

Plant food remains from prehistoric Greece: first insights from Archondiko

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ABSTRACT

Archondiko is a tell settlement in central Macedonia with habitation dating to the Early and Late Bronze Age (Table 1). Archaeobotanical investigation of the site has yielded rich assemblages of charred plant remains. This paper presents results of the archaeobotanical analysis of the Late Bronze Age phase. About 80000 charred remains have been analyzed from two destruction layers. Crop species, cereals and pulses, are the most abundant finds. These crops were found stored, probably inside two houses. Cereal remains dominate the assemblages, indicating their significance in human diet. These finds, in combination with previous pilot studies on Early Bronze Age cereal plant food remains from Archondiko, form the basis for future research on culinary practices involving plant ingredients.

KEYWORDS

Northern Greece, Bronze Age, Archondiko, charred plant remains

Introduction

Systematic retrieval of charred plant remains carried out during the last decades in Neolithic and Bronze Age sites in northern Greece and Bulgaria has generated a large body of data comprising a wide range of plant species that were exploited by the prehistoric inhabitants of the area: cultivated crops, mostly cereals and pulses, constituted the staple food of prehistoric communities, enriched with fruits and nuts harvested from the wild (Marinova, Valamoti 2013; Popova 2009; 2010; Valamoti 2009). Direct evidence for the consumption of plant foods in the archaeobotanical record is found in the form of processed plant foodstuffs. Plant food remains from Neolithic and Bronze sites in Greece and Bulgaria are studied in PhD research conducted within the ERC funded PLANTCULT project, specifically aiming at the investigation of the culinary practices that resulted in their formation. This paper presents archaeobotanical evidence from the Late Bronze Archondiko, one of the key sites investigated, on the occasion of the numerous plant food remains recovered from its earlier phase.

Data and methods

The site investigated

Archondiko is a tell settlement in central Macedonia, located in the northern margin of Thessaloniki plain, on a hilly terrain near the foothills of Paikon mountain (Papaefthymiou-Papanthimou 2010) (Fig. 1). The tell is 20 m high and covers an area of 6ha. The settlement was established during the Early Bronze Age on a small hill, at 4-5 km distance from



Fig. 1. Map of Central Macedonia showing the location of Archondiko settlement, Giannitsa Plain
 Обр. 1. Карта на централна Македонија с местоположение на селището Архондико в
 равнината Јаница

the sea, with a lagoonal environment with brackish water around the margins of the bay, while at the beginning of the 2nd millennium BC, a freshwater lake was formed in the area (Ghilardi et al. 2008; Syrides et al. 2009).

Systematic excavation here began at 1992 by the Department of Archaeology, Aristotle University of Thessaloniki. The research on the summit of the tell revealed two major habitation phases. The earliest phase B, belonging to Early Bronze Age, is placed by a series of radiocarbon dates between 2135–1890 (Papadopoulou et al. 2010; Pilali-Papasteriou et al. 2001). Following a possible hiatus of approximately 300 years, phase A belongs to the Late Bronze Age and is dated at 1516–1414 BC.

The most extensively investigated phase of Archondiko is the earliest habitation horizon IV of phase B. It is also the best preserved, as it was covered by a thick destruction layer. Seven habitation units were revealed, their architectural remains and domestic equipment very well preserved due to their destruction by fire (Papanthimou, Papadopoulou 2011). The Early Bronze Age settlement appears to be densely structured, with rectangular, post-framed houses of similar size, which have the same orientation. The houses were built in clusters, some of them with shared walls (Papadopoulou et al. 2010). Each house comprised sets of clay constructions (bins, hearths, platforms) related to the preparation and storage of food (Papadopoulou 2010).

Phase A is characterized by a greater degree of erosion. Here, parts of rectangular buildings with stone foundations were revealed. Due to the fragmentary preservation of the remains, it is difficult to establish the arrangement of the buildings, but it seems that the houses were densely built, with narrow intervals between them (Papaefthymiou-Papanthimou 2010; Papaefthymiou-Papanthimou, Pilali -Papasteriou 1997).

