

JOB DESCRIPTION

Job Title:	Postgraduate Research Fellow in Flavour Technology	Grade:	AC1
Department:	Food & Markets, Natural Resources Institute	Date of Job Evaluation:	Oct 2023
Role reports to:	Head of Medway Food Innovation Centre	SOC Code:	
Direct Reports			
<p>This role profile is non-contractual and provided for guidance. It will be updated and amended from time to time in accordance with the changing needs of the University and the requirements of the job.</p>			

PURPOSE OF ROLE:

The Natural Resources Institute (NRI) of the University of Greenwich is part of the project **PROFILE** (*Protein Recovery for Food using Ionic Liquid Extraction*), funded by Innovate UK, which will develop a novel approach to microalgae protein production. Besides NRI, the other partners of this project are London-based biotechnology start-up Arborea Ltd. (the industry lead) and Imperial College London (ICL). By 2050, the world will need to produce twice as much protein as it does today to feed its population and meeting this demand through the emission intensive animal agriculture would require 25,000 km² grazing land for cattle, for example, or 2,000km² of soya plantations, neither of which is sustainable. Arborea has patented technology to harvest microalgae which can produce 100x more protein per hectare than imported soy. Thus, incorporation of algal ingredients into human food systems has gained increased attention in recent years, with the significant interest in alternative proteins for use in foods. The protein fraction needs to be extracted from algal biomass and get rid of the off flavour to be used for the downstream food production. However, the conventional protein extraction methods for microalgae are expensive, somewhat unsustainable, and relatively less efficient. Thus, innovative extraction methods will be applied to produce algal protein extract through a low-cost, environmentally friendly process. Using University of Greenwich's state-of-the-art flavour analysis facility at the Medway Food Innovation Centre, the flavour profile for different batches of microalgae harvested will be assessed to identify key off-flavour compounds and accordingly flavour masking technology will be developed.

PDRA, Flavour Technology workplace: Medway Food Innovation Centre (MFIC)

As part of the GK&M project, the University of Greenwich has set up the Medway Food Innovation Centre (MFIC). This state-of-the-art facility aims to deliver step-changing research on alternative protein, provide R&D solutions for food industries via enterprise support as well as conduct excellent training and courses on novel food product and process technologies. MFIC is equipped with the advanced flavour analysis platform consists of automated sample preparation unit (Centri) with

robotic sampling facility attached to the two-dimensional gas chromatography coupled with Time-of-FlightMass spectrometry (GCxGC-ToF MS), hitherto not available in the campus. This high-end facility will be extensively used in the PROFILE project to assess the flavour profile of algal samples and related volatile analysis to support novel extraction method for algal proteins. With support from the GK&M project as well as Food Processing and Innovation (FPI) research group within NRI, the successful candidate will have the responsibility to deliver Innovate UK funded project PROFILE as well as contribute to the flavour technology related research on plant/algal proteins at the MFIC. Together with the newly appointed Flavour Technologist at MFIC, PDRA will ensure that this GCxGC-ToF MS facility is seamlessly operational, besides, work closely with food process scientist and the MFIC head to carry out research on understanding flavour components in plant/algal protein-based foods. Besides, the PDRA will also partially support developing technical solutions for flavour challenges related to the new product development by food businesses involved within the Food Accelerator programme.

The role itself will:

- In charge of delivering NRI owned KPIs for PROFILE project
- Share with Flavour Technologist the responsibility for overall management of GCxGC-ToF MS which includes upkeep/maintenance.
- Retain and grow flavour science expertise at MFIC and support relevant food innovation projects
- Lead cutting edge basic and applied research on alternative protein which are linked to the flavour analysis, deliver enterprise/corporate projects, and involve in (student) training.
- Maintain and implement NRI's QMS procedures and work instructions as well as responsible for ordering consumables for the GC-MS, overseeing installation where required.

KEY ACCOUNTABILITIES:

With support from the GK&M project team within NRI, the successful candidate will be the work package lead for flavour analysis to deliver the PROFILE project within the Food and Market Department, University of Greenwich, and the maintenance of GCxGC-ToF MS.

The successful candidate should have proven experience of working with GC-MS/GCxGC-ToF MS facility (prior knowledge of the flavour analysis is essential) with at least MSc level in food/flavour science background.

Team Specific:

- Act as research lead for flavour and volatile analysis needed for PROFILE project which includes responsibility for performing research, reporting the project progress and regularly attend project meetings, related company visits etc.
- Maintaining/handling/(basic) trouble shooting of GCxGC-ToF MS
- Operate as MFIC contact for the supplier (shared responsibility with the Flavour technologist) about the GCxGC-ToF MS for maintenance and schedule routine check-up (e.g., equipment performance) during warranty period.

