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Araştırma Makalesi • Research Article

Crops in The Grave: The Relationship Between Plants and Burial From Early Chalcolithic Kanlıtaş Höyük (İnönü/Eskişehir)

Mezardaki Ekinler: Erken Kalkolitik Kanlıtaş Höyük'te (İnönü/ Eskişehir) Bitki ve Gömü İlişkisi

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ÖZ

Yukarı Porsuk Vadisi ve Orta Batı Anadolu'nun bilinen en eski insanı olan Kanlıtaş Höyük'teki Erken Kalkolitik döneme ait mezardan çıkarılan bitki kalıntıları üzerinde yapılan arkeobotanik çalışma, bölgenin ve yerleşimin ölü gömme âdetleri, beslenme biçimi ve ekonomisi hakkında değerli bilgiler sunmaktadır. MÖ 6. binyılın ilk yarısına tarihlenen mezar, siyez buğdayı, gernik buğdayı, ekmeçlik buğday gibi tahıllar ile sirken ve kara yonca gibi yabancı türlerin tohumlarını içeren zengin bir bitki kalıntısı çeşitliliği içeriyor. Bu bitki kalıntılarında ek olarak, mezar eşyalarının varlığı ve yassı taşların iskeletin belirli kısımlarına özenle yerleştirilmesi, dönemin sosyokültürel yapısını ve inanç sistemini yansıtan bir ölü gömme ritüeline işaret etmektedir. Çalışma, Kanlıtaş Höyük'teki toplumun, mezarda bulunan çeşitli bitki kalıntılarının da gösterdiği gibi, tarımsal faaliyetlerinin inanç dünyalarına yansıdığını göstermektedir. Bu bulgular, Anadolu'daki kazılardan, özellikle de mezarlardan elde edilen arkeobotanik verilerin sınırlı olması, eski toplumların cenaze uygulamaları ve ritüelleri hakkında erken bulgular sağlaması nedeniyle çok önemlidir. Çalışma ayrıca Kalkolitik Dönem'in ardından Anadolu'daki diğer yerleşim yerlerindeki sonuçlarla karşılaştırıldığında Erken Tunç Çağı'nda ölü gömme geleneklerinde bitki kullanımının arttığına dikkat çekmektedir. Kanlıtaş Höyük mezarının arkeobotanik analizi, bölgenin en eski sakinlerinin günlük yaşamları, sosyokültürel yapıları ve inanç sistemleri hakkında nadir bir bakış açısı sunarak tarih öncesi Anadolu'da bitkiler ve ölü gömme gelenekleri arasındaki ilişkiyi anlamamıza katkıda bulunuyor.

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ABSTRACT

The archaeobotanical study on the plant remains from the Early Chalcolithic grave of the earliest known human of the Upper Porsuk Valley and Central Western Anatolia at Kanlıtaş Höyük provides valuable information about the burial customs, diet and economy of the region and the settlement. The grave, dated to the first half of the 6th millennium BC, contains a rich variety of plant remains, including cereals such as einkorn wheat, emmer wheat, bread wheat and seeds of wild species such as goosefoot and bitter vetch. In addition to these plant remains, the presence of grave goods and the careful placement of flat stones on certain parts of the skeleton indicate a burial ritual that reflects the sociocultural structure and belief system of the period. The study concludes that society at Kanlıtaş Höyük agriculture and plants have played a role in their spiritual life as indicated by the various plant remains found in the grave. These findings are very important because of the limited archaeobotanical data from excavations in Anatolia, especially from graves, and because they provide invaluable information about the funerary practices and rituals of ancient societies. The study also draws attention to the increased use of plants in burial customs in the Early Bronze Age compared to the results of other settlements in Anatolia after the Chalcolithic Period. The archaeobotanical analysis of the Kanlıtaş Höyük grave provides a rare glimpse into the daily lives, sociocultural structures and belief systems of the region's earliest inhabitants, contributing to our understanding of the relationship between plants and burial customs in prehistoric Anatolia.