ARCHAEOLOGICAL PHASES	YEARS BC
EARLY BRONZE AGE	3300/3100 – 2300/2200
MIDDLE BRONZE AGE	2300/2200 – 1700/1500
LATE BRONZE AGE	1700/1500 – 1100

Table 1. Chronology of archaeological phases for Bronze Age Northern Greece (after Andreou et al. 2001)

Таблица 1. Хронология на археологическите фази на бронзовата епоха в Северна Гърция (по Andreou et al. 2001)

Trench G is located at section B on the southern slope of the mound, where surveys were carried out to define the chronological phases and stratigraphic sequence of the settlement (Papaefthymiou-Papanthinou, Pilali-Papasteriou 1995). According to the radiocarbon dates, trench G layers date to Late Bronze Age (1690–1260 BC, Isaakidou 2011).

Sampling and study of archaeobotanical material

Sampling of the excavation of Archondiko was almost from the beginning systematic and intensive. A large number of soil samples were recovered and were processed by flotation using a variant of the Ankara machine (French 1971), with a set of two sieves with an aperture of 1 mm and 300 µm. A total of 78 soil samples were recovered from trench G. The size of the samples was kept small, ranging from 0,1 to 16 lt. Sorting of the flots was carried out using a stereomicroscope (x6,5 – x50). The flots of 56 samples were included in the study. Flots were sorted for charred plant remains of size >500 µm. Due to the high plant remains content, 20 samples were selected for identification of plant species, which was carried out with the guidance of supervisor, Prof. S.M. Valamoti, with the help of reference material and the relevant bibliography.

Central Macedonia in Bronze Age

Throughout the course of Neolithic and Early Bronze Age in northern Greece, there is an increasing emphasis on the autonomy of the household, expressed through the entrenchment of cooking and storage facilities in the interior of the houses (Andreou 2010; Halstead 1996). During Middle and Early Bronze, in place of the single spaced buildings, multi spaced large residential blocks appear in sites of central Macedonia like Thessaloniki Toumba, Assiros and Agios Mamas (Andreou, Kotsakis 1997; Hänsel, Aslanis 2010; Wardle, Wardle 2007). During Late Bronze Age, there is evidence for large scale storage activity, as is indicated by the concentration of pithoi and bins in Thessaloniki Toumba, and by the archaeobotanical evidence for crop storage in Assiros (Jones et al. 1986; Margomenou 2008). Both these cases provide evidence for crop storage in quantities that exceeded the needs of the household, or the community. There is not, however, during this period explicit material manifestation for the existence of social hierarchy and inequalities. Rather, inequalities could have existed in a regional level, where settlements would be connected in local networks with loose hierarchical bonds (Andreou 2001).

Analysis of the archaeobotanical assemblages from Assiros indicate an intensive farming regime, and crop diversification (Jones 1992). Evidence for a greater degree of specialization and extensive cultivation of einkorn come from Late Bronze Age Kastanas (Kroll 1984). Nonetheless, archaeobotanical evidence for Bronze Age northern Greece indicate a diversification in production, with the cultivation of a variety of cereals and pulses. The addition of spelt wheat and *Lallemantia* sp. in Early Bronze Age, millet in Late Bronze Age, as and opium poppy, further enriches the crop species repertoire (Jones, Valamoti 2005; Valamoti 2013a; 2013b).

