

The GRTA Microplastics project sends analysis kits to Malaysia

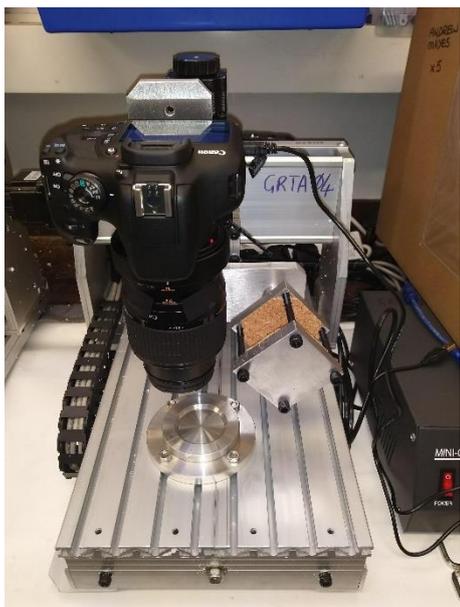
In January 2020 the Global Research Translation Award (GRTA) Microplastics project sent 10 flight cases of analytical equipment from UEA to Malaysia. During 2020 the project partners will establish a microplastic monitoring network in Malaysia, to get a better understanding of microplastic pollution, and in turn to influence environmental policy.

What are microplastic analysis kits?

Dr Andrew Mayes and his team have been working over recent year to develop a low cost methodology to measure levels of microplastic pollution. The rapid analysis technique is based on staining microplastic particles with a fluorescent dye, which makes them stand out from the background of other materials when illuminated under specific lighting conditions. When coupled with simple imaging instruments, this methodology provides a complete analytical solution for laboratories with basic facilities. The kits can be used to measure levels of microplastic pollution in a range of samples, from drinking water to marine sediments.

- Watch [a short video about the methodology](#)

Andrew realised this new methodology would mean a step-change for microplastic monitoring globally. Previous methodologies were either very crude and ineffective, or extremely slow and requiring complex, expensive spectroscopic instrumentation, and hence not widely available in the countries where plastic pollution is a key issue (principally South East Asia). Andrew published the methodology in 2017, open access and patent-free, to make it easy for the global community to use.



The imaging part of the analysis kit.

The GRTA Microplastic project

The Global Research Translation Award (GRTA) project is funded from the UK government's Global Challenges Research Fund (GCRF) Innovation and Commercialisation Programme, developed to fast-track promising research findings into real-world solutions. UEA is leading a £1.36 million project to help tackle health, nutrition, education and environment issues in developing countries.

One of the GRTA sub-projects is working with Andrew to set up a microplastic monitoring network in Malaysia. Andrew has been working with a GCRF Research Fellow, Dr Yet Yin Hee from Malaysia, which created an opportunity to develop a partnership with the Universiti Malaysia Terengganu and the Swinburne University of Technology in Sarawak.

Preparing and sending the kits

All the action on the GRTA microplastic project up to January 2020 happened at UEA. Yet Yin Hee and Andrew built and tested the five analysis kits, trying to re-use equipment where possible to reduce the environmental impact of the project and to keep with the low-cost spirit of the methodology. Christine Cornea, a Lecturer in Film, Television and Media, and her Research Associate Alex Smith, have been creating a video tutorial for using the analysis kit. This is being translated into Malay and will be available for the partners in Malaysia to receive instruction in how to use the equipment.

By mid January, the video had been edited and the final tests and calibrations of the five analysis kits were completed. The team were ready to pack the kits and send to Malaysia. Much simpler to write than to do!

The analysis kits contain a fair amount of glass components and fragile instrumentation. Andrew ordered ten sturdy flight cases and copious amounts of plastic bubble wrap (the irony was noted!). The team spent many hours organising the documentation required for a gift of scientific equipment to an overseas country, and a courier picked up the crates on 15 January.



The GRTA team pack the analysis kits.

What happens next?

Dr Yet Yin Hee has returned to Universiti Malaysia Terengganu and is developing connections with potential partners for the West Malaysian microplastic network. Dr Moritz Mueller at Swinburne University of Technology in Sarawak is training up students to carry out microplastic monitoring projects, and connecting with organisations for an East Malaysian microplastic network. Andrew visited Malaysia in February 2020 to provide training to both institutions, and hosted a workshop to plan aims and objectives for the Malaysian microplastic network. Christine and Alex will visit Malaysia in May to create a film about microplastic pollution in Malaysia, which will be used to raise awareness in the country and inform government departments.



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