Introduction

Archaeobotanical research helps us understand cultural, economic, and technological changes in past societies, providing insights into aspects of daily life in the past, such as agricultural practices, land use, trade links including plant food and products, and the use of plants in rituals (Hristova, 2015).

Plant remains found in graves can indicate a direct relationship with individuals and provide important information about burial customs, diet, and economics. The treatment of a deceased person, construction of the burial structure, items buried with the deceased, and performance of funeral rites are socially and culturally driven actions (Reed et al., 2022).

In addition to meeting the nutritional needs of people, plants have an important role in determining the social status within the society with the transition to collective life and in the formation of belief systems. Plant remains from archaeological excavations provide important information about people's daily lives, sociocultural structures, and belief systems. Burial traditions provide many clues in answering questions, such as the belief systems of individuals and how beliefs create social unity or distinctions in the community (Güngördü, 2017).

In this study, we attempted to reveal the burial ritual of the people of the period and similar practices reflected in the present day by examining the vegetal remains obtained from the grave of the oldest people of the region in Kanlıtaş Höyük, the best-preserved Early Chalcolithic settlement in the Upper Porsuk region.

Kanlıtaş Höyük is located approximately 1,5 km east of the village of Aşağı Kuzfındık in the İnönü district of Eskişehir (Figure 1). It was first identified and introduced to the scientific world by Turan Efe of Istanbul University during surveys conducted in Eskişehir, Bilecik, and Kütahya between 1988-1992 (Türkcan, 2010). Excavations carried out between 2013-2019 revealed a hilltop settlement on a rock similar to the contemporary settlement of Orman Fidanlığı, which was also excavated in the 1990s. The excavations at Orman Fidanlığı provided clues about a different cultural region, which Turan Efe claimed, especially with its ceramic assemblages, to have affinities with the Vinca culture identified in the Central Balkans during the Middle Neolithic Period (Türkcan, 2017a). Kanlıtaş Höyük revealed 4 levels of E. Chalcolithic in the Summit Area and dated to the first half of 6th. Millennium B.C. between the calibrated years of 5830–5500, according to radiocarbon analyses (BETA Laboratory) (Türkcan and Ertemin, 2021).



Figure 1: Early Chalcolithic settlements and the position of Kanlıtaş Höyük in Northwestern Anatolia (Türkcan and Ertemin 2021).

Materials and Methods

During the 2017 excavation season, a skull was first found in a vertical position in plan square L-16/17 (Figure 2) north of the settlement, and a skeleton with almost all intact bones was found during the excavations. The soil structure of the area where the skeleton was unearthed is hard, with orange-coloured mudbrick in the area coinciding with the hearth with item number Ö.256 behind the skull. This mudbrick extension resembled the grave surrounding the area. It was also observed that the soil towards the east was dark, ashy, and soft. All the soil from the grave (24 litres) was taken for archaeobotanical studies and taken to the excavation house for flotation.

