**SUPPLEMENTARY MATERIAL**

**S1. EXCLUDED 14C MEASUREMENTS**

Table S1.1 Measurements excluded because their recent ages are out of the scope of this study. Permit to sample Abrigo Grande das Bocas was obtained from the National Museum of Archaeology/MNA (Lisbon, Portugal).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Ind. | Sample | Age | Excavation | Lab no. | 14C Age BP | δ13C (‰)  VPDB | δ15N (‰) AIR | C:N | Reference |
| Abrigo Grande das Bocas | 1 | Fibula-L | Adult | 1930s | Beta-447678 | 1790±30 | –20.3 | 9.4 | 3.3 | This paper |
| Vale de Romeiras | 8 | Tibia | Subadult,  3–4 yrs±12 m. | 1959 | Ua-46968 | 380±30 | –18.3 | 14.4 | 3.4 | Peyroteo Stjerna 2016 |

Table S1.2 Measurements of problematic calibration. δ13C values reported and published alongside the 14C dates were obtained on an AMS instrument. δ15N values are not available.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Ind. | Sample | Age | Excavation | Lab no. | 14C Age BP | δ13C (‰) | Reference | Reason for exclusion |
| Moita do Sebastião | 16 | n/p | Adult | 1952–1954 | Beta-127449\* | 7120±40 | –16.8 | Cunha and Cardoso 2003 | Excluded until IRMS-based δ13C and δ15N values are available. \*Published wrongly as Beta-127499 by Peyroteo Stjerna (2016). |
| Cabeço da Amoreira | CAM-00-01 | Rib-R | Subadult | 2001 | TO-10218 | 6630±60 | –17.1 | Roksandic 2006 | Replaced by a re-analysis (TO-11819-R) (Meiklejohn et al. 2009; Jackes and Lubell 2015). |
| Cabeço da Arruda | CA-00-01 | M1 (?) | Adult | 2000 | Wk-26795 | 7024±48 | –10.9 | Price 2015 | Measurement on dental enamel. One measurement on bone collagen (TO-10217) was used for the 14C analysis. |
| Cabeço da Arruda | CA-00-02 | M2 | Adult | 2000 | Wk-26794 | 7254±46 | –12.5 | Price 2015 | Measurement on dental enamel. One measurement on bone collagen (TO-10216) was used for the 14C analysis. |
| Cova da Onça | n/a | Tibia | n/p | Not clear | Beta-127448 | 7140±40 | –17.2 | Cunha and Cardoso 2003 | Excluded until IRMS-based δ13C and δ15N values are available. |
| Poças de S. Bento | 11 (?) | Cranium | Adult | 1986 | Ua-425 (?)\* | 5390±110 | n/a | Larsson 2010 | Excluded until IRMS-based δ13C and δ15N values are available. \*According to the Ua-lab archives, Ua-425 was reported in 1987 and corresponds to AMS determination on charcoal (2500±115). |

**S2. BAYESIAN MIXING MODELING FRUITS 3.0.: SPECIFIC DETAILS ON MODEL PARAMETERS AND ASSUMPTIONS**

The model (non-weighted, offset dependent, concentration independent) (Fernandes 2015) was built based on the following parameters and assumptions:

* Two main sources of protein were considered based on their environment: terrestrial and marine (*number of sources* = 2).
* The nutrient content considered was the protein in carbon (*number of fractions* = 1, protein).
* One *proxy* (δ13Ccollagen) with uncertainty set at 0.5 ‰ (Fernandes 2015) was considered for each adult consumer, and set more conservatively at 1.0 ‰ for each subadult < 3 yrs (*number of proxies* = 1).
* The δ13C endpoint values in the Atlantic regions of the Iberian Peninsula ca. 8000 years ago for human diet based on marine (100%) and terrestrial (100%) sources of protein are –12.0 ± 0.6 ‰ and –20.8 ± 1.0 ‰ respectively (Cubas et al. 2018).
* The collagen-to-collagen isotopic offsets between protein source and consumer were set at 1 ± 0.5 ‰ for δ13Ccollagen (Tieszen et al. 1983).

**S3. 14C LABORATORY PROTOCOLS**

Previously unpublished 14C measurements (n = 19) were processed between 2016–2018 by the Tandem Laboratory at the Department of Physics and Astronomy, Uppsala University (Ua-*number*), and Beta Analytic Radiocarbon Dating Laboratory, Miami (Beta-*number*). 14C measurements were done using accelerator mass spectrometry (AMS) and the stable isotopes 13C and 15N were measured by using an isotope ratio mass spectrometer (IRMS).

**Pre-treatment and measurement of samples in this study**

Pre-treatment procedures by Beta Analytic are described at <https://www.radiocarbon.com/>. In Uppsala the samples were pre-treated following the HCl method as reported by the laboratory:

1. The surface is mechanically cleaned (scraping, in some cases sand blasting).

2. The sample is ultrasonically cleaned in boiled distilled water, pH=3.

3. Grinding in mortar.

4. 0.8M HCl is added, stirring at 10°C for 30 minutes (apatite removed). Soluble fraction is named fraction A.

5. Distilled water kept at pH=3 is added to the insoluble fraction, which is stirred for 6–8 hours at 90°C. Insoluble part is named fraction C and soluble part is named fraction D. Fraction D should give the most relevant age, since it contains most of the organic parts (the “collagen”) of the original bone. However, information on the influence of contaminants could be obtained from the other fractions. In critical cases they should preferably be dated as well. The quality of the bone (and the reliability of the age) could be judged by the chemical yields in the different stages of preparation. The fraction to be 14C–dated is combusted to CO2 and then converted to graphite using a Fe-catalyst reaction. The age of fraction D has been measured in the present investigation.

6. Samples were pre-treated with boiling in acetone, ultrasonification first with ether and then with ethanol, and finally filtrated; after that, processed as usual (5.).

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