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Vegetation and plant exploitation at Mentesh Tepe (Azerbaijan), 6th–3rd millennium BC initial results of the archaeobotanical study

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ABSTRACT

The study of several types of botanical remains from the site of Mentesh Tepe, Azerbaijan, has provided the first data on the vegetation cover and the exploitation and use of plant resources from the Neolithic to the Early Bronze Age in this part of the Kura River Basin. Riparian woodlands constitute the main fuel source throughout the occupational sequence. However, wood was also exploited in relatively open woodlands characterised by the presence of a dozen shrub and tree species, among them oak, hornbeam, buckthorn, wayfaring-tree, maple and lime. Most seed and fruit remains correspond either to crops, such as cereals (barley, wheat) and pulses (lentil, grass pea), or to weeds and ruderal plants. The analysis of phytoliths shows that cereals were treated (de-husked) on-site. Very few fruits were found in the botanical record.

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1. Introduction

The Caucasus region, situated between the Black and Caspian Seas, encompasses almost 600 000 km^2 on the border between Europe and Asia. Due to a contrasted relief, with the presence of several high mountain chains, and its location at the meeting point between different climatic and biogeographic systems, this region hosts an exceptional biodiversity with numerous endemic plant and animal species (Myers et al., 2000). From a phytogeographical point of view, the southern part of the Caucasus – or Transcaucasia – is located on the boundary between two main floristic units: the Euro-Siberian region to the north and the Irano-Turanian region to the south (Zohary, 1973). The present day territories of Azerbaijan, Georgia and Armenia have long been recognised as one of the Asian centres for crop diversity (Vavilov, 1926/1992) as well as for hosting the wild ancestors of many plants that were domesticated in south-west Asia in the past (Gabrielian and Zohary, 2004). This region was potentially, therefore, the scene of ancient plant domestication and diversification, involving both perennial plants (mainly fruit trees) and annual crops (cereals, pulses etc.).

Despite being of interest from both a plant geographical and palaeo-agronomical point of view, to date the southern Caucasus has been the subject of relatively few systematic archaeobotanical studies. Early works, published in the 1970s and 1980s, are rather limited in scope and are not sufficiently linked to the archaeological contexts from which the studied plant remains were retrieved (Lisytsyna and Prischepenko, 1977; Gorgidze and Rusishvili, 1984; Yanushevich and RusishviliSh, 1984). Recently, several more extensive studies have been published and allow the scientific community to study in greater detail questions of ancient plant husbandry (Wasylikowa et al., 1991; Gandilyan, 1998; Badalyan et al., 2007; Connor and Sagona, 2007; Badalyan et al., 2008; Hovsepyan and Willcox, 2008; Badalyan et al., 2010; Hovsepyan, 2010, 2011a, 2011b, 2013; Ristvet et al., 2011; Areshian et al., 2012; Decaix, 2012; Guliyev and Nishiaki, 2012; Kalantaryan et al., 2012; Wilkinson et al., 2012; Kakhiani et al., 2013; Messager et al., 2015). However, these studies only concern certain parts of Transcaucasia and cover a very small portion of the long and rich occupational history of this region. To date, most studies have focused almost exclusively on the analysis of seed

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remains, while studies of other types of archaeobotanical remains, such as charcoal and phytoliths, remain rare for this part of South-West Asia. In the present paper, we aim to reconstruct the vegetation cover and the plant husbandry activities at the site of Mentesh Tepe, from the 6th to the 3rd millennium BC, by combining the analysis of botanical macroremains (seeds, fruits, wood) and phytoliths.

Using this multidisciplinary approach, several research issues can be addressed: What was the nature of plant formations in the environs of the site in the past? Did they differ much from the vegetation that we observe in the area today? Did they change over time as a result of human activities and/or climatic change? Which wild resources were exploited and from where? What plants were cultivated and how? And what can we say about the treatment and use of plant resources within the prehistoric village?

2. The site of Mentesh Tepe

Mentesh Tepe, in the Tovuz district of western Azerbaijan, is situated approximately 1 km from the Zeyem Cay, one of the left bank tributaries of the Kura River. The foothills of the Lesser Caucasus mountain chain are located less than 10 km to the south (Fig. 1). The site was first surveyed in the 1960s and dated to the Chalcolithic period (Narimanov, 1987). In the 1970s the mound was partly destroyed by levelling prior to the planting of a vineyard. A survey carried out in 2007 showed, however, that structural remains were still relatively well preserved under the surface. Since 2008 six excavation campaigns have been undertaken at Mentesh Tepe, under the direction of B. Lyonnet (UMR 7192—CNRS) and F. Guliyev (Institute of Archaeology and Ethnology, Baku). These excavations have revealed a succession of occupational phases spanning a period of almost 3500 years, from the Neolithic to the Early Bronze Age (Lyonnet et al., 2012).

