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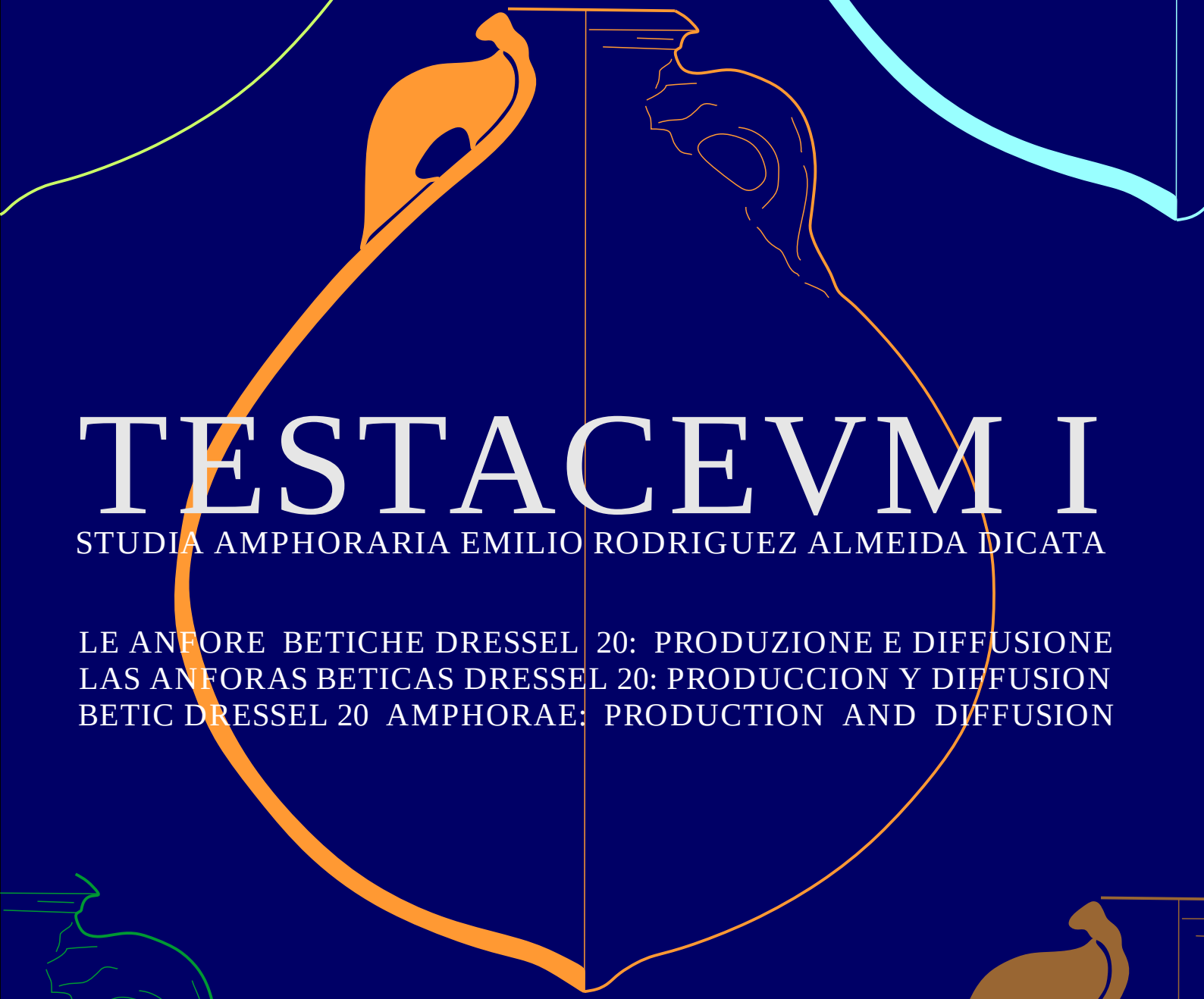
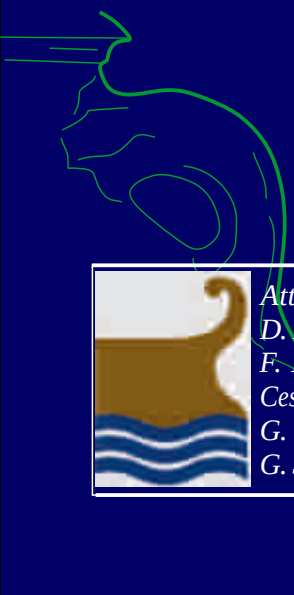


TESTACEVM I

STUDIA AMPHORARIA EMILIO RODRIGUEZ ALMEIDA DICATA

LE ANFORE BETICHE DRESSEL 20: PRODUZIONE E DIFFUSIONE
LAS ANFORAS BETICAS DRESSEL 20: PRODUCCION Y DIFFUSION
BETIC DRESSEL 20 AMPHORAE: PRODUCTION AND DIFFUSION



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Beyond the *Baetis* valley. The olive-oil amphorae of the southern coast of the Iberian Peninsula.

