Radiocarbon Dating of Samples from Ḥorbat Roẓeẓ

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In January 1997, four samples from the archaeological excavation at Ḥorbat Roẓeẓ (see Yannai, this volume) were submitted for examination to the dating laboratory of the Department of Environmental Sciences at the Weizmann Institute of Science, Reḥovot. Four samples were measured (Table 1):

RT-2761: carbon removed from a pit in Sq G20, L3035, Basket 30170.

RT-2762: carbon (Tabor oak) removed from Sq G20, L3028, Basket 30143.

RT-2763: carbon removed from Sq G20, L3044, Basket 30120.

RT-2764: shiny black material similar to asphalt, removed from Sq G21, L3054, Basket 30267.

In the laboratory, the samples were pretreated with acid and alkali. Next, they were oxidized to carbon dioxide, reduced to lithium carbide and hydrolized to acetylene and then to benzene, measured in a liquid scintillation counter.

The preparation and counting of the samples was carried out in keeping with advanced chemical practices. Despite the deteriorated state of the samples, the results are extremely credible. The first three samples represent strata from the end of the Iron Age until the Hellenistic period. Sample RT-2764 contained, in addition to carbonized material, what appears to be asphalt or a similar material. Hence, the date derived has no relation to the archaeological context.

Table 1. Radiocarbon Dates from Ḥorbat Roẓeẓ

Sample (RT)	Δ^{14} C (%)	δ^{13} C‰	^{14} C Age (YBP)*	Calendaric Age**	Probability (%) ***
2761	-257.5 ± 3.7	-23.5	2390 ± 40	508–396 BCE	100
2762	-252.9 ± 3.7	-23.9	2349 ± 40	462–473 BCE 368–418 BCE	6 94
2763	-246.3 ± 4.1	-22.7	2270 ± 45	355–391 BCE 209–292 BCE	36 64
2764	-983.2 ± 0.4	-27.1	32815 ± 195	-	-

* Conventional ^{14} C age prior to 1950
** Calendaric age calculated after Stuiver and Reimer 1993
*** The result is within the range of one standard deviation

References

Stuiver M. and Reimer P.J. 1993. Extended C14 Data Base and Revised CALIB 3.0. Age Calibration Program. *Radiocarbon* 35:215–230.

Yannai E. This volume. A Salvage Excavation at Ḥorbat Roẓeẓ.