

What is Hidden in a Neolithic Midden?

The archaeobotanical assessment of two Neolithic midden spaces at Çatalhöyük, Turkey

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OBJECTIVES

- Analysis of a selection of archaeobotanical samples from two distinct midden spaces (earlier-mid 7th millennium cal BC) in the 4040 area at Çatalhöyük
- Quantitative evaluation of spatial botanical compositional variation between midden sites
- Contribute to the growing understanding of the site's internal variation, environment and cultural identity through archaeobotanical analysis
- Contribute valuable archaeobotanical data on midden composition within this Neolithic settlement where evidence of *in situ* activity is lacking (Hodder and Cessford 2004)



Figure 1. Location of Çatalhöyük (37°40'03"N, 32°49'42"E) within modern Turkey.

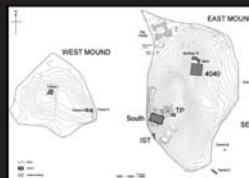


Figure 2. Site plan of Çatalhöyük, Turkey, showing the location of the East and West mounds. The former encompasses the 4040 area. Image courtesy of the Çatalhöyük Research Project.

SITE CONTEXT

Çatalhöyük is a Neolithic tell site located in the Konya Plain of southern Anatolia in modern day Turkey (Figure 1).

Space 4040 is located on Çatalhöyük's East Mound (Figure 2)

Space 279 Midden (Figure 3)

- Large and physically limited by buildings
- Used for an extended duration with shifting borders
- Evidence of fire and other human activities such as cooking and food processing have been found (e.g. shallow pits with clay balls for heat retention and dung as a fuel source)

Space 133 Midden (Figure 4)

- Abutted a cluster of buildings
- Finely laminated layers with numerous fire spots during midden accumulation.

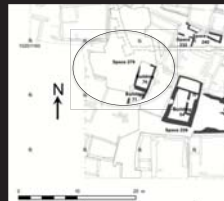


Figure 3. Location of Space 279, Hodder Level G, 4040 area, Çatalhöyük, Turkey. Modified from plan courtesy of Dr. Scott Haddow, Çatalhöyük Research Project.

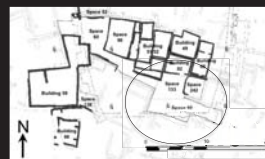


Figure 4. Location of Space 133, Hodder Level G, 4040 area, Çatalhöyük, Turkey. Modified from plan courtesy of Dr. Scott Haddow, Çatalhöyük Research Project.

ARCHAEOBOTANICAL SUMMARY

- The range of cereals (*Triticum dicoccum*, *Triticum monoccoccum*, *Triticum* sp. "New Type" (Figure 7), *Hordeum vulgare*, *Triticum aestivum/durum*) is consistent with those previously observed in the Neolithic levels of Çatalhöyük.



Figure 7. *Triticum* sp./ "New Type" grain and spikelet forks from Space 279, 4040 area, Çatalhöyük, Turkey.



Figure 8. *Triticum aestivum/durum* grain from Space 279, 4040 Area, Çatalhöyük, Turkey.

- The presence of significant chaff in the middens supports the idea that middens were used here to dispose of chaff from indoor processing of glume wheat (Bogaard *et al.* in press).

- *Triticum aestivum/durum* grains appeared to have a slightly rounder shape than those from other sites, which may be site-specific (Figure 8).

- The range of pulses found included: *Cicer arietinum*, *Vicia ervilia*, *Lens culinaris*, *Vicia/Lathyrus* and *Pisum sativum*.

- Burned masses, from Space 279, had potentially identifiable plant material visible and one contained a visible fish vertebrae (Figure 9) which may represent part of a burnt and discarded meal that contained fish.

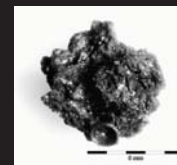


Figure 9. Burned mass containing fish a vertebrae. Space 279, 4040 Area, Çatalhöyük, Turkey.



Figure 10. *Pistacia*. Space 279, 4040 Area, Çatalhöyük, Turkey.



Figure 11. *Celtis*. Space 279, 4040 Area, Çatalhöyük, Turkey.