Daniel Mateo Corredor[*]

La produzione di anfore olearie in Hispania Baetica è ben nota, per la vasta importanza raggiunta fin dall'inizio dell'Alto Impero e, soprattutto, per l'enorme produzione e diffusione delle anfore Dressel 20 per oltre due secoli. La maggior produzione di anfore olearie era concentrata nella valle del Guadalquivir, la regione che ha fornito il numero maggiore di evidenze e ricevuto più attenzione. Tuttavia, ciò non esclude la produzione di olio d'oliva in altre zone della costa meridionale della Penisola Iberica o la produzione di contenitori di anfore destinati al commercio a lunga distanza, come nel caso dell'attuale provincia di Málaga. Pertanto, anche se non sarebbe predominante, l'esistenza di anfore olearie romane è nota in questo territorio a partire dalla seconda metà del I secolo a.C. con le forme ovoidali. La produzione dei contenitori tipo Dressel 20 è attestata nel Primo Impero, mentre quella delle anfore olearie prosegue durante il Tardo Impero, come dimostrano le varianti del tipo Dressel 23, prodotte da diversi *ateliers* di Málaga.

The production of olive-oil amphorae in Hispania Baetica is well known, due to the vast importance it reached since the beginning of the Early Empire and, especially, with the huge production and dissemination of Dressel 20 amphorae for more than two centuries. Without any doubt, the bulk production of olive-oil amphorae was concentrated in the Guadalquivir valley, the area that has provided the most information and received the most attention. However, this does not preclude the manufacture of olive oil in other areas within the south coast of the Iberian Peninsula or the production of amphorae containers intended for long-distance trade, as it is the case of the current province of Málaga. Thus, although it would not be predominant, the existence of Roman olive-oil amphorae is known in this territory from the second half of the first century BC with ovoid forms. Dressel 20 type would be manufactured in the Early Empire and oil-amphorae will continue during the Late Empire, as shown by the production of variants of Dressel 23 from different workshops of Málaga.

Introduction

The main olive-oil production area in Roman Hispania was the Guadalquivir valley, as is the case today. Its importance reached its zenith during the Early Empire, when this oil was massively exported throughout the Empire in Dressel 20 amphorae, especially to the *Limes* and Rome itself, where tens of millions of olive-oil amphorae found there provide good proof of this. Therefore, it is logical that Dressel 20 amphorae from the *Baetis* valley practically monopolise the attention of scientific research on *Hispanic* olive-oil containers. Similarly, the almost automatic relationship established between these amphorae and their attribution to the Guadalquivir valley seems inevitable, even though it is now known that the production of this type of amphora is not limited to this valley.

In this paper the focus will be on the manufacture of the olive-oil types in other parts of the southern Iberian Peninsula. Thus, it will be left out of our analysis the production of the Guadalquivir valley, but also those of other areas of the Iberian Peninsula such as, for example, the olive-oil type produced in the central coast of the *Tarraconensis* called Oliva 3, with strong morphological similarities with the Haltern 71 type[1] or the Dressel 20 produced in the north-eastern *Tarraconensis*[2]. Likewise, the study will only analyse oil amphorae of Roman morphology, excluding those other containers that could have transported olive-oil, such as the Pellicer D type[3], produced in numerous areas of *Baetica*[4].

A limitation of this work derives from the low knowledge of the productive context of this coastal area. Although there are notable exceptions, the number of excavations and surveys carried out and published is very low and they are often preliminary publications. Moreover, a key factor that undoubtedly contributes to undervaluing their presence is the poor knowledge of amphorae manufacture in the south of the Peninsula, with the

[1] MATEO, MOLINA 2016; MATEO 2018.
[2] BERNI 2001; 2016.
[3] GARCÍA VARGAS, GARCÍA FERNÁNDEZ 2010, p. 118.
[4] GARCÍA FERNÁNDEZ, SÁEZ 2021.

main exception of the Bay of Cadiz and its surroundings, where extensive progress has been made in this field in recent decades. Finally, another problem in analysing olive oil amphorae production on the Baetican coast is that it would be a minority within the amphorae from the south of the Iberian Peninsula.

The production of Dressel 20 amphorae and its precedents

The analysis of the types of oil amphorae produced on the Andalusian coast will begin with a brief review of the amphorae preceding the Dressel 20. Within the family of late Republican ovoid amphorae produced in *Baetica*, there are amphorae that were probably used to transport olive-oil. This would be the case of three successive forms that mark the typological evolution towards the Dressel 20 type, which did not appear until the last phase of Tiberius' rule. Specifically, these are the Ovoid 6/Class 24, Oberaden 83 and Haltern 71 types, the latter of which already had a globular body. These amphorae are well known in the *Baetis* valley and their knowledge has increased considerably in recent years[5].

No direct evidence of the production of these amphorae has been recorded on the Andalusian coast, but we have documented a small group of fragments ascribable to the Class 24[6] and Oberaden 83 types (**fig. 1**) with ceramic pastes that provide evidence of an origin in the Malaga area[7]. On the one hand, two amphora rims of this family were identified at the Jardines de Ibn Gabirol site in Málaga[8][9] as well as five amphora rims among the material from the Cerro del Mar (Vélez-Málaga)[10] interventions[11]. In both cases, these fragments were in the minority, with a clear predominance of containers of *salsamenta* or fish sauces of local provenance and with pastes like those of the olive-oil amphorae fragments described above. Thus, although for the present the information is very scarce and limited, these containers seem to respond to similar models to those from the Guadalquivir valley, suggesting the existence of the production and export of olive-oil in this coastal area, at least from the second half of the 1st century BC.

