Preliminary study on carpological remains of food resources from a Roman well at Vada Sabatia (West Liguria, Italy)

Daniele AROBBA*, Francesca BULGARELLI**, Rosanna CARAMIELLO***

Abstract
The authors will present the preliminary results of the carpological analysis carried out on remains dated 1-IV centuries AD from a Roman well at Vada Sabatia (West Liguria, Italy) where numerous herbaceous and arboreal-shrubs have been identified which have an alimentary value. This work is a contribute to the picture of the agricultural production of the area. The carpological remains of Castanea sativa, Secale cereale, Beta vulgaris, Cucumis sativus and Linum usitatissimum are recorded for the first time in Liguria.

Keywords. Carpological remains, Vada Sabatia, Roman Well, Crop cultivation.

Résumé
Les auteurs présentent des résultats préliminaires de l’analyse carpologique effectuée sur des matériaux, datant du Ier au IVe siècle après J.-C., retrouvés dans un puits romain situé dans le site archéologique de Vada Sabatia (Ligurie italienne).
Ils font état de la présence de nombreuses espèces herbacées et ligneuses possédant une valeur alimentaire, qui contribue à cerner la production agricole du territoire. Dans le contexte archéologique de la Ligurie des Ier-IVe siècle après J.-C., des carporestes de Castanea sativa, Secale cereale, Beta vulgaris, Cucumis sativus et Linum usitatissimum sont signalés pour la première fois.

Mots-clés. Carporestes, Vada Sabatia, puits romain, agriculture.

* Museo Archeologico del Finale; Chiostrì di Santa Caterina; I-17024 Finale Ligure Borgo SV. arobb@ museoarcheofinale.it
** Soprintendenza per i Beni Archeologici della Liguria; Via Balbi 10; I-16126 Genova. francesca.bulgarelli@beniculturali.it
*** Dipartimento di Biologia Vegetale; Viale P.A. Mattioli 25; I-10125 Torino. rosanna.caramiello@unito.it
Introduction

The Roman well, the subject of this study, is located below the town hall of Vado Ligure (Savona, West Liguria) and is part of a vast building complex discovered by Lamboglia (1955), of which some outer walls still remain, currently interpreted as an area given over to warehouses and depositaries in the proximity of a landing stage in Portus Vadorum (fig. 1).

The abundant archaeological material found suggests that the area was used between the Late Bronze and the High Middle Ages, while the structures found in the port quarter seem to have been used for several centuries starting from the Augustan Age (Bulgarelli, 2007).

The archaeological excavation of the well, carried out under the supervision of the Soprintendenza per i Beni Archeologici della Liguria, was started in 2005 and preliminary work concerned the removal of the first 287 cm of disturbed

Fig. 1. Location of Vada Sabatia site.
ground. The next 107 cm, subdivided into two levels, have been studied from the carpological point of view by Mauro Rottoli, but the findings have not been published yet.

In 2005 the excavation restarted with the further removal of 133 cm of material the well was emptied, revealing at the bottom a floor of dry stone slabs at 311 cm below sea level. In this deeper part of the deposit, on the basis of the archaeological material found and of the granulometric features five layers of various thicknesses were identified. The layers, defined from bottom to top as V1, show structures dating from the second half of the first century AD to the fourth century AD.

The attribution of this period is based on almost complete colourless clay pitchers, oil-lamps, tiles and pottery shards, as well as bronze vases (Bulgarelli and Panizzoli, in press).

Material and methods

The waterlogged biological material, extracted by flotation with meshes of 2-40.25 mm from about 380 litres of earth in total, is in a good state of conservation. All the carpological remains were examined using a stereomicroscope with a magnification of 10-70. A collection of present-day seeds and fruits was used for comparative purposes as well as specific literature.

Results

The carpological specimens (14.2 % of which carbonised) are attributed to about 80 different taxa; 35 of these are grouping in different crop plants categories: cereals, pulses/vegetables/oleaginous/fiber seeds, cultivated and collected fruits. A total amount of 1,500 carpological macroremains have been identified.

Caryopsis of the following entities were identified: *Hordeum vulgare* var. *tristichum*, *Panicum miliaceum*, *Triticum aestivum/durum*, *T. dicoccum*, *Avena* sp. and *Secale cereale*. In addition to seeds of *Lens culinaris*, *Vicia ervilia* and *Vicia faba* var. *minor*, seeds of *Brassica oleracea*, *Cucumis sativus*, *Beta vulgaris* and *Linum usitatissimum* were identified.

Among the arboreal-arbustive cultivated plants, mention should be made of carpological remains of *Ficus carica*, *Juglans regia*, *Corylus avellana*, *Malus/Pyrus* sp., *Castanea sativa*, *Olea europaea*, *Pinus pinea*, *Prunus persica*, *Prunus cf. domestica*, *Prunus avium*, *Prunus cerasus*, *Vitis vinifera* var. *vinifera*. Only in the deepest layer were a seed of *Phoenix dactylifera* and an endocarpum of *Ziziphus jujuba* found.

