

Title - Waste stream mining for novel antimicrobial agents from Algal oil production

Applications are invited for the following DfE CAST studentship (Co-operative Awards in Science and Technology). The project available is in the Biomedical Sciences Research Institute and is tenable in the Faculty of Life and Health Sciences at Coleraine Campus.

Project Summary:

Algal biomass is known to contain a variety of compounds that may have advantage in food applications¹ including, most relevant to this work, a range of (poly) phenolic compounds²⁻⁴. Such compounds have potential for inclusion as natural product antimicrobials and antioxidants in Rich Sauce systems, thus enabling the company to produce ingredients without artificial additives.

The aim of this CAST PhD project is to bio-mine an otherwise redundant waste stream by extracting (poly)phenolic compounds from the defatted microalgal biomass, and subsequently characterise these mixtures for composition, antimicrobial and antioxidant activity *in vitro*^{5,6,7} prior to their incorporation into new product lines and subsequent testing in product efficacy testing. Training will include, experimental design, statistical analysis, and critical thinking, as well as in basic microbiology, analytical chromatography, molecular biology, microscopy/immunostaining, nucleic acid extraction/qRT-PCR, post genomic analyses and data interrogation/pathway reconstruction using bioinformatics as well as the intricacies of New Product Development within a food production company.

Entrance Requirements:

Applicants should hold ordinary UK residence to be eligible for both fees and maintenance. Non UK residents who hold ordinary EU residence may also apply but if successful will receive fees only. All applicants should hold a first or upper second class honours degree in Biology, Biomedical Sciences, Nutrition or a related discipline. Successful candidates will enrol as of the 1 April 2017 on a full-time research programme, of up to three years' subject to satisfactory progress, leading to the award of the degree of Doctor of Philosophy.

The studentship will comprise tuition fees and a maintenance award (subject to UK residence status) of not less than £15,057 per annum, funded by DfE (the Department for the Economy) and Rich Sauces Ltd.

If you wish to discuss your proposal or receive advice on the research project please contact: Dr C Gill tel: ++44 (0)28 7012 3181 email: C.Gill@ulster.ac.uk

Procedure

For more information on applying go to ulster.ac.uk/research
Apply online ulster.ac.uk/applyonline

The closing date for receipt of completed applications is Tuesday 31st January 2017

Interviews will be held in February 2017

1) Mihaylova Nat Prod Res. **2014**;28(22):2000-2005 2) Hygreeva, Meat Sci. **2014**; 98(1):47-57. 3) Daglia, Curr Opin Biotechnol. **2012**;23(2):174-81. 4) Wijesinghe, Int J Food Sci Nutr. **2012**, 5) Koivikko, J Chem Ecol. 2005, 31(1):195-212 6) Gill, J Agric Food Chem. 2010; 13:58(19):10389-95 7) McDougall, J Agric Food Chem. 2014,62(30):7631-41