

Evolution of the olive pit from the time of the Mishna to present time, based on 3D image processing techniques.

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Abstract

A seemingly innocuous question in the realm of *Halakha* raises challenges in other areas, spanning the disciplines of history, botany, mathematics and computer sciences. There is a known discrepancy between the *Halachic* measurement units of length and volume and those known to us today, which has led to the opinions that some changes have occurred in the physical world, even if the possibility of inner contradictions within *halachic* definitions are disregarded. Specifically, there may be a contradiction between *Hazal's* measurements of olives and modern measurements, with the result that the *halakhic* "kazayit" differs from the size of the olive. Assuming the discussions of *Hazal* actually referenced "medium olives" during that era, it is imperative to identify the type and average size of this olive. Several dominant olives have been identified in the Mediterranean area. Additionally, some archeological digs have revealed olive pits dating to the time of *Hazal*. Correlating these pits with olive pits prevalent today might give us a clue, though each pit needs to be identified as a certain specimen in order to measure the relation between modern olives and olives of the past. A series of verifications should clarify the classification issue. The research we present includes manual tests to check several characteristics of the olive pits and identify them based on this classification. State of the art three-dimensional scanning technology allows digitization of data such as these olive pits, and classification tests can be done much more quickly and with greater accuracy.