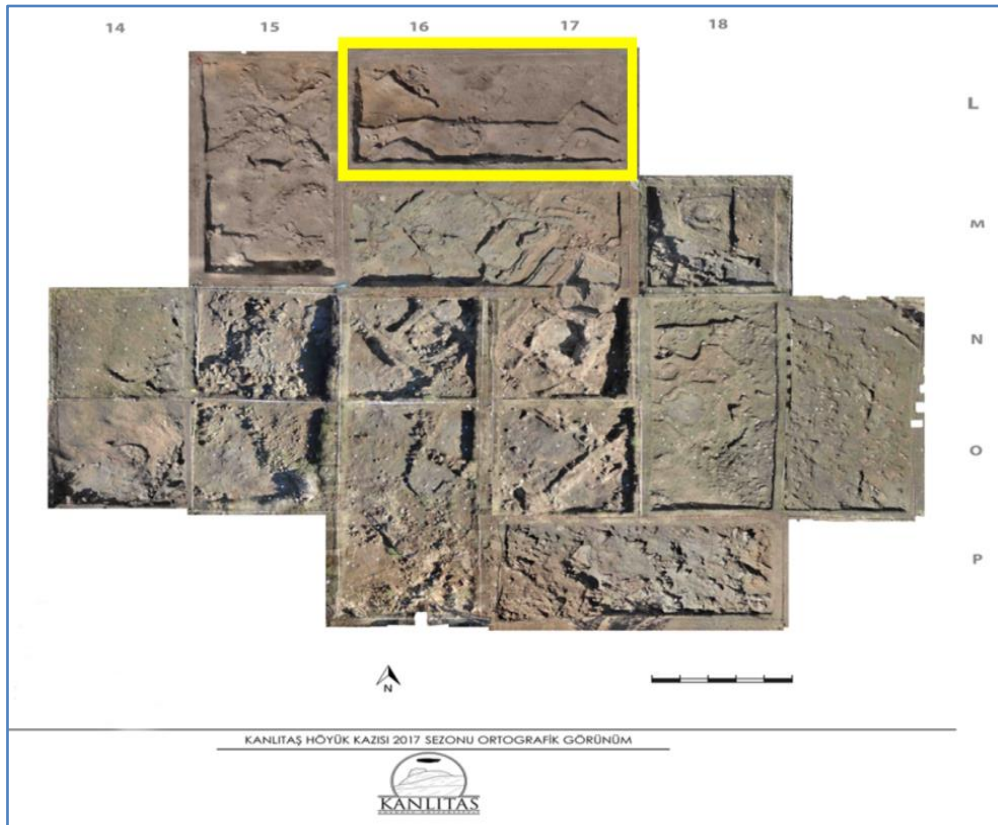


Figure 2: Orthographic view of Kanlıtaş Mound Excavation 2017 Season (with permission of Kanlıtaş Excavation and Research Project)

The findings in the first phase included freshwater shells, remains of chipped stone production, flat rubble, and sandstones. The objects identified as knives or cutting tools found near the left hand was thought to be grave goods, and flat stones were placed on certain parts of the skeleton (ribs, hip bones, leg bones, and ankles) (Photo 1) (Türkcan, 2017b).

The grave was found in a mixed-fill area next to the remains of a hearth, and an open-air area. The skeleton buried in the hocker (fetal) position was found to be complete (Photo 2). The bones are in their natural anatomical position and there is no interference with the integrity of the body. The bones belong to a woman in her 30s, and their preservation is generally good. However, many fractures and cracks are spread over all elements of the skeleton (Üstündağ, 2017).



Photo 1: First unearthed condition of grave flat rubble and sandstones just above the skeleton (with permission of Kanlıtaş Excavation and Research Project)



Photo 2: Grave and the skeleton in hocker position (with permission of Kanlıtaş Excavation and Research Project)

The presence of pathologies such as caries, calculus, alveolar loss, dental erosion, abscess, and enamel hypoplasia in all teeth, especially their relationship with nutrition, has been investigated. Dental caries is the destruction of hard tooth tissue by organic acids released as a result of the bacterial fermentation of carbohydrate-containing foods (Üstündağ, 2017). Many anthropological studies have shown that this medical phenomenon is rarely seen in hunter-gatherers, but is much more common in farmers and mixed subsistence groups such as hunter-gatherers/farmers (Larsen, 1995) (Hillson, 1996).

Dental pathologies, such as dental caries, antemortem tooth loss, and abscesses, were observed more frequently in most Neolithic skeletons and women during the Chalcolithic period (Alpaslan-Roodenberg, 2011). The frequent presence of dental caries and calculus in the skeletons in the Early Chalcolithic Period Aktopraklık (Eastern Marmara region, Bursa) has been interpreted as the presence of a mixed diet containing carbohydrates and proteins during the Neolithic and Chalcolithic periods (Lillie 2012). The dental pathologies of the skeleton also

indicate that the Kanlıtaş Early Chalcolithic period individuals had a carbohydrate-dominated diet or a mixed diet consisting of carbohydrates and proteins.