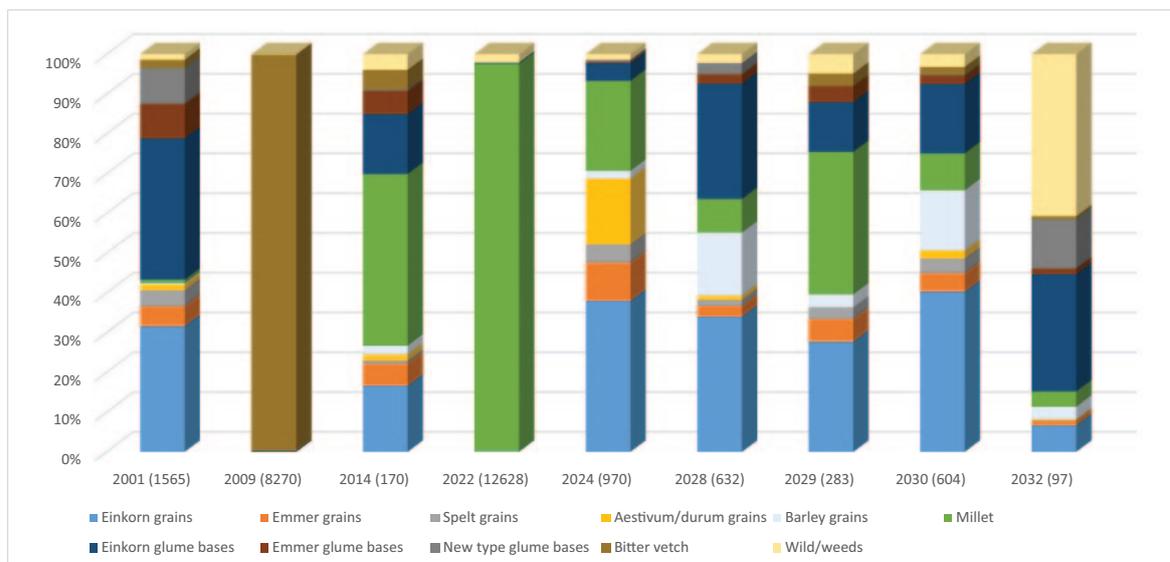


Fig. 2. Bar chart summarizing the composition of the samples from the house destruction layer (in parenthesis next to sample number noted the plant remains/lt)

Обр. 2. Диаграма с данни за състава на пробите от пласта на разрушената къщата (в скоби до номера на пробата са отбелязвани останките от растението / litgr)

It has been suggested that during Late Bronze Age hospitality and feasting could provide the context where the antagonism between households or communities, rather than individuals, was expressed (Andreou 2001; 2010). It is possible that the development of a more sophisticated cuisine, indicated by greater crop variability, could be related to such events of feasting, which would provide the opportunity for distinction through the use of foodstuffs with higher prestige, due to their status as new or exotic (Valamoti 2007).

Results

A total of about 80000 charred plant remains were recovered, while the find density of the samples is also generally high, ranging from 26 to 12628 remains/l. Almost 90% of the finds are remains of cultivated plants.

Regarding the species that were identified and their significance, cereal remains dominate in the majority of the samples. Four species of glume wheats were identified: einkorn (*Triticum monococcum*), emmer (*T. dicoccum*) and spelt (*T. spelta*), as well as “new wheat type” resembling *Triticum timopheevi*, its identification based on the glume bases (Jones et al. 2000). The presence of free-threshing wheat (*T. aestivum/durum*) is more limited. Barley (*Hordeum* sp.) and millet (*Panicum miliaceum*) also appear as important crops, and they are the only cereal species that are encountered in pure concentrations. Pulses are rather poorly represented in the samples: bitter vetch (*Vicia ervilia*) is the only species whose cultivation is documented. Lentils (*Lens* sp.) are rarely present in the samples, and in very small numbers. The presence of other crops is rather limited. Three species whose seeds are rich in oil were identified: opium poppy (*Papaver somniferum*) and a very small number of flax (*Linum usitatissimum*) and *Lallemantia* sp. seeds. Fruits were not present in the samples, except for a very small number of cornelian cherry (*Cornus mas*) blackberry (*Rubus fruticosus*), fig (*Ficus carica*) and grape (*Vitis vinifera*). The wild plant remains that were identified belong in their majority to arable fields, and less on grasslands and wetlands.