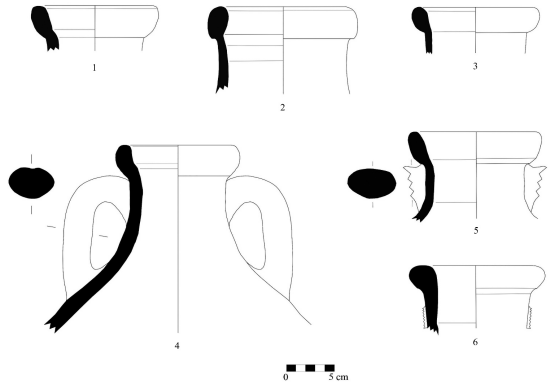

Fig. 1: *Amphorae from the coast of Malaga assimilated to types Class 24 and Oberaden 83: 1-5. Cerro del Mar, 6. Jardines de Ibn Gabirol (MATEO 2015)*

Looking at the Dressel 20 amphorae, their manufacture has been detected in different parts of the Baetican coast, although clearly in smaller quantities than in the *Baetis* valley. Next, from east to west, we will look at the main places where there is evidence of their production.

In a deposit of materials found in Guardias Viejas (El Ejido), on the western coast of the province of Almería, the presence of five fragments with firing defects was identified (**fig. 2.1-4**), for which an association with the Dressel 20 type from the second half of the 2nd century AD was proposed[12].

In the coastal area of what is now the Granada province, there is evidence of its production at the Roman site of Loma de Ceres (Molvízar) and at two sites located in the municipality of Salobreña:

[5] GARCÍA VARGAS *et al.* 2011; 2019.

[6] The name proposal made in GARCÍA VARGAS *et al.* (2011, p. 214) is followed, which advocates reserving the term Ovoid 6 for production in the Guadalquivir valley and maintaining the term Class 24 for coastal production.

This work has been developed inside the projects PGC2018-099843-B-I00, PID2019-107264GB-I00 and GV/2020/060

[7] MATEO 2015; 2016.

[8] FERNÁNDEZ *et al.* 2003.

[9] We are grateful to L. E. Fernández for providing us with the study of the amphorae from this intervention.

[10] ARTEAGA 1981; 1985a.

[11] We studied a sample of 114 rims among the amphorae material from the 1976, 1977, 1978 and 1981 campaigns.

[12] CARA, RODRÍGUEZ LÓPEZ 1995, fig. 2.

Los Barreros and Matagallares[13]. At the Los Barreros site, only one locally produced handle was identified (**fig. 2.5**), whose morphology is compatible with the Dressel 20 and Dressel 23 forms[14]. The case of Los Matagallares is much better known, thanks to the fact that it is one of the few kilns excavated in the territory analysed, the results of which have been published in detail in a monograph[15]. In this production centre, excavated in the 1990s, the local manufacture of Dressel 20 amphorae with evolved forms has been recorded[16]. They have small rims, most of which have a strong external thickening and short necks (**fig. 2.6-10**). These examples belong to the mid to late 3rd century AD and represent 1.2% of the total number of amphorae produced in the *figlina*. It is, therefore, a minority production compared to the fish-sauce containers, especially Almagro 51C and Dressel 14, and wine vessels, mainly of the Dressel 30 and Matagallares 1 types.

It is on the coast of Málaga where the greatest number of evidence of the production of the Dressel 20 type are known. In the eastern area, it was recorded in the Manganeto pottery workshop, in the northern sector of Toscanos (Vélez-Málaga), whose production is attributed to the second half of the 1st century and the beginning of the 2nd century[17]. In Kiln No. 1, the manufacture of Dressel 14 amphorae is attested, while the Dressel 20 type is documented in Kiln No. 3, together with that of Dressel 14, Dressel 17, Beltrán IIB and Dressel 2-4. Thus, in this kiln, a few decades later than No. 1, and together with fish-product amphorae, there was also a minority production of olive oil and wine amphorae[18]. The two Dressel 20 amphorae represented would be ascribed to variants B and C (**fig. 2.11-12**), showing a continuation in the production of oil amphorae at the mouth of the Vélez River, already observed at Cerro del Mar for an earlier phase.

The production of Dressel 20 is documented in ancient *Malaca*. In the intervention carried out at Nos. 101 and 103 in Calle Carretería site, two kilns were identified, one of them with a circular floor plan that would have been in use during the 1st and 2nd centuries AD[19]. The production of fish-product types (Dressel 7-11, Beltrán IIA, Beltrán IIB and Dressel 14) has been recorded in this kiln, as well as possibly also Dressel 20, although no firing defects associated with this form were found. The rim fragments documented are ascribed to variant C of P. Berni (2008, p. 61), from the Flavian-Trajanic period, with some *parvae* forms. In addition, on a handle of Dressel 20 there is a stamp which, with doubts, offers the reading [---]G[I]H (**fig. 2.13-18**).