- The presence of *Pistacia* (pistachio) (Figure 10), *Prunus* (plum), *Celtis* (hackberry) (Figure 11) and other fruit stone/nutshell fragments suggests wild foraging (Atalay and Hastorf 2006), especially as only the waste products were found.

- Tubers (possibly *Scirpus*) were found in both midden spaces (Figure 12) but predominantly in Space 133, suggesting temporal differences between the spaces, differing taphonomic processes, or differing functional uses.

- *Scirpus* was the dominant wild taxon (Figure 13). Its presence may reflect its use as animal fodder (Charles 2011), human food (Atalay and Hastorf 2006), or craft/matting (Charles 2011). However, more research is needed before firm conclusions are drawn.



Figure 12. Tuber from Space 279, 4040 Area, Çatalhöyük, Turkey.



Figure 13. *Scirpus* from Space 279, 4040 Area, Çatalhöyük, Turkey.

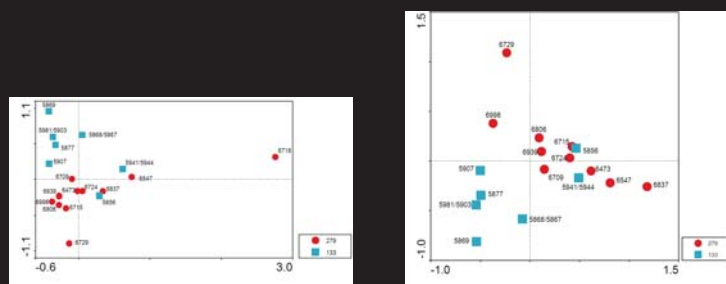


Figure 5. Scatter plot of correspondence analysis (CA) results for samples for Space 279 (red) and Space 133 (blue), Area 4040, Çatalhöyük, Turkey. A) All samples; B) Outlier (Sample 6718) removed. For (A) and (B), species (or taxa) with total abundance ≤ 10 , or that were quantified using volume were omitted.

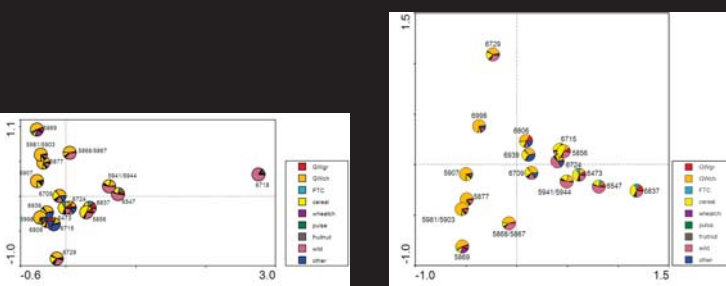


Figure 6. Correspondence analysis results and sample composition (pies) for all samples from Space 279 and Space 133, Area 4040, Çatalhöyük, Turkey. A) All samples; B) Outlier (Sample 6718) removed. For (A) and (B), taxa with total abundance ≤ 10 , or that were quantified using volume were omitted. GWgr is glume wheat grain, GWch is glume wheat chaff, FTC is fresh threshing cereal, cereal is unidentifiable cereal, wheatch is non glume wheat chaff, pulse is pulses, fruitnut is fruits and nuts, wild is wild species, and other includes items that fit into none of the above categories.

CONCLUSIONS AND FURTHER RESEARCH DIRECTIONS

- The midden data collected here have the potential to be combined with that of middens from across the site to potentially identify household, family or status patterns within or between neighbourhoods

- These data could be used for intra-site comparisons to reveal aspects of variation between consumption, on-site activities and differing levels of status.

- Dating information will also shed light on the chronological dimensions and temporal differences between midden deposits across Çatalhöyük

- The placement of middens at Çatalhöyük suggests a level of communal decision-making and cooperation and the necessity for multi household cooperation in the disposal of waste within such a densely inhabited settlement.

- Buildings at Çatalhöyük were kept very clean and there is very little archaeological evidence of *in situ* activity (Hodder and Cessford 2004), which is why the archaeobotanical investigation of midden areas such as the two discussed here offers us a chance to examine aspects of the daily life of the residents at Çatalhöyük and, as Atalay and Hastorf (2006, 284) put it, "we can get closer to not only daily life but the *mentalité* of the past".

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