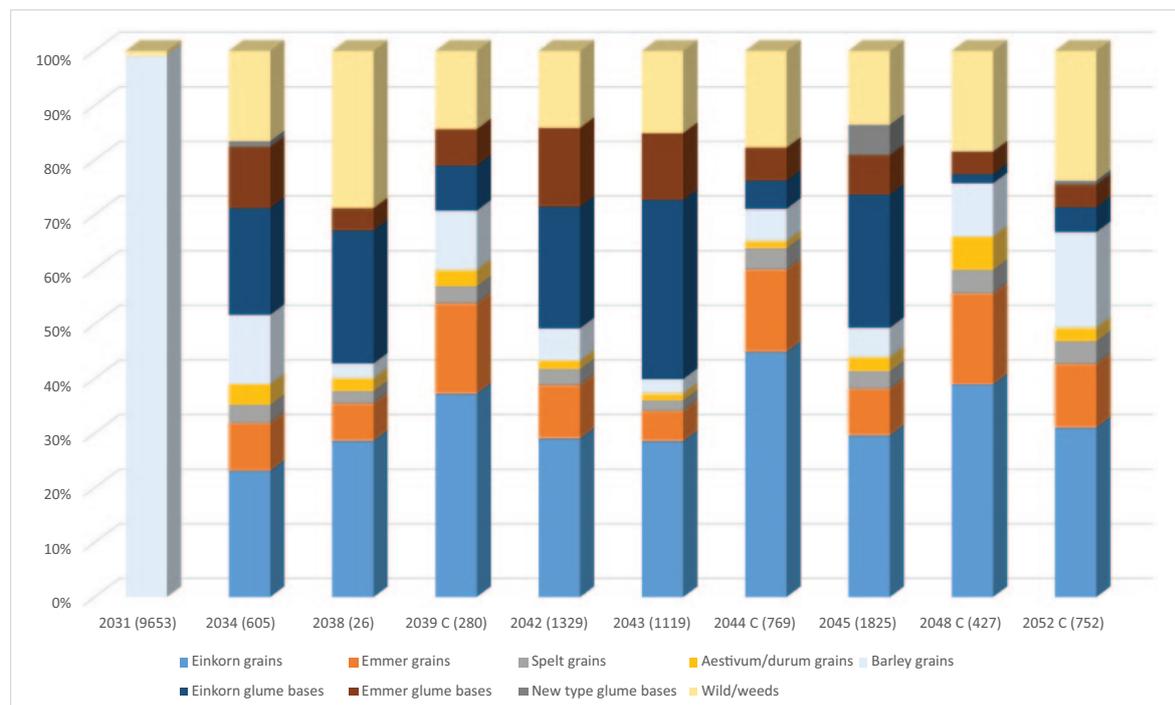


Fig. 3. Bar chart summarizing the composition of the samples from the burnt destruction layer. Samples including only coarse flot marked with C (in parenthesis next to sample number noted the plant remains/lt)

Обр. 3. Линейна диаграма с данни за състава на пробите от горелия пласт. Пробите, включващи само груба флотирана фракция, отбелязан с C (в скоби до номера на пробата са отбелязвани останките от растението / litgr)

The samples included in this study originate from two contexts: 9 samples come from a Late Bronze Age house which was destroyed by fire and 11 come from an area of a dense concentration of charred plant remains related to a clay floor/surface, though no other conclusive architectural remains related to it, were preserved (Issakidou 2011).

The taphonomic analysis of the samples from the destruction layer and the high plant remains content indicate that they represent stored products of cereals and pulses (Fig. 2). Sample 2032 appears to be of different origin: the sample is dominated by glume bases of the hulled wheats and by a wide variety of wild species seeds: a few fruit pip fragments (grapes, cornelian cherries, figs, blackberries) and a large number of arable weeds/ruderals and grassland species: Gramineae (*Lolium temulentum*, *Cynodon dactylon*, *Setaria* sp.), Caryophyllaceae, Fabaceae, *Rumex* sp., *Galium* sp., *Chenopodium album*, *Agrostemma githago*, *Lithospermum arvense*). This possibly represents the contents of a hearth, where those products were discarded, or ended up incorporated in the animal dung used as fuel. Two pure concentrations of millet and bitter vetch were found, but the remaining samples are of mixed composition: remains of glume wheats, grains and glume bases, constitute the major component, while free-threshing wheat, millet and barley grains appear in the samples in varying percentages. The co-existence of the glume wheat species in the samples constitute evidence for their cultivation as mixed crops, with einkorn being the major component. Barley could either be a component of the glume wheats maslins, or cultivated as a crop on its own. The presence of free-threshing wheat and millet is probably the result of post depositional factors, although the latter could be intentionally stored with wheat in order

