Roman plant remains from Veli Brijun (island of Brioni), Croatia

Renata Šoštarić1 and Hansjörg Küster2

1 Department of Botany, Faculty of Science, University of Zagreb, Marulićev trg 20/2, HR-10 000 Zagreb, Croatia. Email: renata_sostaric@yahoo.com
2 Institute for Geobotany, University of Hannover, Nienburger Str. 17, D-30167 Hannover, Germany. Email: kuester@mbox.geobotanik.uni-hannover.de

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Abstract. 41 archaeobotanical samples were analysed, which had been collected from the seabed at uvala Verige (Verige bay) on the island of Veli Brijun, Croatia, the site of a Roman villa which was settled from the 1st to the 5th century A.D. From the analysis of plant macrofossils it is evident that the eu-Mediterranean evergreen woodland, today described as Quercion ilicis in the phyto-sociological system, already existed in the Roman period. During this period it became degraded as a result of human activities to other vegetation types such as maquis and garigue scrub, and grassland. The remains of Vitis vinifera (grapevine), Olea europaea (olive), Ficus carica (fig), and Pinus pinea (stone pine) were most frequently recorded; they all derive from very important and characteristic Mediterranean foods. Prunus avium (sweet cherry) and P. persica (peach), some vegetables and spices were probably cultivated, too, as well as some cereals, most probably Panicum miliaceum (millet). Juglans regia (walnut), Castanea sativa (sweet chestnut), and Corylus avellana (hazel) were possibly cultivated on the island or imported from neighbouring Istria. The records of some fresh water plants show that there was fresh water in uvala Verige and its surroundings in Roman times, much more than today.

Key words: Mediterranean vegetation – Cultivated plants – Roman period – Veli Brijun island – Croatia

Introduction

As part of the Croatian-Bavarian project "The hydroarchaeological investigation of the Roman villa in uvala Verige on the island of Veli Brijun", samples were taken from the excavated layers for the study of plant macrofossils during the excavations there in 1997. The investigation of seeds, fruits, and other plant remains should provide information on the Roman period nutrition, agriculture, trade and vegetation in the vicinity of the site, which was inhabited from the 1st to the 5th centuries A.D.

Correspondence to: Renata Šoštarić

Fig. 1. Geographical location of the investigated territory around uvala Verige (Verige bay)
The site

Brijuni (the Brioni islands) is a group of 14 small islands, which lie southwest of the coast of Istria, in the Adriatic Sea (13º42'-13º48'E and 44º53'-44º57'N), western Croatia. The largest island of this group is Veli Brijun (Fig. 1).

Veli Brijun is situated in the eu-Mediterranean vegetation zone characterised by plants with evergreen leaves, the Quercion ilicis zone (Šugar 1991/92, 1994).

Brijuni were intensively settled from prehistoric times onwards and almost all the major culture periods are represented there. The earliest remains of human settlements date to the mid-Neolithic at about 3000 uncal B.C. Artefacts show that the Histri (a western Illyrian tribe), the Romans, Goths, Byzantines, Franks, Slavs and Venetians lived there in turn until the 14th C. In A.D. 1312 the first onslaught of the plague killed many inhabitants and in consequence the islands were abandoned and devastated; the plague occurred several more times. Malaria also increased and so Brijuni were almost completely deserted from the 18th C up to 1893. After that, an Austrian industrialist bought the islands and changed their character intensively, by draining the wetlands to form a famous tourist landscape (Bralić 1990).

One of the greatest archaeological sites is the Roman palace in uvala Verige, situated on the east coast of the relatively flat island of Veli Brijun (Fig. 1). The complex of the palace is situated on the inside part of uvala Veriga, but also on the slopes of the Gradina, Dubovac and Mrtvi vrh hills covering an area of ca. 6 ha. The residence was built in various phases from the 1st century B.C. to the 1st century A.D. It developed from a relatively small "villa rustica", a building with a water reservoir and a big winery, to a magnificent palace with three terraces, three temples, quarters for priests, baths with pools for warm and cold water, an aqueduct, a sewage system, farm buildings, quarters for servants and slaves, gardens and a quay (Fig. 2). The similarity of this layout to those of other Roman imperial palaces from Julian and Claudian times suggest that the large building complex of uvala Verige may have been one of the Roman imperial summer residences, even if there is no direct evidence that the palace was built for an emperor or his family. The degradation of the palace started in the 2nd or 3rd century A.D. It is not quite clear at the moment which parts of the complex were still in use after this period, but it is clear that some parts were used in the late Roman period. The present Roman complex at uvala Verige is composed of walls and posts up to 2 m high and partly submerged under the sea to a depth of around 1 m (Begović-Dvoržak 1990, 1993/94).

During the excavation of the Roman complex at uvala Verige in 1997, samples for archaeobotanical analysis were taken from sections E1 and D2 which were situated at least 1.2 m under the present mean sea level, near the west side of the north mole in front of previous farm buildings (Fig. 2). 9 different layers in section E1 and eight different layers in section D2 were archaeologically recognised. The layers are dated by the archaeologists from the 1st to the 5th centuries A.D.

Material and methods

During the excavation divers collected one or more samples from each layer of the excavated area of the site below sea-level (Fig. 2). The contents of two Roman amphorae and one oil-lamp were also taken for analysis. The volumes of the samples ranged from 0.3 to 2.25 litres. In several cases hand picked material was also present.

The samples were treated in the usual way for waterlogged material. The whole sample was washed through three sieves, with mesh diameters of 2.5, 1.0 and 0.315 mm, respectively, placed one on top of the other, so that three fractions were obtained. Seeds, fruits and other plant remains were picked out and sorted using a binocular microscope with 10 x magnification and afterwards identified using 10-20 x magnification. Before adding the results of the three fractions together, the numbers of seeds and fruits found in each subsample of a fraction were converted to the total numbers for that fraction in cases when only a portion of a subsample was analysed.

The seeds, fruits and other plant remains were identified by comparison with a reference collection of recent seeds and fruits, and plants in the herbarium, and also with the help of literature (especially Beijerinck 1947). Because it was not possible to compare the recorded material with a complete collection of Mediterranean reference material, which does not yet exist, a very few plant remains could not be identified.

To collect data on the nutrition, agriculture, vegetable trade and vegetation of the Veli Brijun area in Roman times the results of the analyses of various samples are taken together.

Results and discussion

By the analysis of 41 samples from Veli Brijun, 8,271 well preserved and mostly non-carbonised macrofossils of entire, half and fragmented seeds, fruits, and other plant remains were sorted. 7,608 or 91.9 % of them were identi-