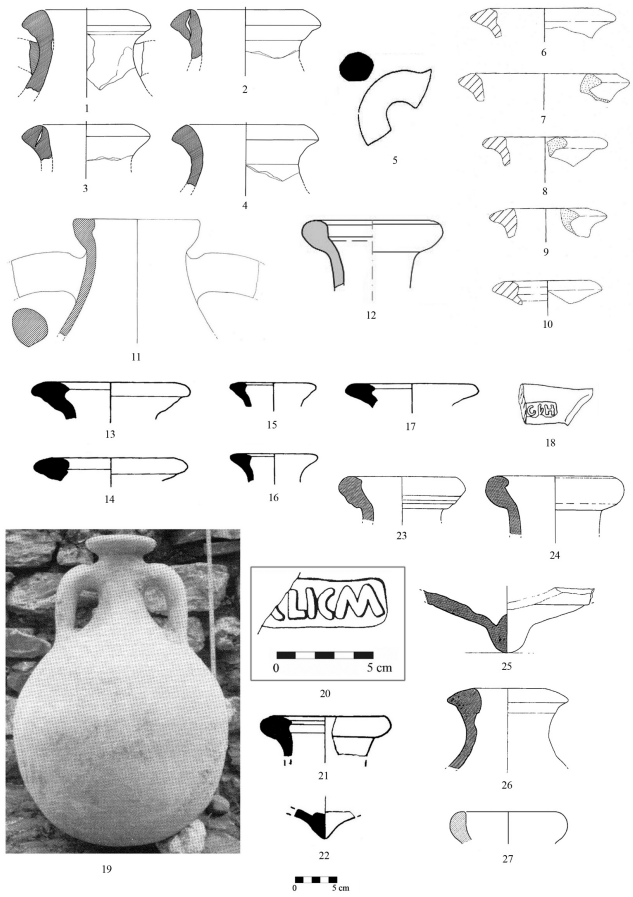

Fig. 2: *Dressel 20 amphorae from: 1-4. Guardias Viejas (CARA, RODRÍGUEZ LÓPEZ 1995), 5. Los Barreros (BERNAL, NAVAS 1999), 6-10. Matagallares (BERNAL 1999b), 11-12. Manganeto (ARTEAGA 1985b; CORRALES* et al. *2011), 13-18 Calle Carretería 101 y 103 (RAMBLA, MAYORGA 1997), 19-22. Huerta del Rincón (BALDOMERO* et al. *1997), 23-26. Puente Melchor (GARCÍA VARGAS, LAVADO 1995), 27. Pinguele (CAMPOS* et al. *2004)*

[13] BERNAL, NAVAS 1998.
[14] BERNAL, NAVAS 1998, p. 75, fig. 8.17.
[15] BERNAL 1998a.
[16] BERNAL 1998b, p. 296, fig. 115.
[17] ARTEAGA 1985b.
[18] ARTEAGA 1985b, 181-183.
[19] RAMBLA, MAYORGA 1997.

Likewise, in one of the two kilns identified in the intervention in Calle Almansa-esquina Calle Cerrojo, the probable production of T-7433, Dressel 14 and Dressel 20 was identified, although no graphic evidence was published[20]. The fish-product amphorae may have supplied the *cetaria* located at Calle Cerrojo 24-26, where salting vats have been found filled with materials among which several fragments of Dressel 20 were identified, some of them overfired[21]. In addition, Dressel 20 production has also been identified in Carranque/Avenida Juan XXIII. In this area a strong productive activity has been recorded, which in Early Imperial times would have included types such as Dressel 7/11, Beltrán IIA, Beltrán IIB, Dressel 12, Dressel 14 and Haltern 70[22] and Dressel 20 oven failures have also been found in the Buenavista neighbourhood[23].

Similarly, the production of Dressel 20 is well established in the pottery complex of Huerta del Rincón (Torremolinos, Málaga). This *figlina*, excavated between 1990 and 1995, shows occupation in the Early and Late Imperial periods[24]. The Early-Imperial phase structures would have been in use from the 1st century until at least the middle of the following century. The Beltrán IIA and Beltrán IIB, Dressel 12, Dressel 14 and Dressel 17 types were produced during this period, together with Dressel 20 amphorae which, in the cases represented (**fig. 2.19-22**), would be ascribed to the Flavian-Trajanic form C[25]. Within the amphora epigraphy of this pottery workshop, the presence of the stamp [C]LICM, recorded on Dressel 20 and on other containers destined for *salsamenta* or fish-sauce contents, deserves special mention. In addition, the CLM stamp, documented on an undetermined amphora[26], can be related to other similar ones on Dressel 20 from the Arva and Tejarillo workshops located in the *Baetis* valley[27]. The epigraphic repertory of this villa is completed with the stamps LN, recorded in Beltrán IIA and Beltrán IIB, and [...]ICNIM, on an undetermined amphora[28]. Overall, the amphora epigraphy shows that they belong to the same family of stamps that would refer to C. Licinius M()[29]. The similarity with stamps from the Guadalquivir valley could be a case of homonymy or evidence of the participation of the same person in both areas[30].

The production of Dressel 20 amphorae has also been documented at the Puente Melchor *figlina* (Puerto Real), located in the Bay of Cádiz[31]. Specifically, their production is attested in phases 2 and 4 of this workshop, which was active from the Flavian period until at least the 3rd century AD. In Phase 2, dated to the Flavian period, local Dressel 20 are recorded, together with a wide variety of fish-product amphorae and the Haltern 70 type. In Phase 4, from the end of the 2nd century AD and the beginning of the following century, there was an increase in the production of Dressel 20, whose fragments now have short necks and bevelled rims on the outside (**fig. 2.23-26**). In any case, the manufacture of these vessels in the Bay of Cádiz would be very limited, as evidenced by the fact that the Puente Melchor workshop is the only one in which it has been documented to date, despite the extensive knowledge of the production landscape in this area that is currently available, especially for the Early Empire.