to assure better preservation. The practice of mixing millet and wheat grains is reported for 17th century France, and it served the purpose of reducing the void between the grains, thus preventing insect penetration. The grains could be easily separated afterwards through sieving (Marinval 1992). Storing of glume wheats as spikelets, which is probably the case for the majority of the samples based on the grains/chaff ratio, has also the advantage of rendering the grains more resistant to insects and fungi attacks (Sigaut 1988). Although Hillman reports that storing of spikelets is preferred in areas with wet summers (Hillman 1984), there are finds that support this was a common practice in northern Greece (Jones et al. 1986). This way, the arduous task of dehusking the glume wheats for their preparation for consumption was spread throughout the year.

The second context, the area associated to a floor, was intensively sampled, as the presence of a large quantity of charred grains was visible during the excavation. Eleven samples are included in the study (Fig. 3). A pure concentration of barley grains was found, but most of the samples represent a dense concentration of a stored cache of cereals: einkorn and emmer spikelets, and barley. In very small percentages spelt and free-threshing wheat are also present. For a number of samples, only the coarse flout was available, but nonetheless, the analysis of the samples' composition indicate that they originate from the same concentration. The proportion of weed seeds is quite large, and they appear to be typical weeds that accompany the cultivation of cereals, mostly *Lolium temulentum*. Opium poppy seeds also occur in the samples. The significant percentage of wild flora seeds in the assemblage constitute evidence for the possible extensive cultivation of glume wheats.

As it has been attested for the Early Bronze Age Archondiko (Valamoti 1997; Valamoti et al. 2008), glume wheats, and especially einkorn, are the dominant species. Barley also appears to be an important crop. Its significance as a crop species in the diet of the Early Bronze Age inhabitants of the settlement is stressed by the finds of fragmented barley grains that were stored in the interior of a house, next to two storage bins (Valamoti 2002; 2011; Valamoti et al. 2011). The fragments occur both loose and fused together in conglomerations. The microscopic and experimental investigation of the finds have shown that they correspond to ground barley grains. Similar finds of ground einkorn grains from Mesimeriani Toumba probably correspond to some form of bulgur, as their study has shown that they had received treatment with hot water. The grains from Archondiko probably had not undergone the same process, and the investigation is so far less conclusive regarding the processing techniques that had been applied to them. Stable isotope analysis on crop remains indicate that barley was perhaps more intensively manured than wheat, and that is probably related to the importance of barley in human diet (Nitsch et al. 2017).

Conclusion

Archaeobotanical investigation at Archondiko has provided insights into various aspects related to the use of plants: storage practices, cultivation techniques, resource selection strategies. There is evidence for significant diversification of production, indicated by the cultivation of maslins and the broad range of crops, further enriched with the addition of millet. These archaeobotanical remains provide a basis for investigating the culinary practices which involved plant food ingredients. Finds of ground barley grains constitute direct evidence for the preparation of cereal food products. Building on previous studies, further investigation of these finds, which will combine macroscopic and microscopic observation, and experimental replication is planned in order to understand the cooking

practices underlying the formation of the finds.

