

PhD studentship: Developing tools for pesticide detection and toxicity testing in soils and floral resources for bees

We are seeking applicants with a Bachelors/Masters degree (2.1 or higher) in analytical science, environmental science, agricultural science, or similar, preferably with field and laboratory experience (*e.g.* in soil sampling, chemical analysis via GC-MS and HPLC-MS, etc.). The successful candidate will have excellent team-working, communication and analytical skills, and a full clean driving licence, valid for the Republic of Ireland.

The PhD student will be registered in Dublin City University, supervised by Blanaid White (DCU) and Jim Carolan (MU), and work as part of a collaborative team within the Irish Pollinator Research Network.

A studentship of €18,000 per annum, plus fees costs to a maximum of €6,000 per annum, is available for 4 years from 1st September 2018.

To apply: please send letter of application, outlining suitability for the post, and a CV including the names of 2-3 referees, to Blánaid White, Blanaid.white@dcu.ie, before 25th July 2018, marking applications DAFM_PROTECTS for ref.

Project description:

This position will form part of the PROTECTS (Protecting Terrestrial Ecosystems Through Sustainable Pesticide Use) project, funded by the Irish Department of Agriculture, Food and the Marine under their Research Funding programme. The successful candidate will join the dynamic and interdisciplinary PROTECTS team consisting of researchers from Trinity College Dublin, Maynooth University, Dublin City University, Teagasc and University College Dublin. PROTECTS will provide baseline information in an Irish context to build towards mitigating the effects of pesticide use on terrestrial ecosystem services, focussing on pollinators and soils. Our findings will help to ensure that pesticides can be used safely while protecting wildlife, health and the environment, both in Ireland and internationally.

In this PhD project, we will collect soil samples from sites across Ireland and characterise these soils in terms of their physical and chemical properties, and their microbial communities. We will develop methods to extract pesticide residues from these soils, and analyse these extracts using GC-MS and HPLC-MS methodologies to determine which pesticide residues are present, and at what concentration. The extracted pesticide residues will also be used to determine their impact on pollinator species. We will also use the developed analytical tools to determine what pesticide residues are present in associated floral resource matrices for bees, in particular nectar and pollen. Finally, we will also develop a soil toxicity biosensor and apply this to screen the soil extracts.