

# BEHIND THE SCENE – A DAY IN ARCHAEOLOGICAL SCIENCE @BIOARCH

July 24, 2015 Alice Toso Environmental Archaeology, Explore  
Posts, Science #dayofarch, BioArCh, Bioarchaeology, medieval Portugal, Stable isotopes, University of York

On occasion of the Day of Archaeology 2015, I decided to take on the challenge of describing a typical day in the labs of [BioArCh](#).

BioArch is a research group within the [Department of Archaeology](#) at the University of York that includes a wide range of expertise in human palaeoecology, paleodiet and environmental archaeology, with specific focus on the analysis of proteins, lipids, DNA and stable isotopes, human and other mammal and bird bones, molluscs, soils, microscopic remains of plants and animals.

The work in the lab is very varied and this video shows a part of my daily routine as a PhD student in Bioarchaeology. My project aims to reconstruct diet and food consumption in the multi-faith society of medieval Portugal, in which Muslims, Christians and Jews lived together for seven centuries. The main objectives are to identify if contemporaneous communities of Muslims and Christians showed different diets and if their diets changed after the Christian conquest of Portugal, completed in the 13th century. This project is included in a wider network researching the relation between food and faith. To know more about the project and the network, have a look on our [blog](#).

In order to reconstruct the diet of past populations, small samples of bone are collected from human and animal skeletons. The next step is to extract the collagen from the bones. Once extracted, the collagen is then analysed and run through a machine called IRMS (isotope-ratio mass spectrometer) that provides the ratios of the stable isotopes of Carbon ( $\delta^{13}\text{C}$ ) and Nitrogen ( $\delta^{15}\text{N}$ ). The values of C and N inform on the consumption of meat, marine or river fish, and different types of plants (C3 vs C4).

The protocol for collagen extraction is composed of several steps. In this video I am cleaning a rib with a scalpel to get rid of the dirt on the surface (0:56), collecting some samples from the cold room that underwent demineralisation over night (1:19), rinsing the samples with water (1:48), making up a solution to favour the gelatinisation of the samples (1:59) and putting the samples in the oven where the gelatinisation is undertaken (2:16). In the last scene (2:25) I collect another batch of samples where gelatinisation was complete.

At this point the samples are half way through the protocol and a few more days will be necessary to get them ready for the analysis in the IRMS!

I hope you enjoy the video and hopefully it will give you an idea of what is going on in the lab.

If you fall in love with this video and can't help sharing it, click [here](#).