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References

- Andreou, S. 2001. Exploring the Patterns of Power in the Bronze Age Settlements of Northern Greece. In Branigan, K. (ed.) *Urbanism in the Aegean Bronze Age*. 160-173. Sheffield: Sheffield Studies in Aegean Archaeology, 160-173.
- Andreou, S. 2010. Northern Aegean. In Cline, E. (ed.) *Oxford Handbook of Bronze Age Aegean*. New York, Oxford: Oxford University Press.
- Andreou, S., Fotiadis, M., Kotsakis, K. 2001. Review of Aegean Prehistory V: the Neolithic and Bronze Age of northern Greece. In Cullen, T. (ed.) *Aegean Prehistory: A Review*. Boston: Archaeological Institute of America, 259-327.
- Andreou, S., Kotsakis, K. 1997. Η προϊστορική Τούμπα της Θεσσαλονίκης. Παλιά και νέα ερωτήματα (Prehistoric Toumba Thessaolonikis: old and new questions). *To Archaeologiko Ergo sti Makedonia kai Thraki* 10(A), 369-387.
- French, D. H. 1971. An experiment in water sieving. *Anatolian Studies* 21, 59-64.
- Ghilardi, M., Fouache, E., Queyrel, F., Syrides, G., Vouvalidis, K., Kunesch, S., Styllas, C., Stiros, S. 2008. Human occupation and geomorphological evolution of the Thessaloniki Plain (Greece) since mid Holocene. *Journal of Archaeological Science* 35.1, 111-125.
- Hänsel, B., Aslanis, I. 2010. Das prähistorische Olynth: Ausgrabungen in der Toumba Agios Mamas 1994-1996. Die Grabung und der Baubefund. *Prähistorische Archäologie in Südosteuropa*. Rahden, Westfalia: Verlag Marie Leidorf.
- Halstead, P. 2006. What's Ours is Mine? Village and Household in Early Farming Society in Greece (G. H. Kroon Memorial Lecture 28). Amsterdam: University of Amsterdam.
- Issakidou, D. 2011. Η στρωματογραφική ακολουθία του νότιου τομέα του προϊστορικού οικισμού του Αρχοντικού Γιαννιτσών (The stratigraphic sequence of the southern slope of the prehistoric settlement of Archondiko Yannitson). Unpublished MA thesis, Aristotle University of Thessaloniki.
- Jones, G. 1992. Weed Phytosociology and Crop Husbandry: Identifying a Contrast between Ancient and Modern Practice. *Review of Palaeobotany and Palynology* 73, 133-143.
- Jones, G., Valamoti, S. M., Charles, M. 2000. Early crop diversity: a "new" glume wheat from northern Greece. *Vegetation History and Archaeobotany* 9, 133-146.
- Jones, G., Valamoti, S. M. 2005. *Lallemantia*, an imported or introduced oil plant in Bronze Age northern Greece. *Vegetation History and Archaeobotany* 14.4, 571-577.
- Jones, G., Wardle, K., Halstead, P., Wardle, D. 1986. Crop Storage at Assiros. *Scientific American* 254.3, 96-103.

