

PhD Project Advertisement

Project title: Designer plant burgers – use of targeted biochemistry and chemistry to generate flavour (taste and aroma) during extrusion of plant protein

Project No: FBS2022-03-Fern-br

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Project description:

This is an exciting opportunity to work at the interface of engineering and flavour science to develop and improve the taste of plant-based meat products, providing tasty and sustainable alternatives for flexitarian and vegetarian consumers. The interdisciplinary supervisory team comprises academics from their respective centres of expertise (Wolfson Centre for Sustainable Materials Development and Processing at Brunel and The Flavour Centre at the University of Reading) and is supported by Unilever.

Although meat consumption has decreased by 17% over the last decade, the recent National Food Strategy recommends a further drop in 30% by 2032 to meet health, climate and environmental commitments. In order to achieve these targets, the development of sustainable nutritious and tasty non-meat-based alternatives to proteins is essential, and a market for meat mimics driven mostly by flexitarian consumers has evolved. However, achieving a credible and sustainable meaty flavour that persists throughout the whole eating experience is still a challenge for industries producing affordable plant-based protein alternatives for every-day use. The amino acid profile of pea protein isolate (~70% protein) meets the nutritional requirements as recommended by the WHO/FAO/UNU, providing a sustainable and nutritionally balanced alternative to meat protein.

You will develop a sustainable, nutritious tasty plant burger with fresh long-lasting meaty aroma using extrusion technology. You will investigate several different enzymes and different extrusion process conditions to generate the required taste, aroma and texture. You will carry also out chemical, nutritional and sensorial analyses on the plant burger products in laboratories at both Universities.

Training opportunities:

Both Universities will provide research training, technical and academic support. You will develop transferable skills through engaging with Unilever and spend at least three months in their industrial sites during the final year. You will also follow the graduate school training at Brunel University in addition to skills training provided as part of the DTP.

Student profile:

The studentship is available only to individuals who are eligible for home student fees status. Applications are welcome from candidates with a minimum 2:1 honours degree in Food Science/ Engineering/Technology, Chemical or Process Engineering or equivalent qualification(s). Students should be keen to engage with the interdisciplinary and applied nature of the project, but we do not expect applicants to have expertise in all aspects as full training will be given.

Stipend (Salary):

FoodBioSystems DTP students receive an annual tax free stipend (salary) that is paid in instalments throughout the year. For 2022/23 this will be £18,062 (including London allowance) and this will increase slightly each year at rate set by UKRI.

For up to date information on funding eligibility, studentship rates and part time registration, please visit the [FoodBioSystems website](#).

Equality Diversity and Inclusion:

The FoodBioSystems DTP is committed to equality, diversity and inclusion (EDI), to building a doctoral researcher (DR) and staff body that reflects the diversity of society, and to encourage applications from under-represented and disadvantaged groups. Our actions to promote diversity and inclusion are detailed on the [FoodBioSystems DTP website](#).

In accordance with UKRI guidelines, our studentships are offered on a part time basis in addition to full time registration. The minimum registration is 50% FT and the studentship end date will be extended to reflect the part-time registration.