TEAGASC PHD WALSH SCHOLARS OPPORTUNITY

"'Emulsion-based formulations containing newly-discovered bacteriocin producers as probiotics for treating bovine mastitis.'

Walsh Scholars Ref Number 2025002

Background

Bovine mastitis is a common disease which affects dairy cattle and aside from causing discomfort and malaise in cows, it also results in financial losses for farmers due to costs associated with antibiotic treatment, discarded milk and potential culling after treatment failure. The disease occurs due to infections caused by bacteria such as *Staphylococcus aureus*, *Streptococcus agalactiae*, *Streptococcus uberis*, which results in inflammation of the infected quarter. Although antibiotic treatment has proven to be effective in many cases, recent trends in development of antibiotic resistance and treatment failure means that we must find alternative solutions to treat this disease. Recent field trials that we have conducted using emulsion-based formulations containing live cells of a safe food-grade bacterial strain, *Lactococcus lactis* DPC3147 have demonstrated varying degrees of cure rates for mastitis. Here, we aim to improve mastitis cure rates by evaluating a recently-discovered food-grade *Lactococcus raffinolactis* strain in such formulations. This strain produces an antimicrobial raffinocyclicin, with potent activity against *S. aureus*. Furthermore, we aim to test another *L. lactis* strain which produces a separate antimicrobial with enhanced activity against the aforementioned pathogens. This project will contribute to answering scientific questions which may result in using these formulations instead of antibiotics.

Requirements

Applicants should have a 1H or 2H1 BSc degree in an appropriate discipline (Microbiology, Food Science or related disciplines). Although not a strict requirement, candidates with an MSc qualification and/or previous laboratory experience would have a distinct advantage. The successful candidate should be highly motivated with enthusiasm to develop technical skills across a range of disciplines. A minimum level of competency in English is required. Please see the following link with regard to English Language requirements (https://www.ucc.ie/en/study/comparison/english/).

Award

This PhD Walsh Scholarship is a joint research project between Teagasc and University College Cork (UCC). The student will be registered at UCC, where the structured PhD programme is 4 years duration. As part of this structured PhD programme, the student will be required to enrol for a total of 15 credits of courses/modules during the 4 years, which will provide an opportunity for the student to become proficient in scientific writing, communication/presentation skills, biostatistics, amongst other such relevant modules. The scholarship funding is €31,000 per annum and comprises of University fees of up to a maximum of €6,000 and flat rate stipend of €25,000 is tenable for 4 years.

Further Information

Dr Harsh Mathur (harsh.mathur@teagasc.ie) or Prof Paul Ross (paul.ross@ucc.ie)

Application Procedure

Application Procedure: Please submit an electronic copy of Curriculum Vitae to Dr Harsh Mathur (harsh.mathur@teagasc.ie)

Closing date

Friday 11th July at 5.00pm