Production in the westernmost area could be found at the Pinguele pottery workshop (Bonares, Huelva), on the banks of the Tinto River[32]. This pottery centre, known only from survey work, shows the production of this type, although only one rim was represented, which would belong to the initial forms of the first half of the 1st century AD (**fig. 2.27**). It is a single fragment amongst a

[20] SUAREZ *et al.* 2001, pp. 467-468; CORRALES *et al.* 2018.
[21] PINEDA DE LAS INFANTAS 2002, pp. 484-485.
[22] ARANCIBIA *et al.* 2012, p. 408.
[23] CORRALES *et al.* 2018, pp. 116-117.
[24] BALDOMERO, SERRANO 1991; SERRANO, BALDOMERO 1991; BALDOMERO *et al.* 1997.
[25] BERNI 2008, p. 61.
[26] BALDOMERO *et al.* 1997, p. 169, no. 18.
[27] PONSICH 1974: 1979; BERNI 2008, pp. 276, 296.
[28] BALDOMERO *et al.* 1997, p. 169, nos. 14 and 17.
[29] MATEO, BERNI 2017.
[30] LAGÓSTENA 2001, pp. 410-411.
[31] GARCÍA VARGAS, LAVADO 1995; GARCÍA VARGAS 1998, p. 115.
[32] CAMPOS *et al.* 2004; PEREZ 2010; O'KELLY 2017.

total of 50 individuals (MNI), so, if confirmed, its production would be a minority. The site was occupied from the 1st to the 4th century AD. In the Early-Imperial phase, mainly from the Julio-Claudian period, the production of other amphorae has also been recorded specifically of the Haltern 70, Dressel 7, Dressel 9, Dressel 14 and Beltrán IIB types.

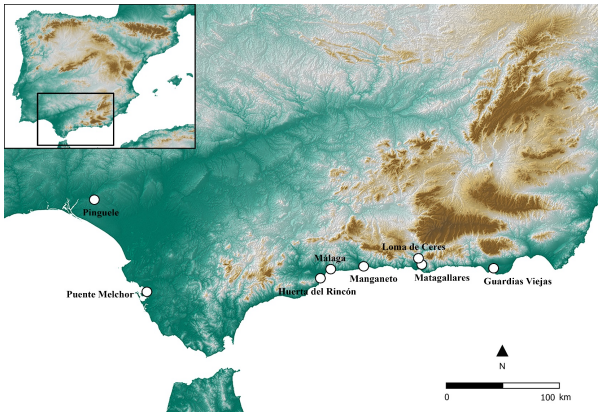

Fig. 3: *Map of the Baetican coast showing the sites with evidence of Dressel 20 production*

Overall, there is evidence of Dressel 20 production in different parts of the Baetican coast, although the main area is concentrated on the Malaga coast, to which the western area of Granada can also be added at a later date (**fig. 3**). However, apart from well-documented areas such as the Bay of Cadiz, the state of knowledge of Roman production in this coastal area is still very scarce, so that the panorama shown could be modified in the coming years. In any case, all evidence suggests that the manufacture of olive-oil amphorae in the Early Empire would be a minority in this area. Furthermore, the scarce presence of Dressel 20 amphorae from the Guadalquivir valley in certain regions of this coastal strip could be justified by local olive-oil production, which would not need amphorae containers for regional supply.

The production of Dressel 23 amphorae

The Dressel 20 amphorae disappeared in the second half of the 3rd century AD when they were replaced by the Dressel 23 type as the main Baetican olive-oil container. This amphora has a much smaller size and was formed from the evolution of the Dressel 20 *parvae*[33]. This process of evolution from Dressel 20 to Dressel 23, well documented in the Guadalquivir valley, is also found in the Baetican area. However, its production in the coastal area is mainly concentrated around Malaga, apart from a handle of local production documented in the Los Barreros workshop (Salobreña, Granada) which is compatible with both the Dressel 20 and Dressel 23 forms.

This type has a lower level of standardisation and there are several variants at the same time, especially for the shape of the rims and the attachment of the handles. Dressel 23 amphorae are traditionally divided into four variants[34], although an interesting attempt has also been made to classify them into three groups based on the handle attachment technique[35]. This morphological division sometimes responds to different areas of production[36]. In this sense, while Dressel 23A (Keay XIIIA) and Dressel 23B (Keay XIIIB, Keay XIIBis) amphorae would be produced both in the Guadalquivir valley and on the coast, the same is not true for variants C (Keay XIIIC, Keay XIV) and D (Keay XIIIC, Keay XVIII). So far, Dressel 23C is only known to have been produced in the *Baetis* valley, while Dressel 23D, on the other hand, seems to have been produced exclusively on the Baetican Mediterranean coast, for the time being limited to the area of Malaga. Dressel 23, whose main characteristic feature is the semi-circular profile "eared" handles –starting and ending at the shoulder–, can be subdivided into two groups that seem to correspond to different chronological phases[37].

In terms of the geography of production of Dressel 23, the most easterly point, beyond the already mentioned possible manufacture of this type at Los Barreros, can be found in the maritime village located around the Torrox-Costa lighthouse. The various excavations carried out throughout the 20th

[33] BERNI 1998.
[34] BERNI 1998.
[35] BERNI, MOROS 2012.
[36] FANTUZZI *et al.* 2017.
[37] FANTUZZI *et al.* 2017.

century[38] brought to light a salting factory next to a workshop area, with at least two kilns, whose activity would have spanned from the 1st to the 5th century AD and whose main function would have been linked to supplying the *cetaria*. Among the containers produced in the Late-Imperial phase, the production of Almagro 51a-b and Almagro 51c types with firing defects has been noted[39], as well as the probable production of Dressel 23 (**fig. 4.1**), with no mention of the existence of kiln failures of this type[40].

