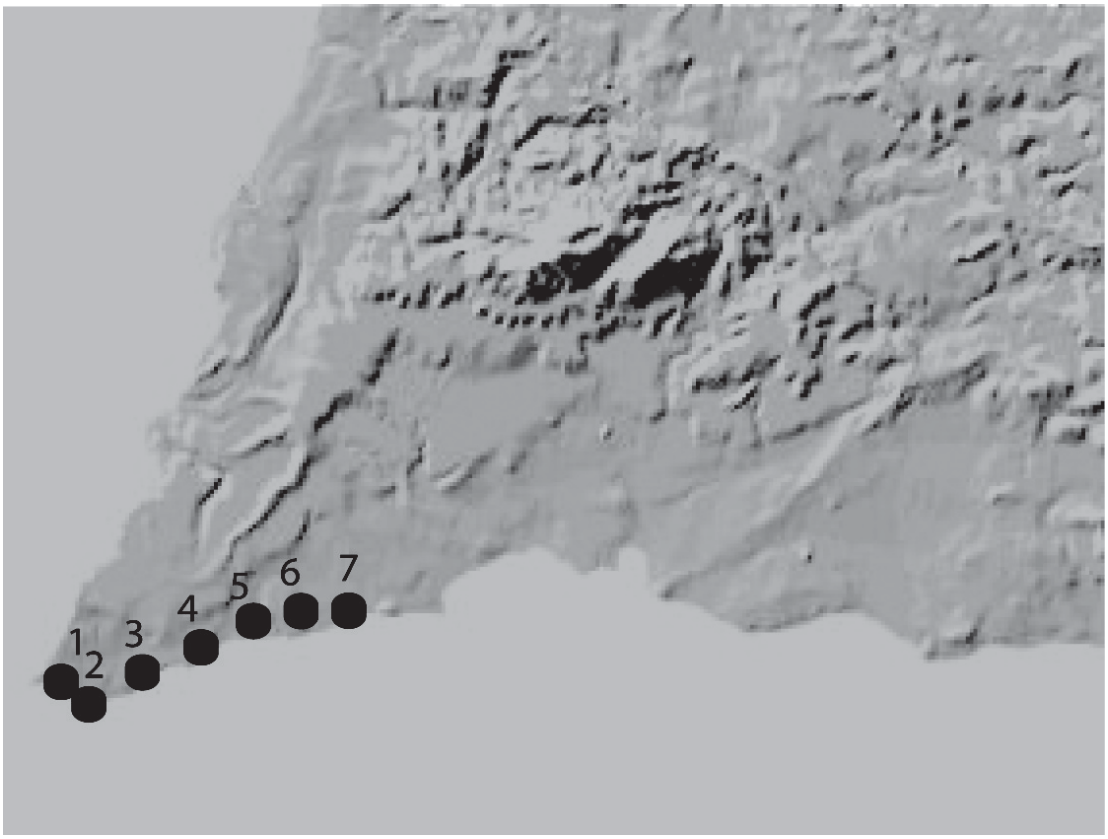

Fig. 13. Other *cetariae* near Lagos: **1** Beliche, **2** Ilhéu da Baleeira, **3** Alema, **4** Boca do Rio, **5** Burgau, **6** Senhora da Luz, **7** Lagos.

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