- Kroll, H. J. 1984. Bronze age and Iron Age agriculture in Kastanas, Macedonia. In van Zeist, W., Casparie, W. A. (eds) *Plants and Ancient Man: Studies in palaeoethnobotany*. Proceedings of the 6th Symposium of the International Work Group for Palaeoethnobotany. Rotterdam: Boston: A.A. Balkema, 243-246.
- Margomenou, D. 2008. Food Storage in Prehistoric Northern Greece: Interrogating Complexity at the Margins of the 'Mycenaean World'. *Journal of Mediterranean Archaeology* 21, 191-212.
- Marinova, E., Valamoti, S.M. 2013. Crop diversity and choices in the prehistory of SE Europe: the archaeobotanical evidence from Greece and Bulgaria. In Chevalier, A., Marinova, E., Peña-Chocarro, L. (eds) *Plants and people: choices and diversity through time*. Oxford: Oxbow, 46-54.
- Marinval, P. 1992. Archaeobotanical data on millets (*Panicum miliaceum* and *Setaria italica*) in France. *Review of Palaeobotany and Palynology* 73, 259-270.
- Nitsch, E., Andreou, S., Creuzieux, A., Gardeisen, A., Halstead, P., Isaakidou, V., Karathanou, A., Kotsachristou, D., Nikolaidou, D., Papanthimou, A., Petridou, C., Triantaphyllou, S., Valamoti, S. M., Vasileiadou, A., Bogaard, A. 2017. A bottom-up view of food surplus: using stable carbon and nitrogen isotope analysis to investigate agricultural strategies and diet at Bronze Age Archontiko and Thessaloniki Toumba, northern Greece. *World Archaeology* 49.1, 105-137.
- Papadopoulou, E. 2010. Οι πηλοκατασκευές του προϊστορικού οικισμού στο Αρχοντικό Γιαννιτσών: συμβολή στη μελέτη της τεχνολογίας της τροφής (The Built Clay Facilities of the Prehistoric Settlement of Archontiko Giannitson: Contribution to the Study of Food Technology). PhD Thesis, Aristotle University of Thessaloniki.
- Papadopoulou, E., Papanthimou, A., Maniatis, I. 2010. Ζητήματα οργάνωσης του χώρου στο τέλος της Πρώιμης εποχής του Χαλκού: τα νέα δεδομένα από το Αρχοντικό Γιαννιτσών (Issues of Spatial organization at the end of the Early Bronze Age: new data from Archontiko Giannitson). *To Archaeologiko Ergo sti Makedonia kai Thraki* 21, 77-82.
- Papaefthymiou-Papanthimou, A., Pilali-Papasteriou, A. 1995. Ανασκαφή στο Αρχοντικό Γιαννιτσών (Toumba of Archontiko: Trial excavation in 1992, Section II). *To Archaeologiko Ergo sti Makedonia kai Thraki* 6, 151-161.
- Papaefthymiou-Papanthimou, A., Pilali-Papasteriou, A. 1997. Ανασκαφή Αρχοντικού 1993 (Excavation at Archondiko, 1993). *To Archaeologiko Ergo sti Makedonia kai Thraki* 11, 147-154.
- Papaefthymiou-Papanthimou, A. 2010. Η ανασκαφική έρευνα στον προϊστορικό οικισμό του Αρχοντικού Γιαννιτσών (The Archaeological Research at the Prehistoric Settlement of Archontiko Giannitson). *Εγνατία* 14, 257-274.
- Papanthimou, A., Papadopoulou, E. 2011. Η ανασκαφή στον προϊστορικό οικισμό του Αρχοντικού Γιαννιτσών κατά την περίοδο 2008 (The excavation at the prehistoric settlement of Archondiko Giannitson during the 2008 season). *To Archaeologiko Ergo sti Makedonia kai Thraki* 22, 113-118.
- Pilali-Papasteriou, A., Papaefthymiou-Papanthimou, A., Fakorellis, Y., Maniatis, Y. 2001. Προσδιορισμός με ¹⁴C των οικιστικών φάσεων του προϊστορικού οικισμού στο Αρχοντικό Γιαννιτσών. In Basiakos, I., Aloupi, E., Fakorellis, Y. (eds) *Αρχαιομετρικές μελέτες για την ελληνική προϊστορία και αρχαιότητα (Archaeometry issues in greek prehistory and antiquity)*, 27-35.
- Popova, T. 2009. Paleobotanic catalogue of the studied sites and studied remains (debries) in the territory of Bulgaria (1980-2008). *Interdisciplinarni izsledvanija* 21, 71-166.