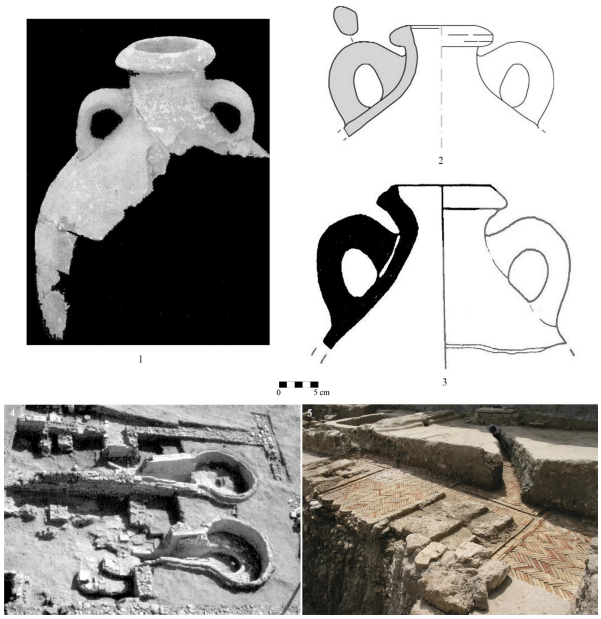

Fig. 4. *1-3. Dressel 23 amphorae from: 1. Torrox-Costa (RODRÍGUEZ OLIVA 1997), 2. c/ Cerrojo (CORRALES et al. 2011), 3. Huerta del Rincón (BALDOMERO et al. 1997). 4-5. Productive area from: 4. La Cizaña (SOTO et al. 2004, fig. 7), 5. Los Molinillos (RODRÍGUEZ OLIVA, BELTRÁN 2008, Fig. 8)*

Their production has also been found at two sites in the town of Torremolinos: at the Roman villa of La Cizaña and at the Huerta del Rincón workshop. In the Late-Imperial phase of the latter, four circular kilns have been recorded whose period of activity would have spanned from the end of the 3rd/beginning of the 4th century to the second half of the 4/beginning of the 5th century AD. Along with Almagro types 51a-b, Almagro 51c and Keay XXV types, the production of Dressel 23 is also documented[41], at least of the Dressel 23A form (**fig. 4.3**).

In the ancient *Malaca* the production of Dressel 23 has so far only been recorded in the pottery workshop on the Calle Almansa-esquina Calle Cerrojo[42], located on the right bank of the Guadalmedina River, which we have already mentioned for its production of Dressel 20. In the Late Empire, a new kiln was built, which amortised the Late Imperial warehouse, and numerous remains of salting amphorae of the Almagro 51a-b and Almagro 51c types were recorded, as well as Dressel 23[43], whose only published example belongs to variant D (**fig. 4.2**). Likewise, fragments of these three amphorae types, some of them after firing[44], appear in the salting vats of the salting factory identified in the nearby intervention at Calle Cerrojo 24-26. Recently, Dressel 23 firing defects have been reported in the Buenavista neighborhood[45].

In the Roman Villa of La Cizaña, located in Torremolinos, amphorae production was attested from the beginning of the 1st to the 5th century AD, with a period of abandonment and resumption in the 3rd century AD[46]. During the Early Empire only fish-product amphorae were produced, but after a period of abandonment, production was restarted in the 3rd century AD (**fig. 4.4**). In the Late Empire, the production of fish-product amphorae (Almagro 51a-b, Almagro 51c) and the Dressel 23 olive-oil type are mentioned, although there is no graphic evidence of any example[47].

Finally, the case of the villa of Los Molinillos (Benalmádena) remains to be confirmed. In the Early-Imperial phase, a *torcularium* of *ara quadrata*

[38] RODRÍGUEZ OLIVA, ATENCIA 1983; RODRÍGUEZ OLIVA 1997.
[39] RODRÍGUEZ OLIVA 1997, pp. 291-300.
[40] RODRÍGUEZ OLIVA 1997, p. 299, Lam. 17.2; SERRANO 2004, p. 186.
[41] BALDOMERO *et al.* 1997.
[42] SUÁREZ *et al.* 2001.
[43] SUÁREZ *et al.* 2001, p. 468.
[44] PINEDA DE LAS INFANTAS 2002, pp. 484-485; SERRANO 2004, p. 173.
[45] CORRALES *et al.* 2018, p. 117.
[46] SOTO *et al.* 2004.
[47] SOTO *et al.* 2004, p. 798.

and *opus spicatum* pavement was found, which is evidence of olive-oil production in this phase, although no pottery kiln has been found in this period[48]. From the 3rd century AD onwards, this productive area was replaced by a *cetaria* that lasted until the 5th century AD, and a kiln in poor condition was also recorded (**fig. 4.5**). In this phase, local Almagro 51c are recorded, and probably the Dressel 23 was also produced, a type of which many fragments have been found, although it is not stated clearly whether this is a local production[49].

Overall, it can be seen that the number of pottery workshops in which the production of olive-oil amphorae during the Late Empire has been identified is very low, limited to a small number of sites in what is now the province of Málaga – with confirmation only for those located in the bay of Malaga–, together with the possible case of Los Barreros, on the western coast of Granada (**fig. 5**).

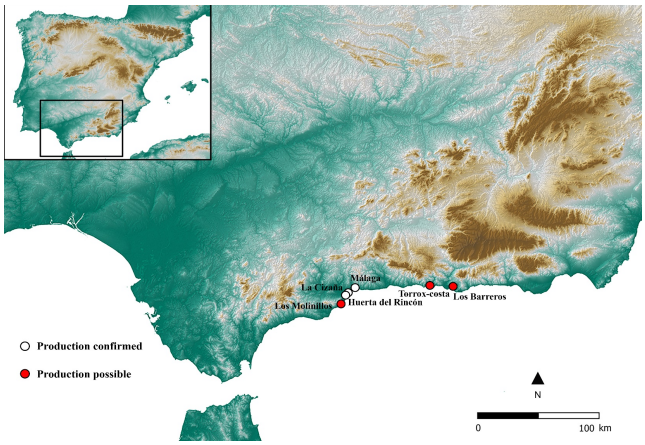

Fig. 5: *Map of the Baetican coast showing the sites with evidence of Dressel 23 production*

The export of olive-oil produced on the Baetican coast

After analysing the evidence of olive-oil amphorae in the area of production, an approach to the export of the olive-oil produced in the south of the Iberian Peninsula in Roman times will be made. Its transport, beyond the production destined for self-supply or consumption in the immediate surroundings, would have been carried out by means of the amphorae containers presented in this work. However, in cases where olive-oil preparation was relatively distant from the *figlinae*, there would be an initial phase in which it could be transported in leather wineskins or other similar containers, until the contents were later transferred to amphorae, from which medium and long-distance transport would be carried out.