- Train MSc students with instrument operation and help with designing flavour analysis experiments for MSc thesis projects.
- Gain industrial research experience via working with the participating businesses on flavour and sensory analysis and/or helping with the technical feasibility studies.
- Help MFIC Head to develop and deliver relevant CPD courses on flavour technology.

Generic:

- Provide flavour research support to develop bid for external grant applications.
- Ensure routine procedures are performed for GCxGC-ToF MS according to schedule, e.g. calibration and monitoring etc.
- Contribute to departmental plans, activities, and efficient working practices.
- Assist in achieving the research KPIs of the MFIC and Natural Resources Institute
- Demonstrate a commitment to equality, diversity and inclusion.
- Contribute to the flavour analysis CPD development activities.

Managing Self:

- Well-developed communication and presentation skills
- Successful research skills with a high level of competency using equipment.
- Maintain own continuous professional development (CPD)
- Able to prioritise individual and project workloads and meet competing deadlines.
- A methodical approach to tasks with attention to detail and ability to analyse problems.
- Behave in a manner which reflects the University values and creates a positive environment for work and study.

Core Requirements:

- Adhere to and promote the University's policies on Equality, Diversity and Inclusion and Information Security;
- Ensure compliance with Health & Safety and Data Protection Legislation;
- Support and promote the university's Sustainability policies, including the Carbon Management Plan, and carry out duties in a resource efficient way, recognising the shared responsibility of minimising the university's negative environmental impacts wherever possible.
- Adhere to current legal requirements and best practice relating to digital content and accessibility, including Web Content Accessibility Guidelines when creating digital content.

Additional Requirements:

Undertake any other duties as requested by the line manager or appropriate senior manager, commensurate with the grade.

This is a professional, demanding role within a complex organisation with an ambitious strategic plan and agenda for change. The role holder will be expected

to show flexibility in working arrangements, including working hours, to ensure that the Natural Resources Institute delivers the required level of service.

KEY PERFORMANCE INDICATORS:

- Produce and deliver work and set tasks to agreed timescales.
- Demonstrate technical Knowledge in the field of flavour and sensory analysis.
- Contribute to team effectiveness and wellbeing.
- Comply with corporate standards.

KEY RELATIONSHIPS (Internal & External):

Internal

- MFIC Head
- Head, Food and Markets Department
- NRI academic and support staff
- Faculty and University wide collaborations

External

- Project partners and collaborators within PROFILE project
- GK&M Innovation Growth Managers
- Private sector actors
- Relevant professional bodies in the field.

PERSON SPECIFICATION

Essential

Experience

- Knowledge and experience in the field of food and flavour analysis
- Technical and operational capability of GC-MS or GCxGC-ToF-MS
- Demonstrated capability in the data analysis of GC-MS
- Knowledge about sensory analysis for plant/algae-based food
- Perform flavour research and preferably some exposure to the industry collaboration.
- Evidence of teamwork to deliver high quality analytical outputs against strict targets.

Desirable

Experience

- Direct experience in handling and independently operating GCxGC-ToF-MS
- Demonstrated capability in the data analysis of GCxGC-ToF MS (preferably Markes/SepSolve)
- Experience in setting up sensory panelling and data analysis.
- Experience working with industries.
- Demonstrated contribution in publications and report writing.
- Support postgraduate teaching programmes and experience in

<p>Skills</p> <ul style="list-style-type: none"> • Proven ability to operate GC-MS or GCxGC-ToF MS and strong background in flavour science. • Proven ability to work with sensory panel and use of statistical software. • Proven ability to manage own workload. • Excellent oral and written communication skills and computer literacy e.g. MS Office <p>Qualifications</p> <ul style="list-style-type: none"> • PhD in food science or flavour science or closely related field(s) like analytical chemistry <p>Personal attributes</p> <ul style="list-style-type: none"> • We are looking for people who can help us deliver the values of the University of Greenwich: Inclusive, Collaborative and Impactful 	<p>providing training on 2D GC-ToF-MS</p> <p>Skills</p> <ul style="list-style-type: none"> • Experience of working with GCxGC-ToF MS (operational knowledge of SepSolve/Markes software) • Experience of the maintenance of GCxGC-ToF MS • Experience of maintaining research facilities to a required standard • Experience of industry collaboration in analytical chemistry/flavour technology <p>Qualifications N/A</p> <p>Personal attributes N/A</p>
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