Archaeobotanical Results and Similar Samples in Anatolia

The plant remains obtained from the soil sample from the grave were remarkable for their taxonomic diversity (Table 1). A total of 13 different plant species were identified, mainly species belonging to the *Poaceae* family. Of these, *Triticum monococcum* (einkorn wheat) was the most common species in terms of number of seeds (39) (Photo 3). *Triticum dicoccum* (emmer wheat) (Photo 4), *Triticum aestivum* (bread wheat) (Photo 5) and *Vicia ervilia* (bitter vetch) (Photo 6) are among the cultivated species. On the other hand, wild plant species, which are also known as field weeds today and which are mixed into the crops during the harvesting of cultivated plants in agricultural areas, were also identified from the soil samples. Especially *Chenopodium sp.*, *Medicago sp.* and *Malva sp.* are among the most common species found in agricultural areas.

Given the variety of seeds, it is likely that these seeds were deliberately left in the grave in what may have been a ceremonial ritual.

Table 1: Plant remains recovered from the grave

Taxon	Seed numbers
<i>Triticum monococcum</i> (einkorn wheat)	39
<i>Triticum dicoccum</i> (emmer wheat)	4
<i>Triticum aestivum</i> (bread wheat)	13
<i>Vicia ervilia</i> (bitter vetch)	3
<i>Vitis sylvestris</i> (wild grape)	1
<i>Secale sp.</i> (rye)	4
<i>Bromus sp.</i> (bromes)	2
<i>Chenopodium sp.</i> (goosefoot)	33
<i>Medicago sp.</i> (medick)	11
<i>Malva sp.</i> (wood mallow)	8
<i>Asperula sp.</i> (woodruff)	4
<i>Carex sp.</i> (sedges)	3
<i>Teucrium sp.</i> (wall germander)	1



Photo 3: *Triticum monococcum* (einkorn wheat)



Photo 4: *Triticum dicoccum* (emmer wheat)



Photo 5: *Triticum aestivum* (bread wheat)



Photo 6: *Vicia ervilia* (bitter vetch)

Dating to the Early Chalcolithic Period in Central Western Anatolia, the burial is the oldest human remains in the region since there is no other known individual. The remarkable density of plant remains in the fill of the grave pit focused the research. During excavations in Anatolia, plant remains are often overlooked or unexamined in grave studies for many years. The emergence of this data is due to the increase and sensitivity of archaeobotanical studies in recent years. Therefore, archaeobotanical data on the graves of this period are naturally almost non-existent, especially in the excavations of the ancient period. After the Chalcolithic Period, with the Early Bronze Age, we see an increase in the findings indicating that plants were used in the burial traditions of the dead in the structure of societies.

The excavations at Baklatepe on the Aegean Coast yielded carbonized wheat remains in connection with the burial customs in EBA graves (Erkanal and Özkan, 1999). It is believed that a similar practice was also practised in the Kanlıtaş Höyük grave.

At Tilbeşar Höyük in Gaziantep in Southeast Anatolia, 50 terracotta pots were found in one of the chamber graves dating to the EBA and seeds and animal bones, which are thought to be funeral food, were found in various pots (Kepinski and Önal, 2008).

In addition to grave goods such as clothes, ornaments, seals and weapons, the excavations at Girnavaz (Mardin) in Southeastern Anatolia yielded items related to the burial

tradition in all graves dating to the 3rd millennium BC. These include various ceramic vessels containing wheat, lentils, meat, prepared food and beverages, as well as items and tools related to the cult of the dead. Smaller ceramic vessels containing food were left inside the graves, while the larger ones with their bases were left on the sides of the graves, and it is thought that these vessels were probably related to the burial ceremony (Erkanal, 1990).