In the current state of knowledge, assessing the diffusion of oil amphorae produced on the Baetican coast has severe limitations. In general, for the Andalusian olive-oil amphorae found in areas of consumption, either no origin is mentioned, or it is directly attributed to the Guadalquivir valley. Furthermore, the scarcity of epigraphy and the small number of studies with ceramic paste analysis, make it difficult to characterise them correctly. Only in the case of Dressel 23D, which seems to have been produced exclusively in the area of Málaga, is it possible to avoid this problem in its identification.

Thus, at the present, outside its strictly productive area, there are hardly any known finds of Dressel 20 and its precedents with origins on the Andalusian coast. In Villaricos (Cuevas de Almanzora, Almería), the ancient *Baria*, we have only recorded one example of Oberaden 83 with pastes compatible with those of the Málaga area[50]. Likewise, in Lodévois, located in *Gallia Narbonensis*, next to fish-product amphorae (Dressel 7-11 and Beltrán IIB), several examples of Dressel 20 have been found, to which a probable provenance from the Baetican coast has been attributed, possibly from the Málaga or Granada area[51]. At this site, the chronology of the amphorae from the Andalusian Mediterranean coast is from the 1st century AD and, in the levels from 25-50 AD, they reach a similar proportional weight to the amphorae from the Bay of Cadiz (Rascalou 2008, Fig. 117), although the fish-product amphorae always play a greater role.

On the other hand, there are notable indications of their presence on Monte Testaccio in Rome. Thus,

[48] PINEDA DE LAS INFANTAS *et al.* 2006; PINEDA DE LAS INFANTAS 2007.

[49] PINEDA DE LAS INFANTAS 2007, pp. 307-308.

[50] MATEO 2016.

[51] RASCALOU 2008, pp. 104, 123, fig. 24.

the epigraphy documented by the CEIPAC group[52] includes the presence of CLM stamps which, in the absence of analysis of their ceramic pastes, might be related to the one identified in Huerta del Rincón. In addition, H. Dressel himself recorded the mention of *Malaca* on a *titulus pictus* on Dressel 20, dated to the year 149 AD and which would be related to the fiscal control carried out in that city. Subsequently, other *tituli picti* in Testaccio have been found with a mention of Malaca or Mal( ) (CEIPAC 31818, 31836 and 24196), whose attribution to the city of *Malaca* seems likely[53]. In this sense, it could be thought that, among the amphorae transported through the port of *Malaca*, there was an outlet for the olive-oil production, possibly along with the abundant manufacture of salted fish and *salsamenta*, the majority of which was produced on the Baetican coast.

All in all, these scarce finds suggest that they were much more widespread than those reported in the scientific literature, and their absence can be attributed in part to a problem of identification, which is likely to diminish in the coming years. In any case, the olive oil trade from Málaga would be dependent on the production of salted fish and, it is likely that part of this would have been included in the Annona trade. In this sense, he suggests that salting amphorae and olive-oil amphorae were produced in the same pottery workshops, with a clear preponderance of the former, and that both groups frequently coexisted in wrecks. However, this trade also depended on other non-food products such as marble and metals, with the port of *Malaca* playing an important role in their export.

As for the export of Dressel 23, to a large extent it shares the identification problems already mentioned for its Early-Imperial antecedent, and there are several studies on areas of consumption that attribute to Dressel 23 an origin to the southern coast of the Iberian Peninsula[54]. Starting with its eastern distribution, the main exception is undoubtedly the archaeometric work of L. Fantuzzi and M. A. Cau (2017), which has identified amphorae of the Dressel 23 type with pastes from the Málaga coast in Sa Mesquida (Mallorca), *Iluro* (Mataró, Barcelona) and *Tarraco* (Tarragona) (**fig. 6.1-5**). Moreover, the importation of olive-oil from Malaga in Dressel 23 is not anecdotal, since in the site of Vila-roma (Tarragona), dated between 425/450 and 475, it appears in a higher proportion than those from the Guadalquivir valley[55]. Another example would be that of *Portus Ilicitanus* (Santa Pola, Alicante) where the presence of Dressel 23 amphorae with the same pastes as Almagro 51C amphorae has been reported[56], so we are probably dealing with examples from the Baetican coast.

Furthermore, the attribution of Dressel 23D as being exclusive to the Málaga area allows to propose this origin for amphorae of this variant found in other places in the northwest of the Iberian Peninsula[57], as well as part of the cargo of the wrecks found on the French coast: Chrétienne D[58] and Les Catalans[59].

On the other hand, Dressel 23 amphorae from the Baetican coast were also traded towards the Atlantic coast, as evidenced by finds in the Portuguese Algarve, in *Balsa* (Torre de Ares, Tavira) and *Ossonoba* (Faro)[60], where there are examples of Dressel 23 with ceramic pastes of *Malaca*. The same provenance can be attributed to the Dressel 23D (**fig. 6.6**) found in the estuary of the Arade river[61]. Finally, the first amphorae find documented on the Canary Island of Fuerteventura has recently been reported[62]. It is a Dressel 23B (**fig. 6.7**), and for which an origin on the coast of Malaga is proposed after a petrographic analysis.