- Popova, T. 2010. Plant environment of man between 6000 and 2000 BC in Bulgaria. *British Archaeological Reports international series* 2064. Oxford: Archaeopress.
- Sigaut, F. 1988. A method for identifying grain storage techniques and its application for European Agricultural History. *Tools and Tillage* 6.1, 3-32.
- Syrides, G., Albanakis, K., Vouvalidis, K., Pilali-Papasteriou, A., Papaefthimiou-Papanthimou, A., Ghirlandi, M., Fouache, E., Paraschou, T., Psomiadis, D. 2009. Holocene Palaeogeography of the Northern Margins of Giannitsa Plain in Relation to the Prehistoric Site of Archontiko (Macedonia – Greece). *Zeitschrift für Geomorphologie* 53.1, 71-82.
- Valamoti, S. M. 1997. Αρχαιοβοτανικά κατάλοιπα από τον οικισμό του Αρχοντικού: ανασκαφική περίοδος Σεπτεμβρίου 1993 (Archaeobotanical remains from the settlement of Archondiko: excavation period of September 1993). *To Archaeologiko Ergo sti Makedonia kai Thraki* 7, 155-158.
- Valamoti, S. M. 2002. Food remains from Bronze Age Archondiko and Mesimeriani Toumba in northern Greece? *Vegetation History and Archaeobotany* 11, 17-22.
- Valamoti, S. M. 2007. Traditional Food and Culinary Novelties in Neolithic and Bronze Age Northern Greece: An overview of the archaeobotanical evidence. In Mee, C., J. Renard, J. (eds) *Cooking up the Past: Food and Culinary Practices in the Neolithic and Bronze Age Aegean*. Oxford: Oxbow Books, 89-107.
- Valamoti, S. M. 2009. Plant food ingredients and ‘recipes’ from Prehistoric Greece: the archaeobotanical evidence. In Morel, J. P., Mercuri, A. M. (eds) *Plants and culture: seeds of the cultural heritage of Europe*. Edipuglia Bari: Centro Europeo per i Beni Culturali Ravello, 28-38.
- Valamoti, S. M. 2011. Ground cereal food preparations from Greece: the prehistory and modern survival of traditional Mediterranean ‘fast foods’. *Archaeological and Anthropological Sciences* 3, 19-39.
- Valamoti, S. M., Papanthimou, A., Pilali, A. 2008. Cooking ingredients from Bronze Age Archondiko. In Facorellis, Y., Zacharias, N., Polikreti, K. (eds) *In Proceedings of the 4th Symposium of the Hellenic Society for Archaeometry: National Hellenic Research Foundation, Athens 28-31 May, 2003*. Oxford: Archaeopress, 187-194.
- Valamoti, S. M., Samuel, D., Bayram, M., Marinova, E. 2008. Prehistoric cereal foods from Greece and Bulgaria: investigation of starch microstructure in experimental and archaeological charred remains. *Vegetation History and Archaeobotany* 17, 265-276.
- Valamoti, S. M. 2013a. Healing with Plants in Prehistoric Northern Greece: A Contribution from Archaeobotany. *Offa* 69/70 (2012/2013), 479-494.
- Valamoti, S. M. 2013b. Millet, the late comer: on the track of *Panicum miliaceum* in prehistoric Greece. *Archaeological and Anthropological Sciences* 8, 51-63.
- Wardle, K. A., Wardle, D. 2007. Assiros Toumba – A Brief History of the Settlement. In Todorova, H., Stefanovich, M., Ivanov, G. (eds) *The Struma/ Strymon River Valley in Prehistory*. Proceedings of the International Symposium 27 September-1 October Kjustendil-Blagoevgrad, Serres-Amphipoli. Sofia: Museum of History-Kyustendil, 451-479.

Растителни останки от праисторическа Гърция: първи резултати от проучвания на Архондико

Хриси Петриду

(резюме)

Архондико е селищна могила в централна Македония, обитавана още от бронзовата епоха. Палеоботаничното изследване на материали от късната бронзова епоха се базира на богат спектър от овъглени растителни останки установени в два горели хоризонта. Зърнените и бобови култури са най-разпространените растителни находки, значително по-рядко се срещат диворастящи видове (плодове и плевели). Тези култури (предимно зърнени и малко количество бобови) бяха намерени под формата на припаси, вероятно в две къщи. В Архондико е отглеждано голямо разнообразие от зърнени култури: пет вида пшеница (еднозърнест и двузърнест лимец, спелта и зандури пшеница, както и голозърнеста пшеница), ечемик и просо. Отглеждането на просо е нова характеристика на късната бронзова епоха. Сред споменатите по-горе видове е очевидно преобладаването на еднозърнест лимец, последвано от ечемик. При бобовите растения се наблюдава много по-малко видово разнообразие: единственият вид, чието култивиране е документирано въз основа на палеоботаническите останки, е урвът.

Друго културно растение ново за късната бронзова епоха е опиумният мак, известен със своите психоактивни свойства и използван като маслодайно и лечебно растение. Въз основа на анализа на данните може да се предположи значителна диверсификация на земеделското производство, подсказана както от отглеждането на смесени посеви, така и широката гама от житни култури. Същевременно изследването дава основание да се предположи едновременно прилагане на интензивни земеделски практики (торене, плевене и т.н.) при всички култивирани растения, съчетано с екстензивно (на по-големи площи, без торене и плевене) отглеждане на лимеци.