University of Nottingham
UK | CHINA | MALAYSIA

Role profile

Job title	Research Associate/Fellow in Continuous Production of Terpene Esters from Flower Waste	Job family and level	R&T Level 4a /4 Training Grade / 4 (Research Focus)
School/ Department	Faculty of Engineering – Department of Chemical and Environmental Engineering	Location	Chemistry 09, University Park

Purpose of role

The aim of this project is to investigate the potential of flower waste as an alternative feedstock to produce terpene-based chemicals. This will involves using flower extracts from waste flower streams obtained from Bridge Farm (horticulture farm in Spalding) as starting material to enzymatically produce terpene esters. The reaction scale-up will then be tested in a spinning mesh disc reactor. Reaction kinetics will be established for both batch and continuous systems. The experimental data will contribute to developing an initial techno-economic evaluation to test the feasibility of utilising flower waste as feedstock.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	**% time per year**
1	a) Develop chemo and enzymatic protocols to selectively synthesise terpene esters from the flower extracts b) Assist reaction scale-up in a continuous reactor configuration c) Provide experimental data for an initial techno-economic analysis	70%
2	Production of reports, publications, presentations and travel to collaborators site for collaborative work (UK-based), scientific meetings and/or outreach to the industry, scientific community and general public.	10%
3	Liaison meetings with partners.	10%
4	Supervision of MEng project and PhD students.	5%
5	Any other duties appropriate to this post as required by their line manager.	5%

Person specification

	Essential	Desirable
Skills	• Adequate skills in synthesis and characterisation of terpene-based materials including experimental design and data analysis • Ability to perform conventional solvent based extraction from biomass • Strong organizational skills and project management. • Excellent communication and presentation skills • Effective laboratory note taking and logging experiments and data	• Training in health and safety/risk assessment. • Skills in writing bids for research grants.
Knowledge and experience	• Ability to work independently and as part of a wider team • Experience of publication of academic journal papers and reports. • Demonstrated creativity and leadership in problem solving. • Experimental design, taking measurements, interpretation and analysis.	• Liaising with external partners. • Designing, building or maintaining equipment. • An interest in process life cycle assessment of novel reaction systems
Qualifications, certification and training (relevant to role)	• PhD (or be about to obtain) or equivalent in Chemistry or Chemical Engineering or similar Science / Engineering degree.	• PhD or equivalent with background in terpene-based chemistry

Athena SWAN Silver Award

The University strongly endorses Athena SWAN principles, with commitment from all levels of the organisation in furthering women's careers. It is our mission to ensure equal opportunity, best working practices and fair policies for all.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people	Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
Taking ownership	Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
Forward thinking	Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
Professional pride	Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
Always inclusive	Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others