The first occupation is dated to the first half of the 6th millennium BC and is characterised by a village of circular houses related to the Shulaveri-Shomu culture. The associated material culture includes, for example, obsidian and bone tools as well as pottery with vegetal temper. The second period of occupation identified at the mound belongs to the Chalcolithic period with an early phase dated to the first half of the 5th millennium BC. Unfortunately, no architectural remains are securely associated with this phase that, in general, appears to be poorly represented on the site. After a short hiatus in occupation, a second phase of Chalcolithic occupation (2nd half of the 5th mill. BC) is characterised by rectangular mud-brick houses and a rich and varied material culture. The last period is attributed to the Early Bronze Age and covers different phases that are mainly represented by funerary architecture. A collective burial under a *kurgan* is attributed to Phase I of the Kura-Araxes (KA) culture (2nd half of the 4th millennium BC). Several individual burials, pits and hearths belong to Phase II (1st half of the 3rd millennium BC) and another kurgan burial as well as pits are linked to the third phase, i.e. the Martkopi phase of the Early Kurgan culture (*c.* 2400 BC).

3. Present-day vegetation

Mentesh Tepe is situated at the northern edge of the modern village of Ashagi Ayibli and is surrounded by habitations, gardens and dirt roads. Wheat, potatoes and corn are cultivated in open fields; fruit trees and grape vines are grown in orchards. Animal herding is also important with sheep grazing taking place in open areas to the north of the site. While the vegetation around the site is highly shaped by human activities and consists, to a large extent, of cultivated and ruderal elements, better-preserved formations are to be found at some distance, in particular on the slopes and on higher altitudes of the Lesser Caucasus.

Open shrublands, locally called *shibliak*, develop on dry slopes at lower altitudes. They are dominated by Christ's thorn (*Paliurus spina-christi*) which is found growing in association with Pallasii buckthorn (*Rhamnus pallasii*), wild plum (*Prunus divaricata*), hackberry (*Celtis glabrata*), maple (*Acer ibericum*) and other shrub species. At higher altitudes, between 800 and 1300 m, the *shibliak* vegetation transforms into open woodlands where juniper (*Juniperus* spp.), oak (*Quercus* spp.) and pistacio (*Pistacia atlantica*) grow together with wayfaring-tree (*Viburnum lantana*), wild apple (*Malus orientalis*), wild pear (*Pyrus salicifolia*), buckthorn (*R. pallasii*), *Sorbus* spp., hackberry (*Celtis* spp.), pomegranate (*Punica granatum*) and hornbeam (*Carpinus* ssp.) (Gabrielian and Fragman-Sapir, 2008).

Mixed forests have a wide distribution in the southern Caucasus between altitudes of 550 m—2300 m. Several species of oak, such as *Quercus iberica* or *Quercus robur*, characterise the lower altitudinal

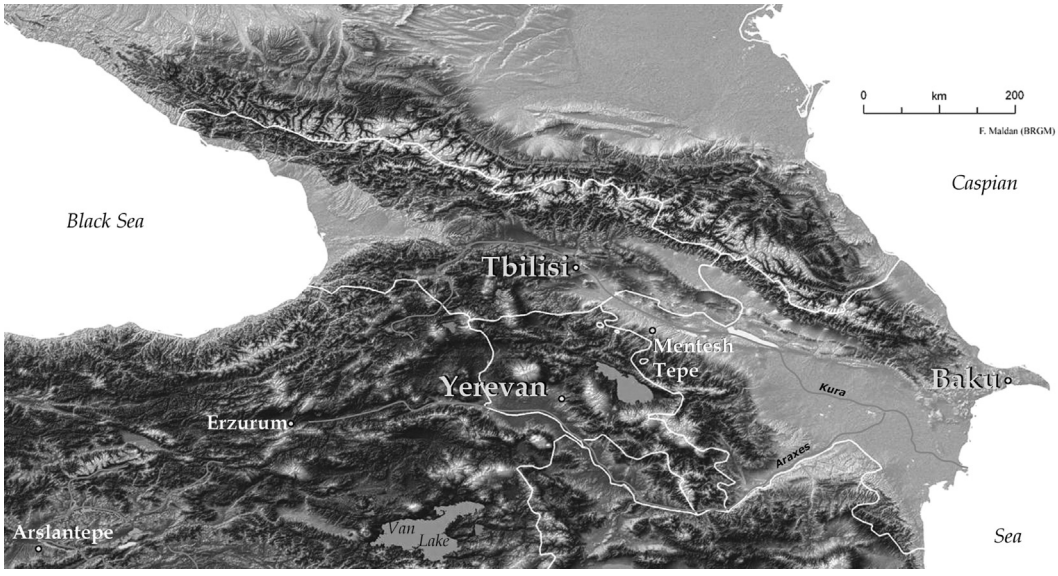

Fig. 1. Map showing the location of Mentesh Tepe.

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