

Archaeobotanical (and other) Investigations at the Chalcolithic Site of Zambujal in Portugal

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The Chalcolithic site of Zambujal was excavated between 1964 and 1973¹, accompanied by archaeobotanical studies by Maria Hopf². Since 2001 new excavations³ were carried out by the German Archaeological Institute, Madrid, focussed on a 4th fortification line and the absolute chronology, recalibrating old radiocarbon dates of the first excavations and producing new AMS radiocarbon dates on cultural plants of the actual excavations. The settlement turned out to be a complex construction with mainly five phases with changing fortification strategies over a timespan of probably more than 1000 years. Radiocarbon dates suggest a use of the site in whole 3rd and beginning of 2nd millennium BC.

Free-threshing wheat (*Triticum aestivum/durum/turgidum*) and naked barley (*Hordeum vulgare* var. *nudum*) were the main cereals found at the site together with frequent finds of faba bean (*Vicia faba*). Single finds of the hulled wheat species of einkorn (*T. monococcum*) and emmer (*T. dicoccum*) do not prove any local importance of these cereals. Fragments of pine nuts shells (*Pinus pinea*) were frequently found and most probably gathered at wild stands. The same is true for fruit fragments of arbutus (*Arbutus* cf. *unedo*), both species might indicate a use for human consumption. Only few finds of linseed (*Linum ussitatissimum*) and olive stones (*Olea europaea*) as well as single finds of grape vine pips (*Vitis vinifera/sylvestris*), seeds of poppy (*Papaver somniferum*) and fig (*Ficus carica*) indicate their presence at the site but do not suggest any range of importance. Fruit fragments of beet (*Beta* sp.) might point to a use of wild vegetables growing in the coastal area.

In archaeobotanical samples between 1st and 2nd fortification line, the plant assemblages differ markedly: some layers contained charred plant remains of maquis vegetation invariably, in contrast to other layers with cultural plant remains but maquis elements missing there. Our interpretation suggests a phase of abandoning of these residential area with a spread of secondary forest before clearing the area by burning the shrubs and re-use for settlement.

In an accompanying project geo-archaeological investigations were carried out to analyse the development of the cultural landscape by drillings in the valley of Rio Sizandro⁴.

¹ Sangmeister E. & H. Schubart 1981, Zambujal, Madrider Beiträge Band 5, Mainz.

² Hopf M. 1981, Pflanzliche Reste aus Zambujal, in: Sangmeister E. & H. Schubart 1981, see note ¹, 315-340.

³ Kunst M. & N. Lutz 2008, Zambujal (Torres Vedras, Portugal) – Zur Präzision der absoluten Chronologie durch die Untersuchungen an der vierten Befestigungslinie. In: Madrider Mitteilungen 49, 29-63.

⁴ Dambeck R., H. Thiemeyer, N. Herrmann, A.J. Kalis, M. Kunst, A. Lord, H. Rittweger, H.-P. Stika & A. Stobbe 2010, Holozäne Talentwicklung und Landschaftswandel am Rio Sizandro. Geoarchäologische Beiträge zum Projekt „Sizandro – Alcabrichel“ (Torres Vedras, Portugal). In: Madrider Mitteilungen 51, 9-41.