

The impact of organic matter on heavy metal bioavailability in urban soils: experimental and field-based approaches

Project description

Heavy metal (HM) contamination in urban soils is a major global geohazard, but data on this issue in Ireland is lacking, particularly the extent to which the amount and type of soil organic matter affects the bioavailability and chemical state of HM. The proposed research will resolve these issues using a powerful dual approach combining the first systematic survey of urban soils in southern Ireland, focussing on soils in recreational areas, and innovative laboratory experiments exploring the impact of different sources of organic matter on heavy metal solubility, oxidation state and local chemical environment. The study will provide baseline data on the extent and toxicity of HM contamination in Irish urban recreational soils, guiding planning and bioremediation, and will serve as a platform for developing research capacity on the fate of HM in the geosphere. Diverse dissemination activities will ensure visibility of the research amongst academics, policymakers and the public.

Person specification

The successful candidate will have a high 2:1 or 1:1 BSc in Geology or a related field. Ideally, he/she will be able to demonstrate laboratory skills and experience and be comfortable with inorganic and organic chemistry. He/she will be a good communicator and will demonstrate competency and familiarity with basic office packages and statistics. He/she will be willing to work independently and as part of a team working on similar problems.

University College Cork

The School of School of Biological, Earth and Environmental Sciences (BEES) at UCC is a very friendly, research-active environment with multiple groups working on projects relating to geoscience and the environment. The PI's research group includes four other PhDs and postdoctoral researchers working on trace metal chemistry, so the successful candidate will have excellent peer support within the research group. The School has several regular discussion meetings for research, including the PI's group, the broader iCRAG group, and the BEES Research Club. There is a vibrant community of PhD students and postdoctoral researchers that run regular social events in addition to Research Club.

Contact information

Informal queries are welcome.

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