

Postgraduate Scholarship Information Sheet

Scholarship Project Title	Innovative approaches to valorise oats processing side streams
Advert Reference number	WD_2024_04_SPONS
Supervisor(s)	<i>Dr. Shikha Ojha (SETU Waterford)</i> <i>Prof Brijesh Tiwari (Teagasc)</i>
Research Group	<i>Eco-Innovation Research Centre</i>
Department /School/Faculty	<i>Department of Land Sciences, School of Science and Computing</i>
Duration	4 Years/48 Months
Status: Full-time / part-time	Full Time
Funding information	Teagasc Phd Walsh Scholarship
Value of the scholarship per year for four years	Stipend: €25,000 per annum Fees of €5,750 per annum Research costs: €5,000 per annum
Closing date and time	Wednesday 9th October 2024 at 4PM Irish Time
Interview date	To be confirmed
PhD commencement date	To be confirmed

Project Key Words: *Oats processing, Waste valorisation, Extraction techniques*

Post summary

The PhD Scholarship is a joint research project between the Teagasc National Prepared Consumer Centre of Food Industry Department, Ashtown, and the department of Land Sciences within School of Science and Computing at South East Technological University, Waterford.

This project focuses on novel technologies to optimise oats valorisation. Oats provide numerous documented health and nutritional benefits through their unique soluble fibres (beta glucan) and antioxidants (avenanthramides). Approximately 40% of the Irish crop (160,000 tonnes pa) is milled for human consumption, farm gate value is estimated to be around €40 million. Because oats have a high disease resistance and low fertilizer demand it is well suited for Organic production, they have a low carbon footprint, and fit well with the Government's policy of encouraging sustainable biodiversity. Irish Government policy is rapidly moving towards achieving a 'circular economy'. Therefore, the project intends to be the first project to close the circle in the oat food chain, from Farm to Health. The project will create new value streams by valorising oat milling waste to produce beta-glucan, vanillin, and antioxidants, etc. The project aims to employ key platform extraction technologies with a proven track record to enhance extraction yield and are environment friendly. Recently, new techniques such as ultrasound assisted extraction (UAE), enzyme-assisted and microwave-assisted extraction (MAE) have been applied to the extraction of functional compounds. In particular, the application of ultrasound as a laboratory-based technique for assisting

extraction from plant material is widely published. Compared to MAE, UAE will eventually be simpler, faster, and is not restricted by the solvent and type of matrix used, or by the moisture content. The combination of various methods will allow optimising the process yield. However, the scale up to industrial applications, as planned in this project, still needs to be explored and optimised and represents a major step beyond the state of the art with respect to the utilisation and exploitation of sustainable oats derived biomolecules in a real-life scenario.

Knowledge & Experience

Essential

- First or upper second-class primary degree or equivalent in a relevant discipline (Food Science, Food Engineering, Agricultural Science, Biological Sciences, etc.).
- The candidate should be enthusiastic and self-motivated

Desirable

- M.Sc. in a relevant discipline (Food Science, Food Engineering, Agricultural Science, Biological Sciences, etc.).
- Knowledge and previous relevant work experience
- Capability of working both independently and collaboratively as part of a team.

Skills & Competencies

Essential

- Applicants whose first language is not English must demonstrate on application that they meet SETU's English language requirements and provide all necessary documentation. See Page 7 of the Code of Practice
- In order to be **shortlisted for interview**, you must meet the SETU English speaking requirements so please provide evidence in your application.

Further information

For any informal queries, please contact Dr. Shikha Ojha on email shikha.ojha@setu.ie.

For queries relating to the application and admission process, please contact the Postgraduate Admissions Office researchadmissions@setu.ie or telephone +353 (0)51 302883.

For queries relating to the funding programme, please email scholarships2024@setu.ie
University Website <https://www.setu.ie/>

Application procedure

Download the application form from the SETU Website and return the completed application to researchadmissions@setu.ie quoting WD_2024_04_SPONS in the email subject line.

Please note that paper submissions will not be accepted.

The University may decide to interview only those applicants who appear from the information they provided, to be the most suitable in terms of experience, qualifications and other requirements of the post.

The University will short-list and interview those applicants who provide the most suitable information in terms of experience, qualifications and other requirements relevant to the scholarship.

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