

PhD studentship in Biogeochemistry

Investigating the routing of hydrogen from water and feed to ruminant tissues

Main supervisor: Dr Mélanie Roffet-Salque
Organic Geochemistry Unit, School of Chemistry, University of Bristol

This fully-funded 4-year PhD studentship is a unique opportunity to carry out interdisciplinary research at the University of Bristol. This studentship is funded by a Royal Society grant to enhance Dr Mélanie Roffet-Salque's Dorothy Hodgkin Fellowship.

Project Description

Although the expression of the soil water stable isotope signal in plants has been studied in detail, surprisingly few studies have investigated the relationships between the hydrogen (H) signals of plants and higher animals. No systematic study of the relationships between water, feed and animal tissue H signals have been carried out at a molecular level on ruminants or any other mammals.

The overarching aim of this PhD studentship is to gain fundamental insights in the routing of H from feed and drinking water to ruminant tissues at the molecular level. An isotopic labelling experiment will be carried out on ruminants using deuterium-labelled water as a tracer and the composition of lipids determined using gas chromatography-thermal conversion-isotope ratio mass spectrometry (GC-TC-IRMS). This feeding experiment will be carried out in collaboration with the North Wyke Farm Platform. This novel approach will be complemented by the study of tissues from ruminants from pre-existing herds from the World University Network (WUN) Global Farm Platform.

The study of modern systems will change our understanding of water use in biochemistry and animal energetics, provide information about animal adaptation to warmer climate. This study will enable the calibration of a novel proxy for the reconstruction of site-based palaeoclimate records using animal fats preserved in archaeological pottery vessels.

You will become a member of the Organic Geochemistry Unit at the University of Bristol and work in close collaboration with the Bristol Veterinary School and Rothamsted Research at North Wyke (which includes the BBSRC North Wyke Farm Platform National Capability). You will have a supervisory team that will include researchers from both Schools at the University of Bristol.

How to apply

Please make an online application for this project using the postgraduate application system <http://www.bris.ac.uk/pg-howtoapply>. You will be prompted to enter details of the studentship in the Funding and Research Details sections of the form.

Candidate requirements: Candidates should possess a degree in a relevant subject area, such as a 2:1 or higher in chemistry, animal science, or a related discipline aligned to the studentship.

We encourage you to make an informal enquiry to Dr Mélanie Roffet-Salque (melanie.salque@bristol.ac.uk) if you have any queries or would like to discuss the project.

Closing date: 29/03/2019

Funding Notes

Successful applicants will receive a studentship to cover UK/EU tuition fees, a stipend (£14,777 p.a. for 2018/19, updated each year), travel funds and a research allowance for 4 years.