[52] http://ceipac.gh.ub.edu/
[53] MATEO, BERNI 2017.
[54] FANTUZZI *et al*. 2017.
[55] REMOLÀ 2000; FANTUZZI, CAU 2017.
[56] MÁRQUEZ 1999, p. 280.
[57] BERNI 1998; JÁRREGA 2000, pp. 608-609; among others.
[58] JONCHERAY 1997.
[59] LIOU 1973, p. 21, fig. 18.
[60] VIEGAS 2011, p. 213.
[61] FONSECA 2015, p. 80, fig. 49.
[62] ESCRIBANO *et al.* 2016.

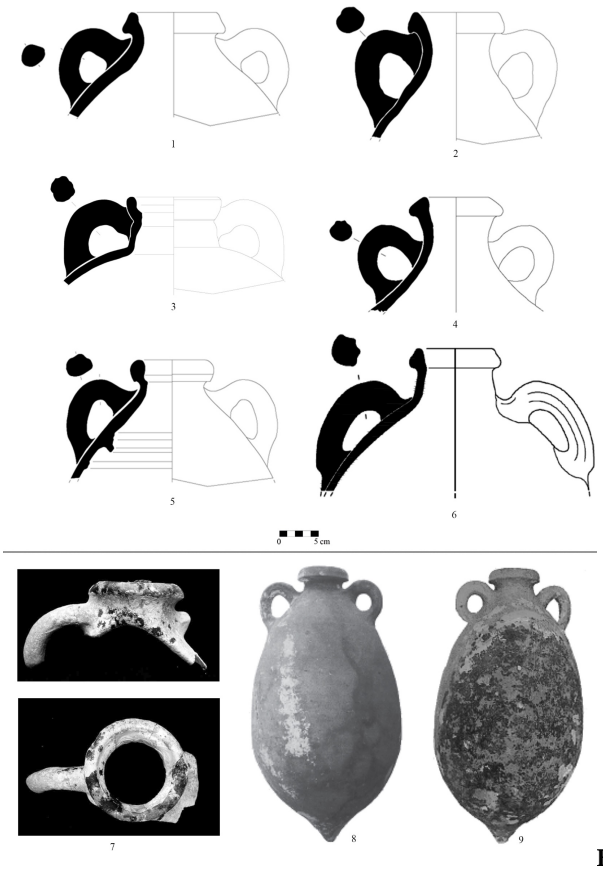

Fig. 6: *Findings with probable origins on the coast of Malaga: 1. Mataró (Cela, Revilla 2004), 2. Sa Mesquida (Fantuzzi, Cau 2017), 3. Tarragona (Ciurana* et al. *2011), 4. Sa Mesquida (Fantuzzi, Cau 2017), 5. Tarragona (Remolà, Abelló 1989), 6. Río Arade (Fonseca 2015), 7. Fuerteventura (Escribano* et al. *2016), 8-9. Unknown origin (Berni 1998)*

Final considerations

Despite their scarce presence in the scientific literature, the production of Roman amphorae used for the transport of olive oil has been recorded on the Baetican coast from the second half of the 1st century BC until the Late Empire. Early-Imperial *figlinae* with Dressel 20 manufacture are found along the Baetican coast, with a major concentration in the Málaga area between the second half of the 1st century and the beginning of the 2nd century AD. The link with this area is even more direct in the case of the Dressel 23 type, as the three pottery workshops in which its production is confirmed are located on the coast of what is now the province of Malaga. In turn, the data currently available suggest a similar morphological evolution for the forms produced on the Andalusian coast with respect to the olive-oil amphorae produced in the Guadalquivir valley, although in the case of the Dressel 23 type, its D variant seems to be exclusive to the coastal area.

In the different *figlinae* in the south of the Iberian Peninsula where the production of olive-oil amphorae has been recorded, it appears alongside that of fish containers, which are the predominant ones, with a clear disproportion in favour of the latter. In addition, the olive-oil trade was linked from the beginning to that of *salsamenta* and fish sauces, although part of the olive-oil on the coast may also have been part of the Baetican Annona trade. We cannot rule out the possibility that the amphorae types used for olive-oil transport produced on the coast may have been formally similar to those produced in the Guadalquivir valley, in an attempt to place this product on the market, which may have been of lower quality or less prestige than the olive-oil produced in the valley.

In the current state of knowledge, there is little information available on these productions and very few known examples, which complicates the correct typological and chronological characterisation, as well as the analysis of their trade. In this sense, advances in the studies of ceramic pastes will contribute to the better identification of the presence of amphorae from the Baetican coast -and other areas with similar forms-, avoiding the direct relationship between these forms and the Guadalquivir valley, an area which, in any case, would have been the predominant producer of olive-oil from the Iberian Peninsula. However, for the time being, there is an interesting paradox: the lack of correlation between the evidence of manufacture and of its diffusion, possibly related to gaps in the research. Thus, the coastal Dressel 20 type is better known in terms of its production, but there are hardly any findings in terms of consumption sites. On the other hand, the Dressel 23 type, whose geography of production is smaller, shows a notable dispersion in the western Mediterranean and the Atlantic area, which suggests that its presence in the Late-Imperial markets is not merely residual.

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* *University of Alicante (daniel.mateo@ua.es)*

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