In a pottery-type grave of a 6-year-old child found in the Early Bronze Age levels at Norşuntepe (Elazığ, Eastern Anatolia), it was found that cereal grains were sprinkled on the skeleton (Hauptmann, 1979).

Ökse (2004) states that the animal bones with slaughter marks and carbonised cereal grains found in the graves of the Third Millennium BC at Birecik (Şanlı Urfa) Gre Virike in the Middle Euphrates Basin of Şanlı Urfa are related to burial traditions. The barley and legume grains found in the upper remains of the EBA well grave at Gre Virike appear to have been sprinkled on the infants after burial (Ökse, 2006).

In addition to the seeds of plants, other parts of plants such as flowers were also used for ritual purposes in graves. In one of the Early Bronze Age graves at Titrış Höyük in Şanlı Urfa in the Middle Euphrates Basin, a vase containing a flower of the thistle plant preserved by mud and salt was found (Algaze, 1997).

To date, the plant remains from the graves have been categorized by plant species, but no numerical data have been provided. A more detailed study that can be compared with the results of Kanlıtaş Höyük was conducted in the EBA I cemetery of the recently excavated Eskişehir Early Bronze Age city of Küllüoba Höyük. In the study conducted by Özcan et al. (2024), very dense plant remains were obtained from the grave interiors and soil samples taken from the EBA I cemetery. To make an accurate comparison with the results of Kanlıtaş Höyük, only the plant remains obtained from a total of 10 samples taken from the grave interiors were used for comparison (Table 2). In Küllüoba Höyük results, seed counts were not included because of the lack of species distinction.

Table 2: Plant remains found in the graves of Kanlıtaş Höyük and Küllüoba Höyük

Taxon	Kanlıtaş Höyük (Early Chalcolithic Period)	Küllüoba Höyük (Early Bronze Age)
<i>Triticum monococcum</i> (einkorn wheat)	39	146
<i>Triticum dicoccum</i> (emmer wheat)	4	99
<i>Triticum aestivum</i> (bread wheat)	13	8
<i>Hordeum vulgare</i> (barley)	-	95
<i>Lens culinaris</i> (lentil)	-	98
<i>Pisum sativum</i> (pea)	-	43
<i>Vicia ervilia</i> (bitter vetch)	3	26
<i>Vitis sylvestris</i> (wild grape)	1	-
<i>Secale sp.</i> (rye)	4	-
<i>Bromus sp.</i> (bromes)	2	8
<i>Chenopodium sp.</i> (goosefoot)	33	35
<i>Medicago sp.</i> (medick)	11	1
<i>Malva sp.</i> (wood mallow)	8	-
<i>Asperula sp.</i> (woodruff)	4	-
<i>Carex sp.</i> (sedge)	3	6
<i>Teucrium sp.</i> (wall germander)	1	-
<i>Vaccaria pyramidata</i> (cow-basil)	-	115

<i>Astragalus sp.</i> (milkvetch)	-	1
<i>Galium sp.</i> (bedstraw)	-	99
<i>Lithospermum arvense</i> (field gromwell)	-	67
<i>Salsola sp.</i> (saltwort)	-	91
<i>Ziziphora sp.</i> (wild mint)	-	2
<i>Adonis sp.</i> (pheasant's eye)	-	3
<i>Alyssum sp.</i> (sweet alison)	-	3
<i>Carthamus tinctorius</i> (safflower)	-	1
<i>Rubus sp.</i> (brambles)	-	2
<i>Capparis sp.</i> (caperbush)	-	6
<i>Silene sp.</i> (campion)	-	5
<i>Fabaceae</i> (legume)	-	17
<i>Cyperaceae</i> (sedges)	-	44
<i>Malvaceae</i> (mallow)	-	9
<i>Caryophyllaceae</i> (pink family)	-	4
<i>Lamiaceae</i> (mint family)	-	2
<i>Papaveraceae</i> (poppy family)	-	8
<i>Polygonaceae</i> (knotweed family)	-	2
<i>Brassicaceae</i> (mustard family)	-	2
<i>Apiaceae</i> (celery)	-	1
<i>Thymelaceae</i> (fibre bark)	-	1
TOTAL	126	1050