A further group is made up of taxa from woodlands and forest margins, that provides evidence of the gathering of edible seeds/fruits, including *Sambucus nigra*, *Rubus* sp., *Crataegus* sp. and *Fragaria vesca*.
<table>
<thead>
<tr>
<th>Deep (cm below sea level)</th>
<th>Layer</th>
<th>Cereals</th>
<th>Vegetables</th>
<th>Cultivated Collected Fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>-178</td>
<td>I</td>
<td>Hordeum vulgare var. taurinum</td>
<td><em>Beta vulgaris</em></td>
<td><em>Ficus carica</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Triticum aestivum var. durum</td>
<td><em>Brassica oleracea</em></td>
<td><em>Juglans regia</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Triticum dicoccum</td>
<td><em>Cucumis sativus</em></td>
<td><em>Prunus avium</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Secale cereale</td>
<td><em>Vicia faba</em> var. minor</td>
<td><em>Prunus cerasus</em></td>
</tr>
<tr>
<td>-211</td>
<td>II</td>
<td></td>
<td><em>Linum usitatissimum</em></td>
<td><em>Prunus domestica</em></td>
</tr>
<tr>
<td>-241</td>
<td>III</td>
<td></td>
<td><em>Carapa sativa</em></td>
<td><em>Prunus persica</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Cordia africana</em></td>
<td><em>Prunus spinosa</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Olea europaea</em></td>
<td><em>Rubus idaeus</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Pomum lycioides</em></td>
<td><em>Rubus ulmifolius</em></td>
</tr>
<tr>
<td>-281</td>
<td>IV</td>
<td></td>
<td><em>Fragaia vesca</em></td>
<td><em>Sambucus euramerica</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Vitis vinifera</em></td>
<td><em>Vicia villosa</em></td>
</tr>
<tr>
<td>-301</td>
<td>V</td>
<td></td>
<td><em>Zizyphus jujuba</em></td>
<td><em>Vigueria lanata</em></td>
</tr>
<tr>
<td>-311</td>
<td></td>
<td></td>
<td><em>Falcaria vulgaris</em></td>
<td></td>
</tr>
</tbody>
</table>

**Fig. 2.** Food resources from carpological remains in the Roman well (I-IV cent. AD).

Fig. 2 shows a diagram representing the seeds/fruits findings of food orientated plants in the five levels dated from the first to the fourth century AD.

The carpological amount of spontaneous herbaceous plants from highly anthropised environments is composed of at least thirty species, including *Chenopodium album*, *Cyperus rotundus*, *Malva sp.*., *Rumex acetosella*, *Stellaria media* and *Urtica urens/membranacea*. In the well there are also carpological traces of other natural and locally found plants near the site such as the meadow and pasture plants (*Ranunculus* cf. *bulbosus* and *R. acris*), herbaceous vegetation found in wet mud (*Epilobium sp.*, *Oenanthe sp.*, *Ranunculus* cf. *sardous* and *Carex* sp. pl.) and from the surrounding sandy dunes (*Euphorbia peplus*).

**Conclusions**

The carpological remains of *Ficus carica*, *Juglans regia* and *Vitis vinifera*, are present in all the layers, yet are more abundant in the thirteenth-fourth century layers. The seeds/fruits of cereal and of other species as *Beta vulgaris*, *Brassica oleracea*, *Cucumis sativus*, *Lens culinaris*, *Vicia ervilia*, *Vicia faba* var. minor and *Linum usitatissimum*, are also present in small quantities, which can be from the cultivated areas near the well. Numerous remains of Prunoideae suggest the presence of the cultivation of some species such as *Prunus avium*, *P. cerasus*, *P. domestica* and also to *P. persica*, an exotic species introduced into Italy in the first century AD (Bandini Mazzanti et al., 2000; Borgongino, 2006).
The discovery of numerous pericarp of chestnut, increasing in number towards the higher levels, could indicate an early attempt to cultivate the species in the territory, but which became more widespread in the area only from the Late Antiquity- Early Medieval Age (Arobbia et al., 2004; Cagnana, 2005).

The carpological remains of Castanea sativa, Secale cereale, Beta vulgaris, Cucumis sativus and Linum usitatissimum, found in this well, seem to be the earliest find of this type in Liguria. The few remains of exotic species (date palm and jujube), frequently mentioned in the Vesuvian area (Ciarallo, 2004; Borgongino, 2006), correspond to and confirm what has already been reported at Albinganun (Albenga, West Liguria) as being used as funeral offerings in the Imperial Age (Massabò, 2005).

The geographical features of the Vada Sabatia plain suggests the hypothesis that the greater part of the recognized entities were cultivated in loco but this does not exclude the importation of plants which may be explained by the proximity of the port.

The numerous and well preserved carpological remains create a record that, even after a preliminary analysis, seems to be unique for the Ligurian coastal area.

Palynological and xylono-anthracological studies being carried out at present allow us to obtain significant evidence to provide one of the best reconstructions of environmental and farming practices at one of the most active ports on the Ligurian coast in the first-fourth centuries AD.

Bibliography


BULGARELLI F., PANIZZOLI L. (in press).– Il deposito del pozzo romano di Vado Ligure. Restauro e conservazione dei recipienti in bronzo, Archeologia in Liguria, Genova, Soprintendenza per i Beni Archeologici della Liguria, II, n.s.

CAGNANA A., 2005.– L’albero del pane. L’alimentazione a base di castagne nel Medioevo ligure, in: Cibi e sapori nell'Italia antica. Per un'archeologia del cibo. Produzione, consumo,
abitudini alimentari, pratiche culturali e offerte nella Liguria antica, Soprintendenza per i Beni Archeologici della Liguria, Genova, scheda n. 20.


MASSABÒ B., 2005.– Il cibo per l’aldilà, in: Cibi e sapori nell’Italia antica. Per un’archeologia del cibo. Produzione, consumo, abitudini alimentari, pratiche culturali e offerte nella Liguria antica, Soprintendenza per i Beni Archeologici della Liguria, Genova, scheda n. 11.