When we evaluate the two mounds in the same region in terms of cultural plants, it is seen that there are differences as well as similarities. In both periods, cereals were more abundant than legumes. On the other hand, no seed remains of barley were found in the Kanlıtaş Höyük grave. While legumes are represented only by black-eyed peas in Kanlıtaş Höyük grave, legumes are represented by 3 different species, lentils, peas and bitter vetch in Küllüoba graves.

In terms of wild plant species, a total of 67 seed remains belonging to 9 species were found in Kanlıtaş grave, while a total of 535 seed remains belonging to 26 species were found in Küllüoba graves. The high number of seeds and species diversity here is due to both the higher number of graves and the fact that different plant species grow due to geographical differences.

Conclusion

The results obtained from this grave are very important as it is one of the earliest examples of such a phenomenon in Anatolia. The plants found in the graves provide an overview of plant use and cultivation at the site.

The archaeobotanical data from the grave is in line with the general archaeobotanical findings of Kanlıtaş Höyük between 2014-2018. These findings show that the Early Chalcolithic people of Kanlıtaş Höyük, who practised agricultural activities in addition to hunter-gathering, used agricultural products during ritual burials and that these products had an important place in the society.

The scattering of grain on graves is often associated with the rebirth of the seed. Similarly, plant seeds were scattered on graves during or after burial with the idea that people would start a new life after death. In many local practices in Anatolia, seeds such as wheat and legumes, which symbolize fertility, are still scattered on graves, which is a reflection of these practices today. In the SE corner of the coastal region of Cilicia around Adana, wheat and sugar

are sprinkled on the grave during the burial of the dead. The distribution of food or sugar to poor people and children during burial in the cemetery; the sprinkling of wheat or sugar on the grave is a gift distributed to the souls of the dead. As it is known, grave gifts are the most valuable and sacred assets of each society and are bloodless sacrifices given on behalf of the spirits (Çıblak, 2002).

In SE Anatolia, Gaziantep district, there is a practice called 'töhüt'. In this practice, chickpeas are prayed to, soaked and planted in the grave. It is believed that the sins of the deceased will be washed away every time the chickpeas sprout and green up, every time they sway in the wind (Anonymous, 2024).

The grave findings of Kanlıtaş Höyük individuals, the findings obtained from the mound during the archaeobotanical studies and other archaeological findings recovered during the excavations indicate that a hunter-gatherer society in Central Western Anatolia was also engaged in agricultural activities during the Early Chalcolithic Period. One of the most important of these findings is the traces of lithic silica on some flint knives recovered during the excavations. The localization of silica lustre on the sickle blades suggests that they may have been used by attaching them vertically to the handle (Kolankaya-Bostancı, 2006). Since the mound is located in a wetland area, it is thought that the mound was used for harvesting grain as well as cutting the reeds around the mound. This situation also provides important information about the tools used by the people of the period in agricultural activities. In addition, charred plant remains were found around some grinding stones found in the workshop areas and garbage pits of Early Chalcolithic settlement This suggests that these grinding stones may have been used to grind grains for food preparation.

As a result of this study, the importance of archaeobotanical studies has once again revealed the importance of archaeobotanical studies as it creates an interdisciplinary interaction in better interpretation of the data to be obtained from archaeological sites. In archaeobotanical studies to be carried out in archaeological excavations, graves and cemetery areas should be excavated more carefully and carefully, and much more results should be obtained from these areas.

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